

IoT based Smart Health care system monitoring using Machine Learning Techniques

Naga Swathi Tallapaneni¹, M.Jayanthi², Megala Venkatesan³

Department of ECE^{1,3}, Department Of CS&I²

SRM Institute of Science and Technology^{1,3}, Mahatma Gandhi University²

Ramapuram Campus ,Chennai -600089^{1,3},Nalgonda²

ptnswathi@gmail.com¹, jayanthingu@gmail.com², megala95@gmail.com³

Abstract

IoT is beneficial in healthcare, where it has helped increase the quality of treatment. As the number of people with health problems rises, the patients are also more, it is more essential than ever to provide health care to everyone. People today are so preoccupied with their life that they neglect their health. The emphasis of this paper is on elderly healthcare since the biggest concern of parents is that their parents may get ill. They were in danger of losing their elders at any moment. Then, an experimental setup capable of monitoring the patient's health is designed and constructed. A commercial gadget has been discovered in this evaluation. Sensors monitors real-time data such as heart rate, oxygen levels, ECG, and so on. If something occurs to the patients, information will be sent to the smartphone app, which has already been downloaded. Then, as an example, do a field test for the information collected from the elderly patients is evaluated and delivered to a mobile device through a base station. Machine learning algorithm like random forest Algorithm is used to make predictions.

Keywords: *Internet of Things, Pulse Oximeter, Random Forest Algorithm, Machine Learning*

I. INTRODUCTION

In communication technology, the phrase "Internet of Things (IoT)" has lately gained popularity. It's been dubbed the "new frontier" since it's been developed in various methods. The Internet of Things (IoT) is poised to revolutionize many parts of our lives, as well as our globe. The Internet of Things has a global reach of more than 12 billion people. There are presently 1 billion gadgets that can connect to the Internet, but it is anticipated that there will be 2 billion by 2020. There will be 26 times more Internet-connected devices than humans [1]. Everything around us now can connect to the Internet and interact with other machines, from household lights and appliances to vending machines and automobiles. The Internet of Things (IoT) refers to physical devices that can interact with the Internet. These objects have sensors, microcontrollers, and network connectivity that allow them to

collect and analyse data. Every device also has a unique identifier (UID), which allows for communication. in a simple manner [2], such as machine-to-machine (M2M) communication, a tremendous amount of information is collected and stored in the cloud from devices all over the world. As a result, systems are being developed which will become more productive and intelligent.

Intelligent objects are created as a result of the Internet of Things, and they serve as future building blocks in the development of innovative cyber-physical universal frameworks. It is designed for billions of physical items or items outfitted with various sensors and actuators and connected via a network.

The Internet of Things (IoT) enables individuals to engage with many sorts of gadgets seamlessly. Medical sensors, monitoring cameras, household appliances, and other devices are examples of this application [3]. Keeping this in mind, we are all familiar with several IoT applications created, in - 8 - It uses sensor technology to link every material thing to the Internet devices [4]. The communication is helped by the sensors that have been put in the participating devices. Apparatuses To detect signals, sensors are essential. Sensors may now be found in various products: smart gadgets (phones, tablets, etc.), automotive systems, and other applications. Climate monitoring, industrial control, and healthcare are just a few examples. IoT has recently become increasingly fruitful in the field of healthcare

II. SYSTEM MODEL

The Internet of Things (IoT) is being integrated. As well as for elderly patients in healthcare, IoT may keep track of thousands of patients' data. There are different sensors needed to take input like body temperature sensor, ECG, Airflow, Pulse and oxygen sensor, and interfacing circuit also needed. Sensors are currently used in a wide range of applications, including smart devices (such as smartphones and tablets), automotive systems, climate monitoring, industrial control, and healthcare. Because of the growth in numerous health issues, individual health assistance should be regarded highly significant in today's environment. When the number of

patients increases, the number of physicians available decreases. As a consequence, some patients' diagnoses are delayed or neglected. Patients will become increasingly reliant on physicians for their check-ups as a result of this. The sensors help in accessing health-related information and help elderly people to save their lives. Keeping all of these difficulties in mind, healthcare institutions have begun to link with IoT to protect each patient's digital identity. Many health issues go unnoticed in the healthcare system due to a lack of doctors/caregivers and the inability to access healthcare services.

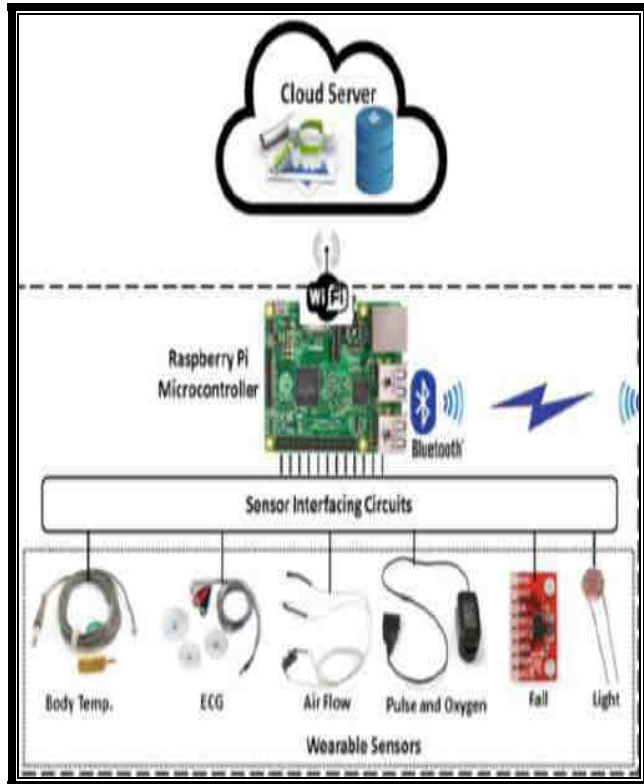


Fig.1. Disease monitoring Sensors for IoT

The system is electronic, allowing patients to enter data at any time. Figure 1 shows how to exchange data. Each individual must collect real-time data consistently to do so. These portable devices are available to the general public. . Most impoverished nations have inadequate healthcare infrastructure. They're being watched. The patient's health monitoring gadget is attached to him or her in such a way that at any moment, the doctor may check on the patient's condition. As far as IoT-assisted patients are concerned, The patient's health status may be adequately identified when accessible over the Internet. Ensure the appropriate steps are done communicating with the cloud. There are several health detecting devices. More portable components have been produced, allowing patients to wear them. If you're in good health, the sensing gadget is designed to work with mobile devices such as smartphones and tablets. etc., it is feasible to Communication gadgets are increasingly getting more affordable [5].

The healthcare business has made strides in recent years. Improved the consistency of patient treatment The data from the patients are examined in real-time. Doctors and caregivers may keep track of them using portable computers. Mobile applications have enhanced communication between doctors and patients. These programs are pretty helpful. The corporations created it so that physicians could keep track of the patient's health. If an issue arises, When the doctor notices that anything has happened to the patient, he or she visits the doctor and receives the required therapy. In particular, IoT integrates sensors, microcontrollers, and other devices to evaluate and transmit data in the healthcare area. Sensor data is sent to the cloud and subsequently to caregivers (doctors).

III. PROPOSED WORK

A. Overview

As a result of today's modern and hi-tech lifestyle, most individuals are developing heart disease, which comes as such a shock to a person that he or she may not have enough time to seek treatment. As a result, it is critical to perform a timely and early diagnosis, which is difficult for the medical community. The hospital's reputation and productivity may suffer as a result of inadequate and erroneous analyses. The project aims to develop a cost-cutting and effective strategy using data mining methods to improve DSS (decision support system). Predicting cardiac disease using a variety of attributes/symptoms is a difficult task. The current study employs - data mining classification methodology to accurately diagnose cardiac problems and, as a result, provide suitable therapy. The importance of monitoring various medical parameters in the post-operative period cannot be overstated. AES encrypts the records/data of the patients and saves them in a database [6].

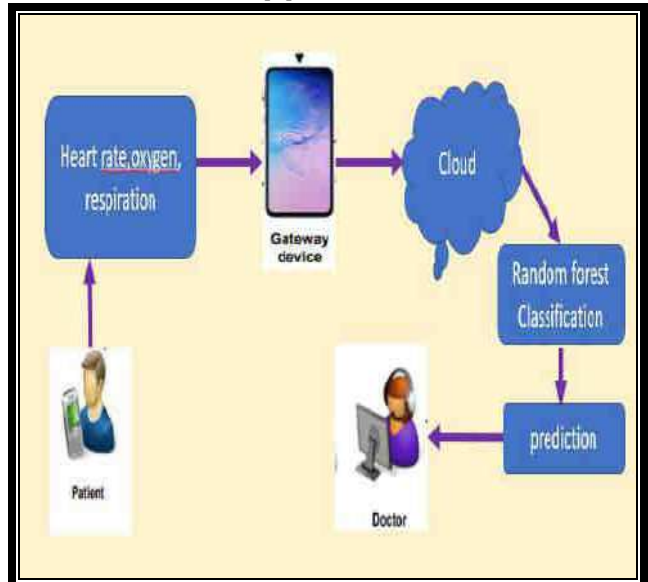


Fig.2. IoT framework for remote monitoring of Health care

The findings show that the diagnostic method developed accurately predicts the risk level linked with cardiac illnesses. Smart Health Care

Smart healthcare technology is one of the most rapidly developing technologies in today's healthcare system, and it has the potential to transform the industry. By using 'intelligent wearable devices, the data produced by patients may be sent to electronic devices or any health records, allowing physicians and caregivers to immediately monitor their patient's activities in real-time. These have the potential to lower healthcare expenses[7]. In the healthcare sector, several linked smart devices are already created and are now in use. Patients used to come to the doctor to discuss their respiratory problems, blood sugar levels, and other concerns back in the day. Nowadays, patients have access to wearable gadgets, smartphone applications, and sensors which they may use at home to collect all of the data and transmit it to the doctor, allowing the physician to observe the patients and provide the appropriate medicine in the event of a problem[8]. There are several personal gadgets, smartphone applications, and sensors that have been created. The majority of them are covered in detail in this section of the book. The treatment of illnesses is completed before they get out of hand because the patients are constantly watched and the caretakers or providers have access to real-time data that can be used to enhance disease management. The automatic information and smart monitoring that are controlled by the devices linked to the IoT, and the choices that are made quickly and simply based on deep analytics minimize the number of mistakes.

B. Machine Learning

Machine Learning is a set of computer algorithms that can learn from examples and improve themselves without the need for explicit coding by a programmer, and it is becoming more popular. Machine learning is a branch of artificial intelligence that integrates data with statistical techniques to anticipate an output that can be used to derive actionable insights. It is one of the most widely utilized branches of artificial intelligence. The breakthrough is based on the concept that a computer may learn only from data to generate correct results. Machine learning is strongly linked to data mining and Bayesian predictive modeling, both of which are used in healthcare. An algorithm is used to generate responses when data is received by the computer as input from the user[10].

C. Types of Supervised Learning

Supervised Learning is divided into two types classification and Regression. This Classification is having different types. Naive Bayes, K-Nearest Neighbors, Decision trees, Logistic Regression, Sentiment Analysis, Random Forest comes under decision trees which is a supervised Learning Technique. Classification is a Supervised Learning job in which the output is labeled according to the criteria (discrete value). Examples include the output – Purchased in Figure A above, which is labeled with one of two numbers, one meaning the client will buy and zero meaning the customer will not purchase. The objective, in this case, is to forecast discrete values belonging to a certain class and then assess the accuracy of the predictions.

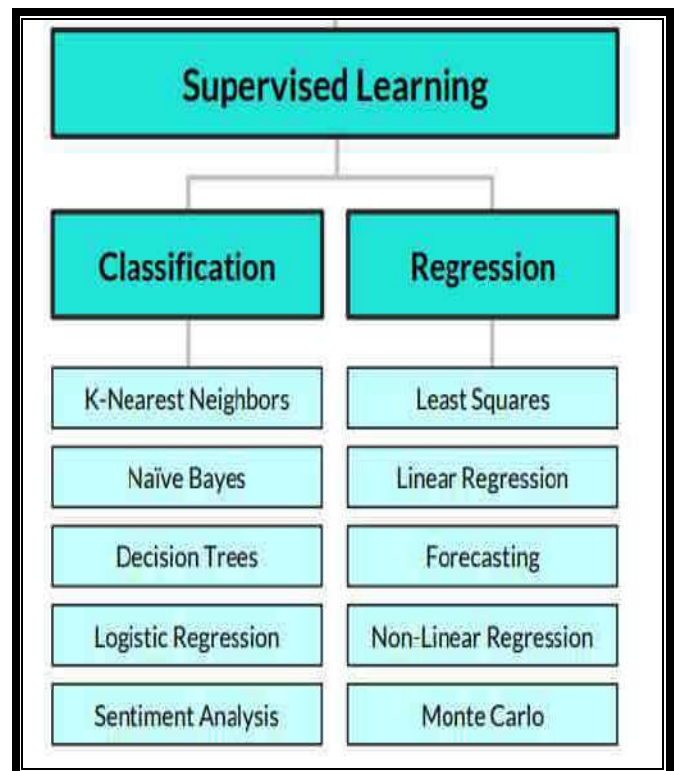


Fig.2. Different types of classification Algorithms.

It is possible to use either a binary or a multiclass categorization system. Although the model assumes either 0 or 1 (i.e., yes or no) for binary classification, the model predicts more than one class for multiclass classification. For instance, Gmail categorizes emails into several categories such as social, promotions, updates, and forums. Regression is a Supervised Learning activity where the output has a continuous value and is performed under supervision. For instance, in the result of Figure B above, the velocity does not have a discrete value, which was continuous within a certain range of values. The objective here is to forecast a value that is as near to the actual output value as our model is capable of predicting, and then to evaluate the model by computing the error value. The accuracy of our regression model increases as the errors of their model decreases.

D. Regression

When interpreting the findings between the goal or dependent variable as well as an independent variable in a dataset, regression analysis is called predictive modeling. When the target and independent variables exhibit a linear or non-linear connection with one another and the target variable includes continuous values, many kinds of regression analysis methods are used to determine the relationship. The regression method is mostly used to assess the predictor strength, forecast trend, time series, and in the event of a cause-and-effect relationship between variables.

Regression analysis is the main method for solving regression issues in machine learning applications that make use of data

modeling techniques. Calculating the best fit line, which is a straight line that goes through all the other datasets in such a manner that the length for each data point is reduced, is a crucial step in the process.

E. Random forest classification Algorithm

The random forest method is a supervised learning model that "learns" how to categorize unlabeled data using labeled data. Random forests is a method for supervised learning. It is also used to both classification and regression problems [11]. It is also the most versatile and user-friendly algorithm available. A forest is made up of many types of trees. It is believed that the greater the number of trees in a forest, stronger than the forest. With random forests, data groups were randomly chosen, decision trees are created, and predictions are obtained from each tree. The best answer is then selected via a vote process. It also serves as a rather accurate indication of the significance of the feature.

Random forests have a wide range of applications in a number of fields, including predictive analytics, image processing, and feature extraction. It may be used to categorise faithful loan applicants, detect fraudulent activities, and forecast illness, to name a few applications.

$$MSE = \frac{1}{N} \sum_{i=1}^N (f_i - y_i)^2$$

Where *N* is the number of data points, *f_i* is the value returned by the model and *y_i* is the actual value for data point *i*.

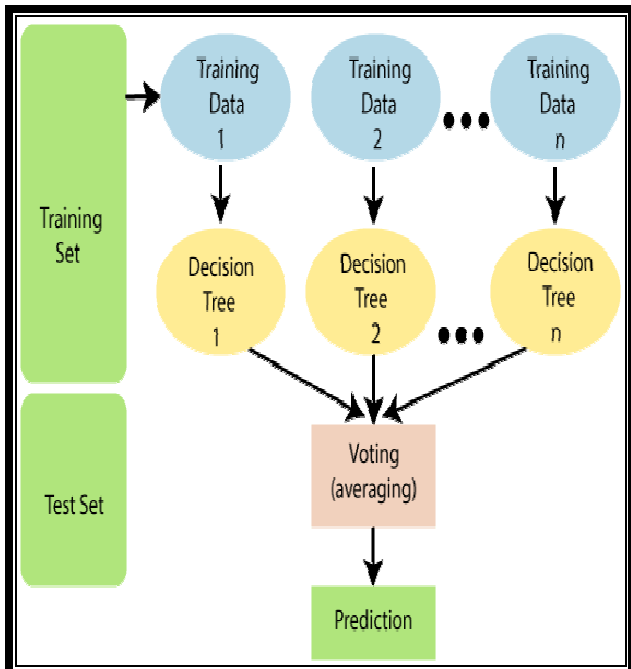


Fig.3. Process of Random Forest Algorithm
The random forest algorithm operates by carrying out the following steps:

Step 1: The programme selects random samples from the given dataset.

Step 2: As every sample chosen, the algorithms will generate a decision tree. Then, with every decision tree generated, it will get a prediction result.

Step 3: Voting will then be conducted for each anticipated outcome. It will utilize value for training sets and means for regression tasks.

Step 4: Finally, the algorithm will choose the forecast result with the most votes as that of the prediction model [17].

Using random forest classification, the patient data obtained and recorded will be classified based on the respiration rate, heart rate, pulse oxygen levels whether a patient has severe heart disease or not.

IV RESULT AND DISCUSSION

People all across the globe have grown to rely on mobile devices, such as smartphones, for a variety of everyday activities, from keeping connected to taking images and obtaining information. Smartphones, which have sensors such as a microphone, camera, and accelerometer, might help widely everyday health and wellbeing. Two vital indicators widely used to determine your health and fitness are heart rate and respiratory rate. Android application will enable you to assess your heart rate and respiration rate using just your phone's camera. These capabilities will be accessible. Position your head and upper body in front of your phone's front-facing camera and breathe properly to determine your respiratory rate



Fig.4. Scanning the respiration rate

These Pulse oximeters have become an integral part of our daily lives [12]. Indeed, it would not be an exaggeration to suggest that oximeters have become crucial to us as smartphones in recent years. Pulse oximeters have grown prohibitively costly due to increased demand. -After that, choose "start scan," and the flash LED will illuminate. -After that, place your index finger on the back camera. The analysis of the design and execution of intelligent heart disease prediction is presented below. If any anomalies are detected, this system continually monitors the coronary heart patient and uploads the data to the object converse database [13].

There have been many advancements in communication technology, particularly wireless networks, and medical sensors are thriving in today's market because to their low power consumption and minimal loss. Pulse oximeters with active monitoring are used for a variety of medical applications to determine the oxygen levels in the blood as well as the heart rate (HR). Patients' heart rate and oxygen levels will be monitored by the Internet of Things sensor that is linked to their bodies, which may restrict their activities[14].

monitor the patient's activities in real time. These have the potential to lower healthcare expenses. In the healthcare sector, a number of linked smart devices are being created and are now in use.

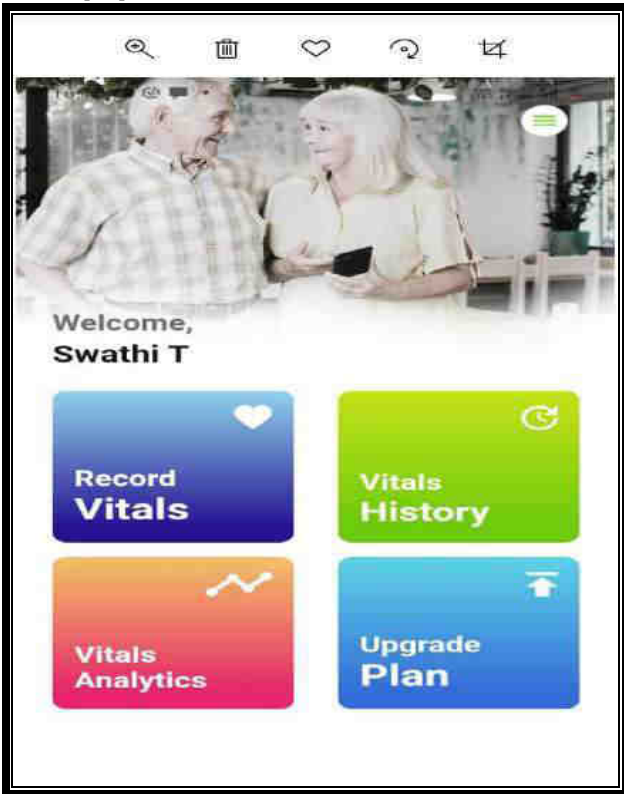


Fig.4. Recording of patient data

. Lay your finger on the back-facing camera lens to monitor your heart rate. While these metrics aren't intended for medical diagnosis or evaluation, we believe they'll be helpful for those who use the Android app to monitor and improve their daily fitness. After taking your measures, you can keep them in the app to track trends over time and other health and wellness data. Click the "scan vitals" button on the home screen to check your blood oxygen, pulse, and breathing rate [15]. In addition to constantly monitoring the heart rate, it also gathers real-time information about the heart rate. This IoT based monitoring of health is mostly implemented for elderly patients and emergency cases. This program may be used from anywhere on the planet. It's an Arduino-based project, with communication taking place through Bluetooth between the Arduino platform and an Android app. Smart healthcare technology is one of the most rapidly developing technologies in today's medical system, and it has the potential to transform the industry[16]. By using smart wearable technology, the data produced by patients may be sent to electronic devices or any health records, allowing physicians and nurses to immediately

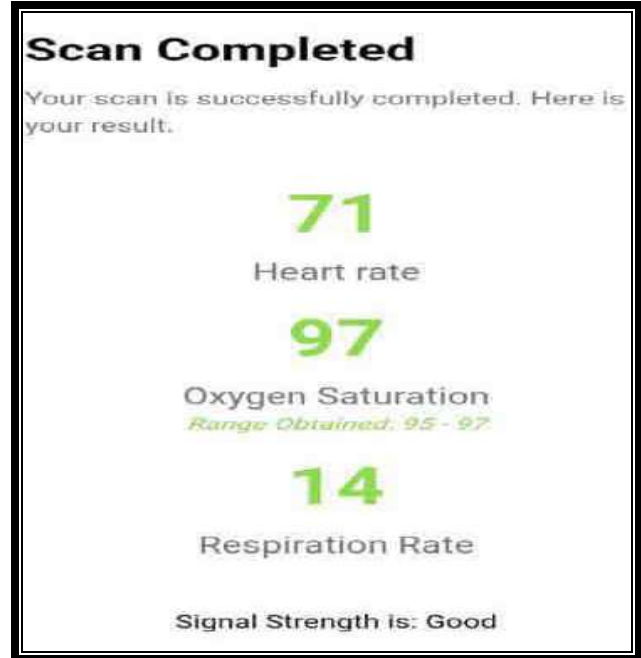


Fig.5. Determining the heart rate

After scanning, the standard respiration rate for an average person should be 12 to 25 breaths per minute. If it is more than 25 or less than 12, then there will be a severe problem. Oxygen saturation levels should be 95 to 100; otherwise, the brain gets damaged. The heart rate of children is 70-100 beats per minute. For others, it is 60 to 100 if it exceeds more than this range, which leads to a heart problem [9].

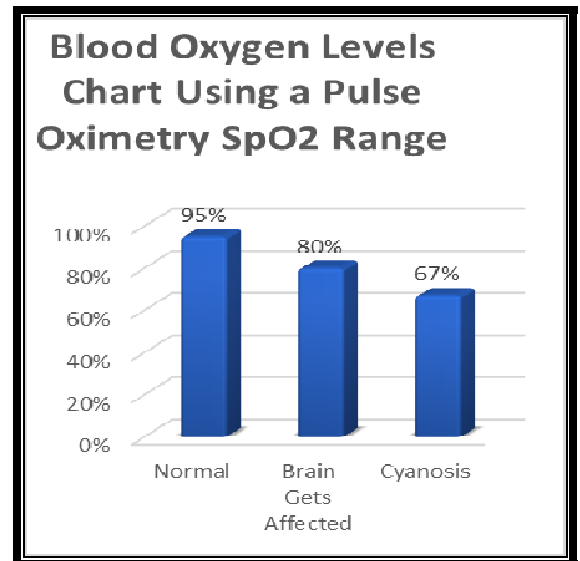


Fig.6. Displays the Oxygen levels chart

The above chart determines the oxygen level. If it is below 95 percent, then it is for an average person. If it is below 80 percent, then the brain gets affected. Data analysis for continuous collecting input datasets was employed to improve classification accuracy. This signal analysis also addressed the advice made to the patient to meet with a healthcare service provider. As a result, this device is used as a consumer product for ailing elderly patients [9]. for usage in the home.

V.CONCLUSION

Heart disease is becoming the most significant cause of mortality on the planet. Predicting cardiac illness is a challenging endeavor that needs both expertise and extensive understanding. The Internet of Things (IoT) has recently been utilized in healthcare systems to gather sensor information for the diagnosis and prognosis of cardiac disease. Even though many types of research have concentrated on identifying a cardiac condition, the accuracy of the outcomes is insufficient. An IoT framework is presented to diagnose cardiac illness using a Machine learning algorithm better precisely. Wearable technology has a lot of potential in the healthcare business, especially when it comes to chronic heart disease. The patient's blood pressure and electrocardiogram are monitored by the wristwatch and heart monitor gadget (ECG). An android application may also monitor and record oxygen levels, heartbeat, and respiration rate. This data is delivered to the receiver, which uses it to categorize the received sensor data as normal or abnormal. The suggested deep learning algorithm Random forest Algorithm is compared to the system's performance. The findings show that the suggested concept for a heart disease prediction system outperforms existing approaches. The suggested technique indicates that the Random Forest obtains an accuracy of 98.2 for the largest amount of data, which is superior to current classifiers. Then, in three steps, heart illness is predicted: (a) pre-processing, (b) feature selection, and (c) classification. The MCFA is used to pick the characteristics, and normal and abnormal cardiac function is determined. As a consequence, the traditional methods of caring for the elderly are no longer applicable. The seniors are the first to be tested, and the findings are analyzed.

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RECENT TRENDS AND PATTERNS OF AGRICULTURAL CREDIT IN INDIA



Bandameedi Nagaraju



About the Author

Bandameedi Nagaraju is currently a Research Scholar, Department of Economics, Osmania University, Hyderabad, India, and doing his research as a University Grants Commission (UGC) New Delhi & Indian Council of Social Science Research National Fellow (ICSSR- New Delhi). He obtained the degree of B.A from Osmania University, Hyderabad, India. He obtained the degree of M.A. in Economics from Kakatiya University, Warangal, India, and currently doing Ph.D-Economics from Osmania University, Hyderabad, India. He has 19 publications to his credit; he has also participated & presented research papers (24 Research Papers) in many National and International Conferences & Seminars on Agricultural Credit, Industrial Relations, Financial Inclusion, etc.

Foreign Direct Investment (FDI), Emerging Global Economic Issues, Women Empowerment, Agriculture, Inclusive Growth and Food Security and Rural Development etc. His papers are published in various reputed professional economic journals and in many edited volumes brought out by various reputed institutions. His areas of research interest are: Agricultural Economics, Public Finance, Financial Markets, International Economics, Developmental Economics and Econometrics.

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Impact of Agricultural Credit on Cotton Yield – A Study in Telangana State

-Dr. Bandameedi Nagaraju



Dr. Bandameedi Nagaraju is currently a Research Scholar, Department of Economics, Osmania University, Hyderabad, India, and doing his research as a University Grants Commission (UGC) New Delhi & Indian Council of Social Science Research National Fellow (ICSSR- New Delhi). He obtained the degree of B.A from Osmania University, Hyderabad, India. He obtained the degree of M.A. in Economics from Kakatiya University, Warangal, India, and currently doing Ph.D-Economics from Osmania University, Hyderabad, India. He has 19 publications to his credit; he has also participated & presented research papers (24 Research Papers) in many National and International Conferences & Seminars on Agricultural Credit, Industrial Relations, Financial Inclusion, etc.

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Awards, Honors:

- Secured Gold Medal in M.A. (Economics) Academic Year (2009-2011) by Kakatiya University Warangal.
- University First rank in M.A. (Economics) Academic Year (2009-2011) by Kakatiya University Warangal.
- Gold medal in Micro-Economics from Kakatiya University Warangal.
- Secured Gold Medal in B.A-(Economics) Academic Year (2006-2009) Nagarjuna Government Degree & PG College (Autonomous), Osmania University.
- Presented Research Papers: 24 (National & International)
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Impact of Agricultural Credit on Cotton Yield – A Study in Telangana State

Dr. Bandameedi Nagaraju

(Gold medalist in Economics)

-M.A-Economics, B.Ed, Ph.D in Economics (Osm)



KY PUBLICATIONS

This book explains the An Analysis of Cotton Crop in India. Cotton assumes a place of significance in Indian agriculture and economy due to its role in providing employment to millions of people, earning valuable foreign exchange and improving the economy of farmers. All the four cultivable species and their hybrids are grown in India under diverse agro-ecological and farming conditions. India has made significant strides since independence in improving the production, productivity and fibre quality resulting in meeting the domestic requirements as well as export. Cotton is one of the most important commercial crops playing a key role in economics. The main objective of this book is to provide farmers, students and instructor with clear, up-to-date and simple and straight forward approach to learn about agricultural credit. It may helpful for research all. I appreciate to all the people who and thanks is diversity or indirectly involved to help and publish this book.

An Analysis of Cotton Crop in India



Bandameedi Nagaraju

An Analysis of Cotton Crop in India



Bandameedi Nagaraju is currently a Research Scholar, Department of Economics, Osmania University, Hyderabad, India, and doing his research as an Indian Council of Social Science Research, National Fellow (ICSSR - New Delhi) and currently doing Ph.D in Economics from Osmania University, Hyderabad, India. He has 19 publications to his credit.



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Nagaraju

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The rural workers do not get adequate employment days in rural area which leads to migration to urban cities for their livelihood. Therefore, Mahatma Gandhi National Rural Employment guarantee Act (MGNREGA-2005) has introduced to providing at least 100 days of Guarantee employment to rural households in every financial year, whose adult member volunteers to do unskilled manual work. In this book, we examine the impact of MGNREGA programme on employment, income security and migration in rural poor households in Ranga Reddy district, Telangana State. The book provides valuable policy implications and suggestions for the successful implementation of MGNREGA programme, and also useful for research scholars for their further research.

The Impact of MGNREGA on Employment



B. PRASAD is an ICSSR research scholar at school of Economics, University of Hyderabad. He has obtained M.A in Applied Economics and M.Phil in Economics from Pondicherry University and University of Hyderabad, respectively. He has qualified UGC-NET and AP/TS-SET in 2013. His research interest areas are Development Economics and Labour Economics.

B. Prasad

The Impact of MGNREGA on Employment, Income and Migration

A Case Study of Ranga Reddy District in Telangana



Prasad



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Migration Among Weekly Market Street Vendors in Telangana : A

Case Study Of Hyderabad

Prasad Begari

Lecturer, Dept. of Economics, Bhavan's New Science Degree College, Narayanaguda, Hyderabad

Abstract -> The informal sector is playing vital role in providing employment and income opportunities to rural and as well as urban areas in India. The lack of employment and income security in rural areas led migration to urban areas for livelihood security. They are migrating to urban cities with illiterates or less education, less capital and skills. Hence, there is less availability secure employment opportunities in organized and informal sector and thinking employment opportunities in formal sector. Therefore, the majority of the urban migrants are enter into an informal sector for their survival security. The street vendors significant have in urban informal sector. The most of the vendors migrated to urban areas and working as a street vendor's occupation. This context, the main objective of this paper is to examine the migration among the weekly street vendors in Hyderabad. The study is based on primary data source and as well as secondary data sources.

Keywords :- Unemployment, Informal Economy, Migration, Street vendors, Hyderabad.

Introduction -> The developing countries experienced a mass increase the size of the urban population and labour force due to migration from rural to urban. The Pearson Commission on international development observed that the Economic development failure to create or generate sufficient employment, it does utilize the unemployment and under employment of surplus labour force. The result of this the underemployment and unemployment has become crucial problem. The developing countries, development have two objectives are maximize the employment opportunities and output. The informal sector has significant role in maximize the output and employment and improving livelihood conditions of surplus labour of developing countries (Satya Raju, P 1989).

The urban informal economy has become important in third developing countries like India. The urban labour markets are observed to be dualistic in nature either in employment or in earning in the third world economies. Generally, the urban economic structure may be classified into two sectors- formal and informal or organized and nonorganized or modern and traditional or protected and unprotected sectors. The informal sector has become significant role in providing employment and producing goods and services.

Nature and Characteristics of the Semi-Urban Informal Workers: A Special Reference to the Stone Polish Workers in Tandur, Vikarabad Districts, Telangana

Prasad Begari

Research Scholar, School of Commerce, University of Hyderabad

Abstract: The rural households have been migrating from rural villages to urban and semi-urban cities for employment during last several decades due to lack of employment and low wages in rural areas in Hyderabad district in Telangana. They are predominantly working in the informal sector activities such as daily wage labour, home producing and home-caring activities, construction, and engineering work etc. In this study, some of people are migrating to urban and semi-urban cities of Hyderabad and Mumbai and semi-urban areas for better employment and income opportunities. The majority of the people migrated to Tandur were working as informal stone polish company workers. The aim of study is to explore the socio-economic conditions and nature of these stone polish company workers in Tandur, Hyderabad District. This study based on the secondary as well as primary data, collected from stone polish company workers regarding their socio-economic conditions, reasons for migration and some of problems in working place in Tandur, Hyderabad District.

Keywords: Migration, Urbanisation, Stone polish workers, Socio-Economic Condition and Tandur

1. INTRODUCTION

The lack of employment opportunities in rural resulted migration to urban looking for better employment and income opportunities. Majority of the people are migrating to urban and semi-urban cities to permanent and temporary workers. They are working as wage labourers or casual wage labourers and self-employed.

Today, one and half of the world's population live in cities. The world cities are growing by one million people each week. Cities play a significant role in development and they continue to attract migrants from rural because they enable people to advance socially and economically. Cities offer significant educational facilities options in the form of job, housing and services, and are important centres of productivity and social development. India is the poor independent period planned economic development that led to development for more than three to other countries than to it where large number of people had to suffer in several ways in the name of national development and the city-dwellers are not exempted to it. As in other developing countries, an increasingly large proportion (approximately 93 percent and excluding agriculture, about 78 percent) of the workforce in India is employed in the so-called unorganised sector informal sector. A substantial portion of such employment opportunities is generated in the urban or semi-urban areas and not surprisingly a majority of the workers is economically marginalised. High incidence of poverty among these groups exposed to difficult and hazardous working conditions, low-cumulative social security or health benefit schemes other than poorly functioning state-provided medical facilities, and so., (Sugata Ghose (July 5 to 12, 2005).

Urbanisation is one of the important components in developing countries like India. After independence, developing planning efforts have accelerated the growth of the metropolitan cities, besides economic growth, social change and technological modernisation. The metropolitan cities have become the focal points of new development activities and centres of large scale employment opportunities in industries, trade and commerce, transportation services and construction activities. It has resulted in the large scale growth of rural population to the cities, which subsequently form various social groups. They engage in the physical development of the cities in India.

To get the urban numbers, India's population stood at 1.21 billion in 2011. The share of India's population living in urban areas increased from 27.28 to 31.26 percent in the inter-censal period 2001-2011 respectively. The case of the condition India's total population is 5.41 crore in 2011 increased from 5.42 crore in 2001.

The Development Index of Vikarabad District had low (5.32 percent) and 8th place from bottom relatively to other districts are Mahabub (6.78), Bargarh (6.42) and Hyderabad (6.18) in Telangana. It, 17,275 (wage labourer and 2, 76,155 are engaged labourer) (Socio-Economic Outlook of Telangana, 2017)

The Telangana state literacy rate is 66.54 percent and it ranks at 7th place from bottom at national level. The Vikarabad district literacy rate is 71.01 percent. In this district there are two major semi urban city such as Vikarabad and Tandur with corresponding population of 13,341 and 68,111 respectively in 2011 census.

A Text book of **APPLIED CHEMISTRY**



**D. Ramesh, G. Prabhakar
E. Laxminarayana**

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ABOUT THE AUTHORS



Dr. Ramesh Domala is working as an Assistant Professor in the Department of Chemistry & Pharmaceutical Sciences, Mahatma Gandhi University, Nalgonda, Telangana, India. He obtained his Doctorate degree in Organic Chemistry from Kakatiya University, Warangal. He has worked as a Research Scientist in Pharmaceutical Industries. He started his Academic Career as a Lecturer in Chemistry at C.K.M. College, Warangal. He was the founder of the establishment of the Dept. of Chemistry in Mahatma Gandhi University in the year 2009. He has published 26+ Publications in the National & the International Journals with 18 years of teaching and Industrial Experience. He actively engages in Teaching and Research Activities. He has organized 10+ Seminars & Workshops and has also participated in 26+ National Seminars & the Conferences. He has authored 3 books. One C.S.I.R. (J.R.F.) Student has been awarded Ph.D. Degree under his Supervision from Mahatma Gandhi University, Nalgonda and Four (4) Research Scholars are pursuing at Present.



Mr. G. Prabhakar is working as an Assistant professor of chemistry in the Department of Basic Science and Humanities, B V Raju Institute of Technology, Narsapur, Medak, Tealngana, India. He is pursuing Ph.D under the supervision of Dr. Ramesh Domala at Mahatma Gandhi University, Nalgonda, Telangana, India. He obtained M.Sc Degree from JNTU Hyderabad. He has experience of 12 years of Teaching and 2years of Research Experience



Dr. Laxminarayana had completed M.Sc., Ph.D. from Kakatiya University and worked at KITS, Warangal and Mahatma Gandhi Institute of Technology (MGIT). He has experience of 18 years of Teaching and Research Experience. He is currently working as Associate Professor of Chemistry and Associate Head, Chemistry Section in Science and Humanities Department at Sreenidhi Institute of Science & Technology (SNIST). He published 132 papers in reputed National and International journals. He participated and presented research papers in 42 International and National Conferences/Seminars.

He visited Philippines to attend an International conference. Under his guidance 6 students have been awarded Ph.D degree from J N T University Hyderabad and 5 students are presently working with him. He is a member, Board of Studies in Chemistry, in J N T University Hyderabad, Anurag Engineering College, Kodad, VJIT, Mallareddy College of Engg. & Tech.



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Dr. D. Ramesh

Assistant Professor
Department of Chemistry & Pharmaceutical Sciences
Mahatma Gandhi University
Nalgonda -508 254 -T.S. India

Mr. G. Prabhakar

Assistant Professor
Department of Chemistry
B V Raju Institute of Technology
Narsapur, Madak - 502313 T.S. India

Dr. E. Lavvinnarayana

Associate Professor of Chemistry
Sreevidhi Institute of Science & Technology (SNIST)

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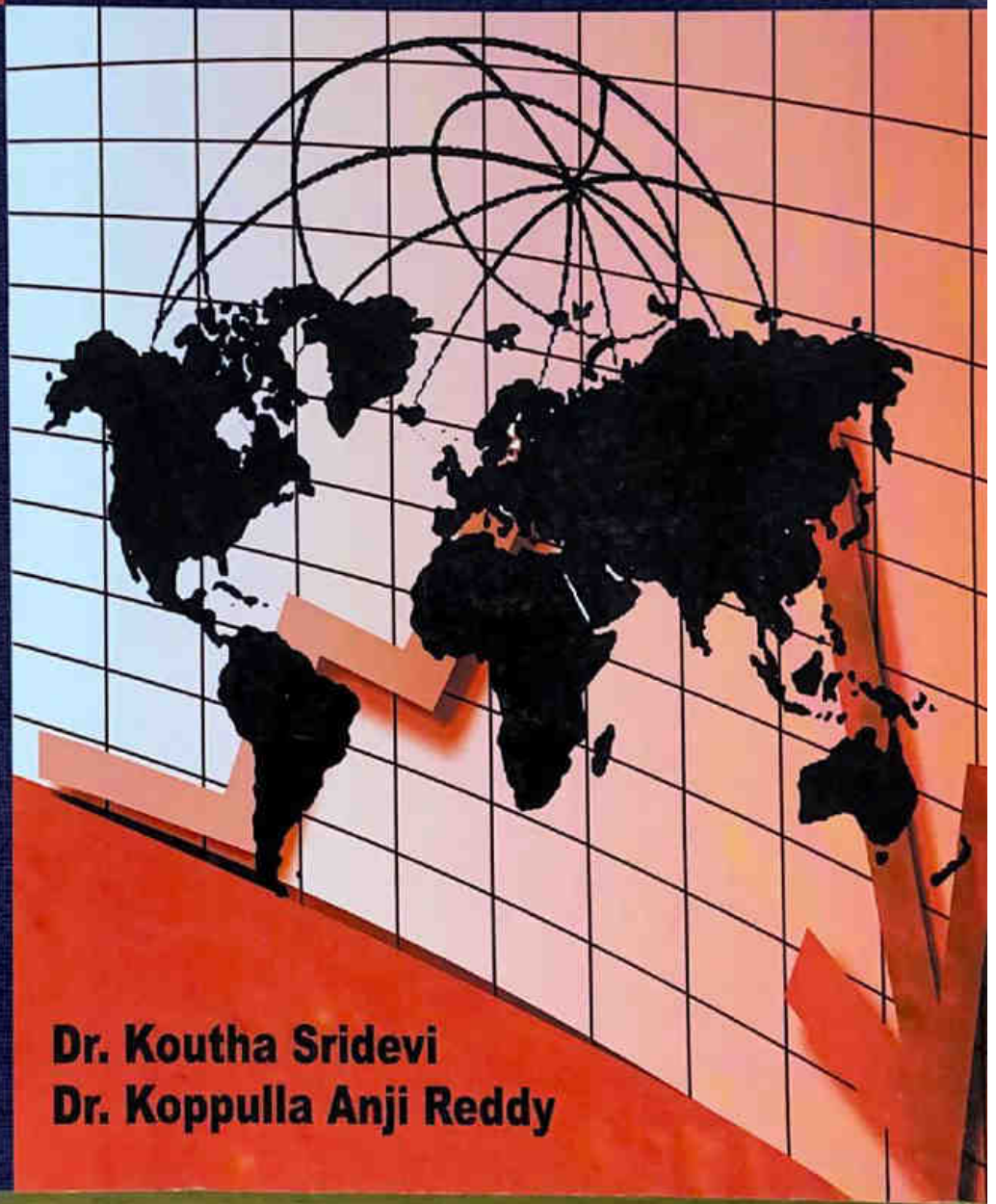


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GLOBAL FINANCIAL MELTDOWN

ISSUES & CHALLENGES



Dr. Koutha Sridevi
Dr. Koppulla Anji Reddy

**Global Financial Melt Down –
Issues and Challenges**

EDITORS
DR. KOUTHASRIDEVI
DR. KOPPULA ANJI REDDY

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About the Editors

Dr. Koutha Sridevi

M.Com, MBA, Ph.D

Dr. K. Sridevi received her M.Com degree from Osmania University and MBA degree from Acharya Nagarjuna University, Guntur in the year 1994 & 2000. She has obtained her Ph.D from Department of Commerce, Osmania University. She began her academic Career as Lecturer of Commerce at the Department of Commerce, Andhra Mahila Sabha, Hyderabad in the year 1994. She held the positions of Student Advisor, Placement Cell Coordinator and Incharge of M.Com Course. She joined Department of Commerce, Mahatma Gandhi University as Assistant Professor of Commerce in the year 2008. Presently she is holding the positions of Chairperson, Women Protection Cell and Coordinator, College Development Council at Mahatma Gandhi University. She is also the member of the HODs & Chairpersons BOS of Universities that prepared common core Syllabi of the B.Com Courses for the Universities in the State of Telangana. Earlier, she discharged the duties of Vice Principal, University College of Commerce & Business Management, the Head, Department of Commerce and Placement Cell Coordinator. She organized a one Day National Seminar, Co-Sponsored by ICSSR, on the topic "Social Entrepreneurship in India – Problems and Prospects" on 29th January 2014, ICSSR sponsored 3 day Training Program on Research Methodology / SPSS from 4th to 6th December, 2014, UGC & ICSSR Sponsored Two day International Seminar on the topic "Global Financial Meltdown – Issues and Challenges" on 3rd and 4th March, 2015 and one day Faculty Development Programme on "New Age Business Accounting with Tally.ERP 9" on 23rd June, 2015. With 21 years of teaching experience she is actively engaged in teaching and research and has to her credit published Books and Articles.

Dr. Koppula Anji Reddy,

M.A., M.Phil, Ph.D, M.Ed, (MBA)

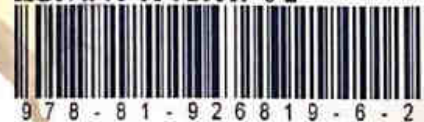
Dr. Koppula Anji Reddy is working as Assistant Professor of Economics, Mahatma Gandhi University, Nalgonda. He obtained his M.A., M.Phil and Ph.D from Osmania University, Hyderabad. His area of interest include Agricultural economics, Economics of Education and Quantitative Methods. He published more than 10 Articles in Journals and edited Books and presented more than 30 papers in National and International Seminars.

He has joined the Mahatma Gandhi University in the year 2007. Presently he is holding positions of Head, Department of Economics, Controller of Examinations and Executive Council Member, Mahatma Gandhi University. Earlier he discharged the duties Warden, Boys Hostel, Vice Principal, and Principal University College, MGU. He has organized a ICSSR sponsored one day National Seminar on the topic "Problems & Prospects of Micro Finance" on March 14th 2008, UGC sponsored Two day National Seminar on the topic "Issues & Challenges of Higher Education in newly formed States" on 27th & 28th February, 2015 and ICSSR & UGC sponsored Two day International Seminar on the topic "Global Financial Meltdown – Issues and Challenges" on 3rd and 4th March, 2015. With 25 years of teaching experience he is actively engaged in teaching and research.

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Prof. G. BHAGYANARAYANA
M.Sc., Ph.D.

VICE CHANCELLOR



MAHATMA GANDHI UNIVERSITY

Yellareddyguda, NALGONDA - 508 254
(www.mguniversity.ac.in)

Mobile: 98492 43267, Fax: 08682 - 222903

Date: 26.02.2015



MESSAGE

I am happy to note that the Dept. of Economics,

*Mahatma Gandhi University, Nalgonda is organizing a two day national seminar on "Issues and Challenges of Higher Education in Newly Formed States" on 26th & 27th February, 2015. The topic chosen is timely relevant and has practically useful to the current situation as the higher education is facing many hurdles and challenges in newly formed state of Telangana. The deliberations of the two day national seminar may throw new light on the issues flogged for the seminar. The outcome of the seminar may be useful to the education administrators and to government for taking appropriate decisions on contentious and complicated issues. *

* I congratulate and compliment the organisers and wish the seminar a grand success.*

G. Bhagyanarayana
(Prof. G. BAGYANARAYANA)

Prof. K.Narendar Reddy
Ph.D.,
REGISTRAR(FAC)



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www.mguniversity.ac.in

Fax: 08682-231905,

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MESSAGE

I am happy to note that the Department of Economics, Mahatma Gandhi University is organizing two days National Seminar on "**ISSUES AND CHALLENGES OF HIGHER EDUCATION IN NEWLY FORMED STATES**". The seminar topic is need of the day as they have listed out important issues facing by the Higher Education in the country in General and in newly formed States in particular. The experts in the field may deliberate on important theme of the Seminar and bring out with suitable suggestions and policy recommendations to the Education Administrators and Policy makers.

I congratulate the seminar organizers in taking of such important topic of the seminar and wish them all success in their future endeavor.

With Warm Wishes.....

A handwritten signature in dark ink, appearing to be 'K. N. Reddy', written over a horizontal line.

REGISTRAR

Two Day National Seminar on ISSUES AND CHALLENGES OF HIGHER EDUCATION IN NEWLY FORMED STATES

About Mahatma Gandhi University

Mahatma Gandhi University originally the PG Centre of Osmania University is established in the year 1987 to provide academic excellence to remote village students of the backward regions. The PG Centre is upgraded as Mahatma Gandhi University in the year 2007 and is one of the fast growing learning centres in India. Ever since its inception the University offering courses on interdisciplinary approach and develop them on sustainable line. Through multi-faceted range of programs in Arts, Humanities, Basic-Sciences, Social Sciences, Commerce, Business Management and Engineering & Technology by state-of-the art infrastructure and committed faculty. The University has carved a niche for itself in the field of academic learning and research. The University is located in sprawling campus of 250 acres in Yellareddyguda of Nalgonda.

About The Department of Economics

The Department of Economics was established in the year 2007 and has been providing an ideal platform for students coming from Rural background to metamorphosis themselves to face the challenges lying ahead and become successful. The Department comprises of committed faculty members, actively engaged in research and produced a number of publications. So far the Department has organized National Seminar on "Micro Finance in India - Issues and Challenges" on 15th march 2008.



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Educational Reforms in Andhra Pradesh

A Case of Technical Education

**K. Anji Reddy*
***B. Shiva Reddy*

I. Introduction:

Much has been written and researched into the effects and implications of different policies on important problems like poverty, employment and growth etc., at the national level. But not much has been analyzed on the underlying reasons and the background for taking of such policies and the processes involved in framing such policies.

In the last two decades Governments at the national as well as state level have made several policies reversing some of the earlier policies. Among the states, Andhra Pradesh has been undertaking several reforms on all fronts. It has been in the forefront of the state level reforms. There is hardly any sector that is not being touched and introduced reforms.

Though some of reforms were initiated during the congress rule, it is under TDP; specially, under the leadership of Chandrababu Naidu that a clear-cut policy shift has taken place. It is in AP we can see the complete reversal of Nehru-Mahalonabis strategy of development wherein the emphasis was on centralization, public sector and self-sufficiency. Every sector hitherto be viewed from a welfare angle is being evaluated through market principles. Even the social sectors like education and health are not spared from this scrutiny.

It in the education sector in AP many policy shifts have taken place. Almost all sub-sectors of education- Nursery to University level-have been experiencing policy shifts. With in education sector many changes have taken place in higher education. The major changes related to shift from general to technical and professional education and with in technical education from lower levels (ITIs and Polytechnics) to engineering education.

The reforms are not new to the education sector but have been taking place now and then in the form of new policies or programmes. When compared to other sectors of the economy many reforms in education sector are under taken at the central level with a concomitant changes at the state level. However, some policies related to education sector are devised at state itself. Following are some of the policies/reforms undertaken in the education sector at national or state level:

1. Elementary education is made as fundamental Right.
2. Introduction of Mid day meal scheme.
3. Recruitment of teachers on part time basis.
4. External aid to primary education.
5. Decentralization of school education.

*** Professor, Dept. Economics, O.U, Hyd. * Assistant Professor, M.U. Nalagonda*

6. Increase in corporatization education.
7. Privatize and decentralization of management of secondary education.
8. Restructuring of Higher Education.
9. Opening most of the colleges under political/commercial leadership than academic/technical leadership.
10. Financing of higher education (Fee reimbursement).

II. Important Developments in Engineering Education:

In the last two decades the number of Engineering colleges have increased from just 27 in 1990-91 to 217 in 2002-03 and 676 Colleges by 2012-13. Still there are some more applications to open colleges in the state. If all of them have given permission the number may reach to 1000 colleges. The intake capacity in these colleges increased from 5505 in 1990-91 to 62,250 in 2002-03 and 3,40,000 by 2012-13. The intake capacity may go up to four lakh if all the applicants are given permission to open the engineering colleges.

The significance of these developments is that after 1990 all the new colleges are opened in the private sector. From just 16 in 1990-91, now the private engineering colleges account for more than 95 percent.

Another important feature is that diversification and introduction of new courses in engineering colleges. The rapid increase in IT related courses in general as well as in engineering colleges is another feature of the recent developments.

The rapid growth in engineering education is due to policy initiatives taken by the state government. The liberal approach followed by permitting agencies like AICTE and Universities on the one hand and enterprising nature of the managements to en-cash the growing demand for Engineering Education on the other hand. Hitherto part of the unmet demand was met from neighboring states like Tamil Nadu, Karnataka and Maharashtra where engineering education had become a commercial enterprise. Many students of the state used to study in the engineering colleges of these neighboring states by paying huge amount in the form of donations and fees.

Research Questions: Several questions have been raised as to why technical education that too only engineering education given prominence over social sciences and natural sciences and other lower levels of technical education. Further, why all the new colleges in the last two decades were opened in the private sector only?

- The reasons cited include I) restriction of the outflow of money to other states; ii) increasing the access to technical education; iii) increase the employment opportunities to the educated persons. To what extent these reasons are justifiable?
- What are the political economy reasons for mushroom growth of technical and professional colleges in AP? And, why all the colleges are opened only under the private management?

Presentation: The paper is divided into four sections. In the first section we would like to place the Education reforms in the overall macro framework. Section- II deals with the specific policy changes and consequent expansion of engineering education in the last decade. The background of bringing out the policy changes will be analyzed in Section-III. In Section-IV the implications of these policies-the differences between intended and likely outcomes-will be discussed. The concluding observations are made in the last section.

II. Policy changes and consequent expansion of engineering education:

Important Developments in Engineering Education: In the last two decades the number of Engineering colleges have increased from just 9 in 1976-77 to 27 in 1990-91 217 by 2002-03 and then to 676 by 2012-13. There are some more applications to open colleges in the state. If all of them have given permission the number may go up to 1000. The intake capacity in these colleges increased from 5505 in 1990-91 to 62,250

in 2002-03 and then to 3,40,000 by 2012-13. The intake capacity may go up to four lakhs if all the applicants are given permission to open the engineering colleges.

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Importance of the engineering education: Technical education need was realized after the industrial revolution. Since then it has been gradually improving technical manpower and innovations in the products and production process in the world particularly western countries like England, America, Germany, Russia, etc. But the technical education was not introduced in developing countries of Afro, Asian nations till twentieth century. It is in the second half of the twentieth century particularly after independence of many third world countries started technical education in their nations. India is one such country in developing technical education after independence.

India is a federal state with political division of 28 states and 7 union territories. There are subjects in which, some of them are completely given to states, some of them are given to center and some of them are in concurrent list i.e. the same subjects are distributed between center and states. Education is one such subject distributed between center and states.

Technical education in Andhra Pradesh was not developed before independence. Though the development of technical education was started after independence, but it was at a lower pace till 1990's. There is a mushroom growth in technical education after 1990-91, particularly between 1997-98 and 2012-2013. What are the reasons behind this mushroom growth particularly political, economic, technical and others?

Till 1977 there was no engineering college in private sector in the state of Andhra Pradesh. Four engineering colleges were opened in private sector between 1977 and 1979. The reason for opening an engineering college in private sector could be availability of large-scale public sector employment opportunities to engineers in the state due to construction of big projects and roads etc. To make use of these large-scale public employment opportunities people required engineering degree. People who hold these degrees were very limited due to the less number of colleges offering engineering degree courses either in government sector or in private sector in the state. So, there was heavy competition for getting admission in the engineering college for those students who desire to pursue engineering course.

To meet the growing demand for engineering education for the first time in 1977 one engineering college was opened in private sector at Vijayawada in Krishna district called Siddhartha engineering college by the affluent section of the society in the coastal districts especially in Krishna came forward to open an engineering college for their children's benefit. These benefits accrue to them not only in the form of employment but also good dowry, better social status and to become an entrepreneur.

The second college was opened in the private sector in Ranga Reddy district called Chaitanya Bharathi Institute of Technology (CBIT) by another affluent section in 1979 followed by two more groups started Vasavi engineering college at Ibrahimbagh in Rangareddy district, Mathrusri College of engineering at Saidabad, Hyderabad district respectively.

Five engineering colleges were opened in private sector in 1980 and another four engineering colleges were also opened in private sector in 1981. There after there was a gap of ten years in opening engineering colleges either in public sector or private sector.

III. Back ground for policy change in Technical education:

At first technical education was started in public sector only and continued till 1977-78. For the first time in 1977-78 engineering education was permitted in private sector to a limited extent. Then there was a gap of ten years during which no engineering college in private sector was permitted. In 1980 congress party was in rule with Janardhan Reddy as a chief minister permitted about 20 medical and engineering colleges in private sector. Then there was a large-scale protest and resentment against privatization of medical and engineering education among the political parties and public. The opposition political parties and public approached the High court against the privatization of engineering and medical education, the high court struck down the government order then the chief minister was resigned and another chief minister came to power from the same congress party then the issue was side lined.

After two years time the election took place in the state, the ruling congress party was defeated by the then opposition Telugu Desam party and it came to power with N.T.Rama Rao as chief minister with two third majority. After one year there was a revolt against the chief minister Rama Rao within the ruling party under the leadership of Chandrababu Naidu. Rama Rao was known for a glamour leader, which he acquired from cinema field and continued to be with same charisma with a popular slogan like Telugu Guavravam, self-respect (Athmabimananam) etc in politics. Chndrababu Naidu dethrones the Rama Rao from chief minister post and became chief minister of Andhra Pradesh state. Babu was facing several challenges like pleasing the MLA's who have supported him to dethrone the Rama Rao from the Chief Minister post to form the new government, divert the public attention. Babu took up many exercises and experiments, one such is permitting the engineering colleges in private sector on a large scale.

For starting an engineering college before 1993 state government was the ultimate authority to grant the permission. After 1993 government of India made an act to create an organization called All India Council for Technical Education (AICTE) at the national level to monitor the academic and administrative matters of technical education in the country. As per the Act the AICTE has become a constitutional mandatory authority to grant permission to open an engineering college through out the country. At first All India Council for Technical Education (AICTE) invites applications from educational societies etc. Private managements while applying for permission to open an engineering college they should have No Objection Certificate (NOC) from the respective state government and certain other conditions like permanent buildings, library, laboratory, qualified teachers, corpus fund, affiliation to the university etc to be fulfilled.

If the government starts an engineering college it has to fulfill all other conditions except no objection certificate. But the government of Andhra Pradesh did not come forward to start the engineering colleges as these colleges required huge amount of finances which government was not in a position to provide due to the financial crunch. There was a huge demand for engineering education from the society, every year about eight to ten thousands of children from Andhra Pradesh state were going to other states like Karnataka, Tamilnadu and Maharastra to pursue engineering education by paying huge amount of fee. These states were already open engineering colleges in private sector and charging thousands of rupees as tuition fee. One argument put forth by the government to open the engineering colleges was that if the engineering colleges were opened in private sector in the state our children who are going to other states for engineering education can avail the same facility in our state and money spent by parents on engineering education of their children in other states will remain with us now. More particularly the engineering education becomes easy accessible to our children.

To encash the above argument and also the demand for engineering education from economically better of families many politicians have found education as a profitable business. Along with politicians others interested parties in engineering education have persuaded the government to permit them to open engineering colleges in private sector. By this time education is commercialized and people also found good opportunities at the international level to earn the significant amount of money in very short period with engineering education. When education was commercialized politicians found that the education is

better source to make the money without any allegation or corruption charges. To get the permission for a college also easy for them as a public representative can pursue the matter better way in pressurizing the government.

When the private managements approached the government for no objection certificate, then government asks a report on the infrastructure facilities provided by private managements for an engineering college to the commissioner technical education, in turn commissioner appoints three members committee consisting of one member from technical education, one from higher education council and another member from university from which management seeking affiliation. Three members committee visit the colleges to verify the infrastructure facilities and submit a report to the commissioner technical education. Commissioner in turn recommends to the government for no objection certificate on the basis of this government gives NOC. Based on the NOC of state government AICTE gives permission to private management open an engineering college.

There were many managements come forward to open the engineering colleges. It has become problem to the government whom to give and not to give NOC for open engineering college. The government evolved a policy in the year 1997-98 that those open a college in backward district where there are no engineering colleges will be given NOC. Still there are many applications seeking NOC from government in pending. In the year 1998-99 government evolved another policy that NOC will be given to the management who open college in revenue divisions where there are no engineering college. In spite of this there is a heavy pressure on the government for NOC. In the year 1999-2000 government identified 52 growth centers where there is a potential for the growth of engineering colleges. This is being done out of the political compulsions (forces) within the ruling party and from other opposition parties.

In the year 1999-2000 the government has given NOC to as many as 52 managements to open engineering colleges in the growth potential centers. But AICTE has given 102 managements to open engineering colleges due to the pressures from state political leaders and national political leaders. The private managements approached the high court against the discrimination of giving NOC and natural justice, the high court intervened in matter and gave direction to state government to give NOC without any restrictions to open engineering colleges.

There were just 9 engineering colleges with 1140 seats in 1976-77. By the year 2002-2003 the total number of colleges have gone up to 215 further 670 colleges by 2012-13 and number of seats available to children also gone up to 62270 and 3,40,000 respectively. Now another problem has cropped in i.e. opting of admission in rural engineering colleges by the children who are seeking admission in engineering course.

IV. Implications of policy changes:

The opening of colleges on the ground that money can be retained within the state do not hold well for the simple reason that amount flowing is likely to be more than amount to be invested in the establishment of colleges. The risks in the prevailing uncertainty have to be borne by the managements. Some times the cost of such risks is more than the benefits. For example, in the current year about five thousand seats are vacant in different colleges located in rural and in semi-urban areas. And in some courses like computers and Information Technology many seats are vacant in many colleges. Needless to say these courses require huge infrastructure and manpower, which become underutilized causing losses to the management.

Accessibility of engineering education to all sections and regions may not be true, if we look at the dynamics of the private engineering colleges. First, let us take the regional dimension. The policy of Government is to permit the colleges in backward and rural areas such that the children of these areas do not go to far away places for engineering education.

District-wise engineering colleges and seats in Andhra Pradesh during 2002-2003 & 2012-13

	Name of the District	Total number of engineering colleges in 2002-03	Total seats	Total number of engineering colleges 2012-13	Total seats (available under convenor quota)
1	Srikakulam	3	945	11	3696
2	Vizianagaram	5	1560	15	4794
3	Visakapatnam	10	3255	32	10658
4	East Godavari	9	2380	34	11326
5	West Godavari	9	2565	29	10143
6	Krishna	9	2990	36	12705
7	Guntur	9	3615	48	15565
8	Prakasam	8	1865	19	6699
9	Nellore	9	2510	26	7833
	Coastal Andhra Region	71	21685	250	83419
10	Ranga Reddy	37	10130	144	53878
11	Hyderabad	16	5250	29	8692
12	Medak	9	2530	24	7577
13	Mahaboobnagar	7	2280	8	2226
14	Nalgonda	14	3445	39	12747
15	Nizamabad	7	1580	10	2461
16	Adilabad	4	915	1	273
17	Karimnagar	8	1995	19	6241
18	Khamam	8	2325	24	7822
19	Warangal	9	2695	27	9633
	Telangana Region	119	33145	325	111550
20	Chittoor	9	2900	38	12469
21	Cuddapah	5	1695	24	6906
22	Kurnool	5	1650	19	6552
23	Ananthapur	6	1195	20	5853
	Rayalaseema Region	25	7440	101	31780
	Grand Total	215	62270	676	226749

Source: A complete Information Directory of Engineering College in Andhra Pradesh, Commissioner of Technical Education, Govt. of Andhra Pradesh & Eenadu news paper.

It is clear from the table that the engineering colleges are not equally distributed among all the districts. Highest colleges i.e. 37 were opened in the Ranga Reddy district in 2002-03 but by the year 2012-13 the number colleges have increased to 144. Ranga Reddy district is very close to the state capital and consists of rural-urban areas where land is also available cheaply to the college requirement. The backward districts like Srikakulam and Adilabad were given 3 and 4 colleges in 2002-03 respectively but by 2012-13 surprisingly number of engineering colleges in Adilabad district have declined to one whereas in

Srikakulam district colleges have increased to 11. If we look at the distribution of engineering colleges among the popular regions known as coastal Andhra, Telangana and Rayalaseema, the distribution is not equal. According to the population distribution of 2001, the proportion of distribution of engineering colleges was supposed to be 41.7%, 40.5%, and 17.8%. The actual distribution was 33%, 55% and 12% among the regions Coastal Andhra, Telangana and Rayalaseema respectively in 2002-03 but by 2012-13 the same has been changed to 37.31%, 48.5% and 15.07% respectively. This may further cause for regional imbalance in development of engineering education in the state and reversing the earlier development of general education.

Availability of engineering college for each revenue division is another question? If we look at the government policy of engineering college to each revenue division, there are revenue divisions like Nagarkurnool and Vanaparthi in Mahaboobnagar district, Dharmavaram in Anathapuram district, Jammalamadugu in Cuddapah district, Paderu in Visakapatnam district, Utnoor in Adilabad district, Kamareddy in Nizamabad district and Mulugu in Warangal district are yet to get the engineering colleges. The reasons for not being opened any engineering college in these revenue divisions are backwardness, inaccessible and demand for college, it does not mean that people of these areas do not demand for engineering education. They demand engineering education only when it is within their reach of financial affordability but this private engineering education is very costly one. It is estimated that the cost of engineering education around one lakh rupees per year under payment quota if it is free seat rupees forty to fifty thousand per year so this cost may not be borne by them. Private people opened all the new engineering colleges, generally these people are profit oriented but if they open college in these backward revenue division returns on these colleges is not guaranteed so nobody came forward to open the college.

When the engineering colleges are opened in every district and all the rural areas have become more accessible to all students. This appears to be impressive on the face of it. It may be noted that there is no reservation for the local (district level) students. The choice of the course and then college are the important considerations and location of the college is hardly taken into considerations. Therefore, we can observe many students of other areas and not the local area study in any college. The distance is a matter of concern in school education and it is hardly important in higher education, that too in engineering education. Local students hardly prefer the college located in the vicinity unless the quality is good and the course of their choice is available. Further, the policy of merit and payment quota also acts against the preference for the local college. If no free seat is available in the local college a poor student is forced to go to a college where it is available.

Besides regional equity, the accessibility of engineering education to poor socio-economic groups is also not guaranteed. The admission is based on the candidates' performance in the Entrance test, popularly known as EAMCET. If the candidate gets a good rank, he/she has choice of choosing the course and the college even within free (merit) quota. To get a good rank, a candidate has to spend a good amount

of money as well as time to prepare for the test. For the poor students, it is beyond their paying capacity. A poor student with good rank may benefit from the present system, but this rarely happens. Most of the students studying for BE in private engineering colleges in Hyderabad and Vsakhapatnam came from families where parents had higher educational background and white color occupations (which include teachers, administrators, officers, government officers). Wards of businessmen and professionals followed this. Almost all students came from high-income background that is income more than one lakh (Impact and Expenditure Review Andhra Pradesh Higher Education sector 2000). The poor student with not so good rank either to drop the idea of pursuing the engineering education or has to borrow money to get admission under the payment category.

It is the access to good coaching institutes that decides the rank and then the course and the college later. Needless to say, paying capacity is the main criterion for admission in to such institutes. Under these circumstances, the expansion of engineering education does not guarantee equity.

Recently GOAP has decided to have common fee structure in all private un-aided colleges, based on the Supreme Court judgment. At present the amount of fee a student has to pay is fixed at Rs 35000 which was less than what the private management wanted (Rs.50000).

When an industry is opened in backward areas, it is likely to be developed due to externalities in terms of providing employment opportunities and using local resources. But this may not be so in case of an engineering college is opened in such areas. It may be mentioned that in some cases, both Faculty and students are commuting everyday from nearby city/town to attend the colleges located in backward areas. This is the case where there are 144 engineering colleges were opened in the Ranga Reddy district alone and all these college students and teachers commuting from Hyderabad every day. It is causing the traffic congestion on roads, vehicle pollution, road accidents and loss of lives in the city. Only for getting permission or some concession the colleges are opened in such areas and not with the real intention of providing education to the local students.

Quality is another important issue that needs to be examined. It is very difficult to define the quality as it is not observable. Some have defined it as exceptional, perfection, and fitness for the purpose value for money and transformation. But in whatever terms the quality is defined, the present status of engineering education is far from satisfactory. For ensuring quality a college should fulfill minimum requirements such as buildings, classrooms, equipment and laboratory and well-trained and committed faculty. Only few colleges have all of them in place and majority lack one or the other facility.

The most important and genuine problem for many colleges is getting the well-qualified faculty. If many colleges are opened in a given year it is very difficult to get engineering post-graduates or doctorates to work as teachers. As such there are very few institutes offering Engineering education at P.G. and Ph.D.

According to some source of academic audit report the total requirement of faculty for 31 colleges (started before 1996) is 3620 in which 1754 faculty members are available. The number of professors is 451 against 451, associate professors 438 against 952 and assistant professors 1334 against 2217 faculty members are available. The faculty strength of colleges started after 1996 is even much more less. Moreover, prospects of getting better jobs in the industry or service sector in India or abroad are more for them and hence, preference for teaching jobs is less. Since many of them are located away from the towns/cities also make otherwise qualified, to opt out of teaching jobs. Added to this some colleges are not willing to pay the salaries suggested by the AICTE. Working conditions in some of the colleges are not satisfactory. Sometimes control of the management over the staff also forces some of them to leave the college in the middle of the academic year. Therefore, conditions of security and job promotions are important in retaining and attracting the faculty.

As far as the infrastructure is concerned many colleges have their own buildings and laboratories but many lack proper maintenance and use, again, partly due to lack of manpower. All these lead to deterioration in quality of engineering education.

Educationist late J.P.Naik remarked that there is an elusive triangle in Indian education system. The triangle he was mentioning related to quantity, quality, and equity. Generally quantity is supposed to ensure equity as did happen in the case of India to some extent, but had an adverse effect on quality. In the case of technical education in AP both equity and quality are affected due to quantity.

It is presumed that employment opportunities are brighter for engineering graduates than general graduates. It is true that unemployment is less among the former than among the latter presently when there are few engineering colleges. But once the out turn from the new colleges starts the situation may be worse than today. It may be noted many engineering graduates are working for meager wages. The prospects of bright future of IT graduates have become bleak with the slump in the global market. Further, the employment depends on the availability of other facilities for investment to establish factories and other establishments. The state has experienced the closure of many industrial units, including some from the public sector, and opening of few in recent years.

Requirement and unemployment of engineering manpower in Andhra Pradesh is also another issue to be looked at. The requirements are estimated by IAMR and we have used the statistics provided by them. It may be noted that IAMR has not given the details of the methodology adopted for arriving at the requirements.

Demand and Availability of Mechanical Engineers

Year	Total annual Requirement	Employment Data (available for work)	Exchange	Balance between Supply and Demand
1994	—	892	—	892
1995	—	9580	—	9580
1996	561	8460	—	7899
1997	561	9722	—	8641
1998	602	7528	—	6926
1999	626	5275	—	4649
2000	627	4882	—	4210

Source: ICMR (2000)

The total requirement of mechanical engineers increased from 561 in 1995 to 627 only in 1999. Thus, there is very little increase in the requirement of mechanical engineering manpower in the last five years.

Table: Demand and Availability of Civil Engineers

Year	Total Annual requirement	Employment Exchange data	Balance Between Supply & Demand
1994	—	Nil	Nil
1995	—	12134	12134
1996	705	12210	11505
1997	738	10168	9430
1998	772	8715	7943
1999	809	6603	5794
2000	847	5751	4904

Source: ICMR (2000)

The requirement of manpower in civil engineers increased from 705 in 1995 to 847 in 1999. Thus there is very little increase in the requirement of civil engineering in manpower in the last five years. On the other hand the supply of civil engineering manpower also showed a declining. The number of civil engineers on the employment exchange declined from 12134 in 1994 to 5751 in 1999. In between there were some fluctuations. The decline in the supply is found to be more than increase in the requirement may be due to increase in the number of employment opportunities more than the estimated one. However the supply has been always more than the requirement in all the years. This has resulted in the unemployment among civil engineers due to the increasing in the number of colleges and the increasing number of seats.

However the supply has been always more than the requirement in all the years. This has resulted in the unemployment among civil engineers.

Table: Demand and Availability of Electrical Engineers

Year	Total Annual requirement	Employment Exchange data	Balance Between Supply & Demand
1976			
1994	--	758	758
1995	--	3378	3378
1996	401	3839	3428
1997	417	1799	1382
1998	433	1632	1199
1999	449	966	517
	468	1335	867

Source: IAMR (1999)

The increasing in the number of colleges and increasing in the number of seats in the electrical engineers is likely to aggregate the problem of unemployment. For example there are 3915 electrical and electronic engineering seats in the state, so every year some more engineers are going to be added to the existing stock of electrical engineers.

It may be noted that there is no proper human resource development planning in the establishment of engineering colleges. The Vision 2020 has categorically stated the importance of technical education but failed to specify how many persons with different types of skills are needed to accomplish the goals specified. The employment opportunities of technical graduates are no better than general graduates. For example, in 2000 about 17910 engineering graduates, 2,47,140 polytechnic passed, 1,07,533 industrial training institute passed candidates are reported to be unemployed. The addition of colleges will increase the number of unemployed graduates. Therefore, the argument that technical education and not general education provide employment opportunities do not hold good unless supporting systems to employ them also develop, which require a different outlook and strategy. Indiscriminate expansion of engineering colleges leads to the lying vacant of engineering seats in many colleges and almost all the courses.

Number seats vacant in various colleges and courses in the year 2003

vacancies	No of colleges	Branch	Total seats	Seats remained to fill
00	78	CSE	11186	1495
1-5	38	IT	7526	3109
6-10	12	ECE	11359	17
11-20	13	EEE	8867	147
21-30	11	Mechanical	4201	41
31-40	15	Civil	1220	3
41-50	15	Chemical	822	2
51-60	7	IPE	625	37
61-70	6	EIE	1389	83
71-80	9	ECSE	103	3
81-90	9	Elec & Comp	196	15
91-100	4	Appl Elec & Instrument	18	11
101-140	6	Instr & Contr Eng	535	164
---	---	Pharmacy (MPC)	701	46
---	---	Architecture	137	16

Source: Eenadu dated 24-10-2003.



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FINANCING ELEMENTARY EDUCATION IN ANDHRA PRADESH UNDER SARVA SHIKSHA ABHIYAN

A study on fund flow pattern and
utilization of resources

B. Shiva Reddy and K. Anji Reddy

Introduction

Andhra Pradesh (AP) is one of the states growing faster during the reform periods compared to many other states. But such an economic growth has not yet translated in terms of the human development of the state especially in terms of the many goals of Sarva Shiksha Abhiyan (SSA). Economic growth is higher in the last two decades but inclusive growth or equitable development has been missing in AP. Examining inclusive growth by considering agricultural growth, employment generation and poverty reduction, social sector (health and education) and reduction in regional and other disparities, Dev (2007) found that there seems to be some 'turn around' in the gross state domestic product (GSDP) of AP in the early years of the new millennium. Despite this, AP may not achieve millennium development goals in crucial indicators of *education*, health and sanitation at current rates of progress. The progress in MDGs for some regions and socially deprived sections like SCs and STs has been slower than the state average. Economic growth may be improving but AP is lagging behind in agriculture, employment, human development and in reducing regional disparities.

On the EE front, AP is known for the introduction of many initiatives for improving access and quality of Elementary Education (EE) since the middle of 1980s. They include among others Operation Blackboard (OBB),

AP Primary Education Project (APPEP), District Primary Education Programme (DPEP) and SSA. The extent and scope of funding and also their effect on improving access and quality of EE varied. SSA is the latest and ongoing flagship programme for improving access and quality of EE.

In this chapter an attempt is made to analyse the financing of EE under SSA with a focus on fund flow pattern and utilization of resources. Before we discuss on the fund flow pattern and utilization of resources a brief presentation on the progress of EE is made in the second section. This section directly and indirectly throws some light on the impact of the earlier programmes like OBB, APPEP and DPEP. While tracing the progress of EE in the state, this section also brings out the growing private sector participation and briefly outlines the trends in financing EE. In the third section trends in financing of EE under SSA is discussed followed by the fund flow pattern. Fourth section deals with misappropriation of funding under SSA and explores the reasons for such an episode. Fifth section examines the finances under SSA across districts. The subsequent section compares fund flow pattern and utilization of resources in two districts, viz., Nalgonda and Ranga Reddy districts. The last section summarizes the findings and draws some conclusions.

Progress of EE in AP

Education especially at the elementary level has shown a remarkable growth since independence in our country. It is mandatory on the part of the government at the centre and the states to provide education to the children in the age group of 6-14 years. The successive governments at the centre and states made effort to provide educational facilities in the country through five year plans with the result, the number of schools established for providing EE and enrolment in India has increased many folds during the last six decades. The state of AP is no exception to these developments.

Many new schools at primary stage were opened under DPEP, even in habitations having small population. Due to upgradation of many primary schools into upper primary and upper primary into secondary schools in the last few years, particularly since 1995, accessibility to upper primary stage (Classes VI-VII) and also to secondary stage (Classes VIII-X) increased along with access to primary stage (Classes I-V). Earlier it was thought that reducing the distance by opening primary schools helps in increasing the enrolment. Parents' decision to send or not to send the child, particularly the girl child to school, depended upon the availability of schooling facility within the habitation. The habitations/villages having less population and hence

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no school were at a disadvantage compared to more populated habitations/villages. Keeping this in view the new schools were opened in habitations having less population and few school-going children. The newly opened schools, particularly after 1995, had less number of children than schools opened before. Micro planning exercise done in the AP indicated that 95.8 per cent of habitations were covered with a primary school/section in 2009–10 (GoAP 2010).

Hence, primary schools were opened in almost all the habitations to provide access to school. Wherever it was not possible to open a primary school an alternative school was provided, with a result that 99.59 per cent of habitations were covered with primary school/section. Subsequently, some of the new primary schools remained without any enrolment or a single teacher in the school for some time. There are about 0.7 per cent of primary schools with zero enrolment and another 13.6 per cent of schools with less than enrolment of 20 children (see Table 3.1). Together, about 14 per cent of schools have become financially non-viable to be run by the government in 2013–14. Compared to 2009–10 there is some improvement.

Consequently, on increase in the number of schools at various levels, the number of children attending school also increased tremendously. Due to demographic transition and minimization of under/over aged children, the enrolment at primary stage declined in the last few years. Among the different levels of education, secondary education increased more rapidly than other levels of education. Due to the emphasis on Universalization of EE (UEE) earlier, the demand for secondary education increased enormously

Table 3.1 Trends in budget expenditure on education in AP

Year	BEE (Rs. in crores)		BEE as % of	
	Current	Constant@	TRE	NSDP
1960–61	17	310	20.45	1.77
1970–71	62	625	20.92	2.46
1980–81	226	1,113	19.50	3.09
1990–91	988	2,170	17.96	3.28
2000–01	3,696	3,558	16.02	2.94
2008–09**	10,520	7,108	15.00	3.18
CAGR (%)	14.3	6.7	–	–

Source: (1) MHRD (1995), (2) Tilak (1998), (3) GoAP (2002), (4) Budget in brief for various years of AP, (5) SDP of AP, DE&S, GoAP (2008).

Note: *Revised estimates; **Budget estimates. (@1999–2000 prices).

in the last few years. During 1959-60 and 2013-14 the enrolment at secondary stage increased at an annual growth of 6.4 per cent when compared to 2.5 per cent at primary and 5.2 per cent at upper primary stage. This is a welcome development because majority enrolled at primary stage are not only completing upper primary stage (Classes VI-VII) but also reaching secondary stage (Selected Educational Statistics, GoAP).

Along with increase in the enrolment, the proportion of students successfully completing each grade also increased. The transition rate, which gives an idea of how many enrolled in a particular class reaches next grade, increased significantly.

There are improvements in the completion of successive stages in the last decade when compared to late 1970s and early 1980s. More than three-fourth are able to complete primary stage; more than half the elementary stage and more than two-fifth are able to reach class X now than before. These suggest that increase in transition rates at a lower stage leads to increase in demand for latter stages. These improvements, however, cannot stop from looking into the inadequacies of the system in retaining more children than the present situation. To achieve UEE all children enrolled in class I should reach class VIII. Not more than two-thirds are able to complete this stage. The wastage is as much as one-third, quite high at any standards. Whether the resources are also wasted to that extent? It is yes if the provision is made for all the children. While planning for school places the dropout rates are already taken into account, indirectly. Many of the existing schools cannot have sufficient accommodation if all the children enrolled in class I successively continue in all the classes. The existing teaching arrangements either become inadequate or irrelevant. To this extent the system is not fully geared up to meet the challenges posed by the recent Amendment to the Constitution, where by EE is made a fundamental right.

Due to increase in both number of schools and enrolment the proportion of children attending the school also increased significantly in the last few years. The GER shows that almost all the children in the age group 6-10 are attending the school. About two-thirds of the children in the age group are reported to be studying in upper primary stage. The GER at secondary stage also increased. Thus GERs suggest that there is a significant increase in the demand for school education.

The quality of EE in terms of inputs like teacher availability increased significantly in the last four decades in AP. The Pupil Teacher Ratio (PTR), though increased initially exceeding the norm, declined since 1990s due to recruitment of teachers on large scale. At present the PTR is less than the norm.

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However, the distribution of teachers across schools is not uniform. About 0.36 per cent of schools are running without a teacher and 11.0 per cent of schools are running with a single teacher in 2013–14. One can understand a school may be run without a building but not without a teacher. So, the schools running without a teacher may be considered as non-functioning schools and single-teacher schools may be considered as partial functioning schools. With a result though the school is physically accessible to the children education is inaccessible to all those children studying in these zero teacher or single-teacher schools. There are teachers working in schools having no student or very few students. There are schools having more enrolment but with few teachers. Further, there are schools with low enrolment but with more teachers. However, compared to 2009–10 there is some improvement in 2013–14 as GoAP has taken steps to rationalization of teacher deployment.

Pass percentage at the common examination (end of Grade-VII) has been quite high and above 90 per cent with some inter-district variations. There are no gender differences. The successful candidates in this examination are the inputs for secondary education. There is a substantial difference in the number of candidates passing class VII and the number of students in class VIII. The difference is mainly due to non-availability of facility, particularly, for those completing class VII in an UP school. Though class VIII is a part of EE at the national level, it is not so at the state level till the implementation of RTE Act. In order to meet the Constitutional requirement, UP schools having minimum 40 students in classes VI/VII (together) added class VIII. However, the pass percentage is not really measuring the quality of education in terms of learning levels. The recent evidence suggests that learning levels of children in EE is far from satisfactory despite the existence of quality improvement programmes like SSA (Rajiv Vidya Mission).

Private and public participation in education

Though no clear cut policy resolution was adopted at the national level with regard to the role of private initiative in the development and financing of education, some states like AP have encouraged private initiative. At the school stage the percentage of schools under private management has increased sharply in the last few years. At the time of state formation the private unaided primary schools were negligible but they crossed single digit now. They account for more than one-eighth of the primary schools and two-fifth of upper primary schools. It is even more in the case of

secondary schools because the increased demand for secondary education is being largely met by private schools.

Increased participation of private sector and public demand for up-gradation of UPS schools into secondary schools has resulted in the increase of private unaided and local body schools. In order to encourage the local bodies to upgrade the upper primary schools in rural area into secondary schools, GoAP relaxed the payment of corpus fund. It may be noted that there are marginal management-wise differences in the enrolment of girls except in the private-aided institutions where it is almost 50 per cent. This may be due to more number of girls' schools under this management and also having urban concentration. The proportion of girls in private unaided is less compared to government schools, indicating some bias towards boys (Selected Educational Statistics, GoAP 2001 and 2005).

Financing of EE

The importance given to education depends on the overall budgetary position and the competing demand for funds from other sectors. Since the formation of the state budget expenditure on education (BEE) has increased significantly in AP, both in absolute and in per capita terms (Table 3.1). During the period 1960-61 and 2008-09 the BEE increased from Rs. 170 million to Rs. 105,200 million in 2008-09, thus registering an annual growth rate of 14.3 per cent. But in real terms the increase was 6.7 per cent only. The priority given to education can be judged by the ratio of BEE to Total Revenue Expenditure (TRE) and State Domestic Product (SDP). The ratio of BEE to TRE increased from 20.45 per cent in 1960-01 to a maximum of 22.84 per cent in 1994-95 but declined thereafter reaching a minimum of 15.0 per cent in the last year. The decline is more in recent years than earlier. As the ratio of SDP, BEE also increased from 1.73 per cent in 1960-61 to 3.95 per cent in 1986-87. Thereafter it declined and reached 3.18 per cent in 2008-09. The Education Commission's recommendation of allocating 6 per cent of GDP has remained unfulfilled not only at the national level but also at the state level.

In AP, the expenditure on education is incurred by several departments of GoAP, though Education Department is the main funding department. A significant part of the budgets of Social Welfare Department and Tribal Welfare Department is allocated to educational programmes. Expenditure on education incurred by departments other than Education Department accounts for about 10 to 15 per cent. Social Welfare Department and Tribal Welfare Department spend considerable amount on school education as they provide grants to APSWREIS and TWREIS. There are changes in the inter-sectoral allocation of BEE among different levels/types of education

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Table 3.2 Inter-sectoral distribution of BEE (revenue account)

Year	Elementary	Secondary	Higher	Technical	Others	Total
1960-61	49.18	25.22	9.56	-	16.04	100
1970-71	43.21	33.09	13.25	3.38	7.07	100
1980-81	44.77	29.49	19.59	3.08	3.30	100
1990-91	45.98	28.20	21.32	2.84	1.66	100
2000-01	42.90	30.10	23.40	2.40	1.20	100
2008-09*	44.35	22.26	15.02	2.23	16.13	100

Source: Government of AP, Budget Estimates for various years.

Note: *Budget Estimates.

in the last four decades (Table 3.2). The budget allocations to EE varied between 40 and 50 per cent. Initially the share was around 50 per cent but declined later reaching a minimum of 32.90 per cent in 1994-95. But in last few years the share has increased considerably due to emphasis on UEE. Secondary education budget also varied between 25 and 35 per cent of BEE. Initially it increased gradually till 1980s but again declined in the last few years. It is very difficult to identify the reasons for these fluctuations.

When compared to school education, higher education received a favourable treatment in the budget allocation till recently. The proportion of BEE to higher education increased from around 10 per cent in 1960-61 to 22.3 per cent in 2008-09. However, there were some fluctuations during this period. Because of policy decision to restrict higher education in the public sector the allocations have declined in the last two years. The allocations to technical education, which is dominated by private sector also declined in the recent years.

Funding of EE under SSA

As seen in Table 3.2, the allocation to EE as a percentage of BEE declined over a period of time. However, there is an increase in its share in the recent years due to introduction of plan schemes. The plan expenditure which accounted for less than 10 per cent earlier now increased to more than 10 per cent in recent years. There is gap between budget estimates, revised estimates and actual expenditure. The latter is less than the former indicating that what is proposed is not spent. This is true for both plan and non-plan budget. One of the reasons for increase in the plan budget for primary education is the centrally sponsored schemes. The ongoing scheme is the SSA. The allocation for this scheme increased significantly in the

last two years from Rs. 3,500 million in 2010–11 to Rs. 6,500 million in 2011–12. AP is one of the states receiving funding continuously under one programme or the other. During 1980s the state received funding from DFID (UK) under APPEP for improving the quality of primary education. Later the funding came from the centre under OBB scheme. From mid 1990s the state received funding under the DPEP. From early part of 2000 the state is receiving funding from the centre under SSA. The extent of funding and coverage of activities varied from one scheme to the other.

Allocation to EE under SSA

As SSA is a centrally sponsored programme, both the central government and state government fund it. The ratio of central share to state share changes with passing of years. It was 75:25 in the beginning of the programme and 50:50 at the end of the programme. However, there was some change in the arrangement with centre's share more than 50 per cent till 2010–11. Table 3.3 gives details about the central and state governments share in SSA funds.

As per the guidelines the Central Government releases funds directly to Rajiv Vidya Mission (hereafter referred as Society), the State Implementing Society in AP. The Society is supposed to receive funds from the centre in two instalments – in April for the first two quarters of the financial year and in September for the third and last quarter. As can be seen from

Table 3.3 Funding of SSA by centre and state government in AP (Rs. in lakhs)

Year	Outlay approved by PAB	Centre released amount	State released amount	Total releases	% of state share in total releases	Total released as % to approved	% of centre share to outlay	% of state share to outlay
2001–02	5,376	1,955	345	2,300	15.0	42.8	36.4	6.4
2002–03	20,930	8,556	58	8,614	0.7	41.2	40.9	0.3
2004–05	49,520	25,000	8,233	33,233	24.8	67.1	50.5	16.6
2005–06	64,887	35,999	12,000	47,999	25.0	74.0	55.5	18.5
2009–10	101,369	13,570	9,047	22,617	40.0	22.3	13.4	8.9
2008–09	155,353	71,032	20,996	92,027	22.8	59.2	45.7	22.8
2010–11	226,437	81,000	65,309	146,309	44.6	64.6	35.8	44.6
2013–14	308,848	179,715	115,161	294,877	39.1	95.5	58.2	39.1

Source: SSA Unpublished Records.

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Table 3.4 Date-wise release of centre and state shares in AP

Year	Central government		State government	
	Date of release	Date of receipt by Society	Date of release	Date of receipt by Society
2001-02	22-08-2001	24-11-2001	16-10-2001	12-12-2001
	19-09-2001	12-12-2001		
2002-03	14-03-2002	19-12-2002	15-07-2002	19-12-2002
	03-09-2002	16-10-2002		
2003-04	20-01-2003	14-02-2003	28-12-2002	04-06-2003
	27-08-2003	17-09-2003	11-03-2003	04-06-2003
	23-03-2004		19-12-2003	31-03-2004
				23-10-2004
2004-05	18-05-2004	16-06-2004	01-01-2005	22-01-2005
	09-08-2004	08-09-2004	19-02-2005	
	18-01-2005	11-02-2005	22-03-2005	
2005-06	26-05-2005	23-06-2005	27-09-2005	17-02-2006
	07-06-2005	29-06-2005	22-03-2006	31-03-2006
	05-09-2005	24-10-2005		
2006-07	23-12-2005	16-01-2006	20-12-2006	07-03-2007
	14-06-2006	27-07-2006	20-01-2007	19-02-2007
	21-08-2006	06-11-2006	10-08-2007	06-12-2007
	29-03-2007	04-04-2007	12-10-2007	17-12-2007
2007-08	07-08-2007	29-08-2007	22-10-2007	04-03-2008
	25-02-2008	28-02-2008	15-03-2008	03-04-2008
			07-07-2008	17-09-2008
2008-09	23-05-2008	27-06-2008	17-10-2008	23-03-2009
	02-11-2008	25-02-2009		
2009-10	02-06-2009	06-06-2009	08-10-2009	04-12-2009

Source: SSA Unpublished Records.

Table 3.4, very rarely this is followed. The centre released first instalment sometime in August/September. There is a time gap between the date of release by the centre and the date of receipt by the Society.

Flow of funds under SSA

Similarly there is also delay in the release of funds from the state government. There is a lengthy procedure in the release of state share. Therefore, there is a long gap between the date of release and the date of

receipt by the Society. The state government releases its share to the Rajeev Vidya Mission (RVM) as a last priority subject to it; the other important subjects are Jalayagnam (Construction of Irrigation projects), Self-help groups, Employment guarantee programme, old age pensions, etc. After releasing budgets to all these programmes the remaining is released to the Rajeev Vidya Mission. Therefore, there is a delay in release of state government share every year and in every quarter of releases (see Table 3.4).

As there is a delay in releases and less time is left to the district authorities to spend the amount by following government lengthy procedures, so, there is every scope to flout the government procedures and spend the amount to reach the targets within less time or no time. The activities planned under SSA remain incomplete almost every year and result in still out of school children and low quality of education in government run schools. The delay in release of funds from the centre and the state automatically leads to the delay in the release of funds from the Society to the districts. Table 3.5 gives some idea about the date and amount of release of SSA funds by the Society to the districts. The major amount is released in the second half of the financial year. For the first few months the released amount is less and mainly to meet the salary component. More than 20 per cent of the budget is to be spent in the last month itself which is difficult for many districts.

Table 3.5 Instalment-wise release of funds to the districts in AP, 2008-09

<i>Instalment</i>	<i>Date</i>	<i>Amount (Rs. in lakhs)</i>	<i>Per cent</i>
1st instalment	14.05.08	2,097.9	2.49
2nd instalment	26.06.08	9,000	10.69
3rd instalment	09.07.08	8,471.72	10.06
4th instalment	28.08.08	14,320.54	17.01
5th instalment	-	10,544	12.52
6th instalment	-	1,328.6	15.78
7th instalment	-	15,665	18.61
8th instalment	-	5,207.5	6.18
9th instalment	25.02.09	15,256.32	18.12
10th instalment	23.03.09	2,305.68	2.74
Total	-	84,197.26	100.00

Source: SSA Unpublished Records.

Misappropriation of DPEP/SSA funds

Though certain irregularities are reported in utilizing the funds under different schemes, the misappropriation of funds under DPEP/SSA is worth noting. It reached such a proportion that Government had to appoint a Commission (Go AP 2008) to look into the irregularities. Though unofficial sources say more, the amount of misappropriation is about Rs.15 crores. The Commission in its Report has come out with interesting and useful findings about the lapses in the monitoring of fund flows and mechanism by which funds are misappropriated. Funds from many districts are diverted when the district officials refunded the unutilized amount through Demand Drafts/Cheques to the head office at Hyderabad.

Reasons for under-utilization and misappropriation of DPEP/SSA funds

As we have seen funds allotted to EE under SSA are not fully utilized. Further, there is misappropriation of DPEP/SSA funds. There are several reasons for it. Some of them are briefly explained below:

- **Appointment of non-education cadre officials as project officers:** In many districts the project officers of SSA are on deputation from various services other than education service. Since they have to work with education officials like DEO, MEOs there is lack of coordination between them. At the higher level also there is no coordination between Commissioner and Director of School Education and State Project Officer. The former is unwilling to depute education officials to work in SSA programme.
- Further, for spending on certain activities it is necessary to involve the education officials. For example, the education department has to permit teachers to attend the teacher training organized under SSA. In some cases the permission is not given and hence the funds allocated for teacher training is not fully utilized.
- **Delay in release of instalments:** As we have seen the amount earmarked under SSA is released to the districts in instalments. For example, in the last year the amount is released in 10 instalments. Initially the amount was released to meet the salary component. For carrying activities the amount is released very late. As a result there is little time to spend the money. For example, in the last year the last instalment is released in the month of March.

- **No proper maintenance of records:** As per the guidelines 22 records are necessary for proper monitoring of funds. The Report and also Audit Statement suggest that they are not maintained. Lack of maintenance also gives scope for misuse of public funds as happened with DPEP/SSA funds.
- **Office staff from other departments:** Since project office is established for implementation of the scheme which is time bound limited period of regular office staff was not recruited but taken on deputation from other departments including education. But majority of these staff have come to this office with some mollifying intentions because of huge amount of funds flow in time bound manner.

Fund allocation, release and expenditures at district level

Wide disparities in the level of development have been observed in different districts. For instance based on the composite index, the district of West Godavari was ranked first in overall socio-economic development and the district of Guntur was found on the first position in respect of agricultural development. Wide disparities were observed in the level of development among different districts. Infrastructural facilities were found to be positively associated with the level of developments in agricultural sector and overall socio-economic field. Agricultural development was influencing the overall socio-economic development in the positive direction (Narain *et al.* 2009). Further in a district level analysis, it was found that growth rates in district domestic product (DDP) and per capita DDP shows that seven districts of Telangana (Ranga Reddy, Nizamabad, Khammam, Hyderabad, Mahbubnagar, Warangal and Medak) and two districts of North Coastal (Visakhapatnam and Srikakulam) recorded higher growth rates than that of state average. On the other hand, all the districts in South Coastal and Rayalaseema and three districts of Telangana and one district of North Coastal showed lower growth than that of state average. However, one has to see the quality of growth in Telangana and Rayalaseema districts (Dev 2007).

An attempt is made here to examine, to what extent SSA allocations have been made considering the levels of development requirements of the districts. The state allocated an amount of Rs. 37,370 million till 2007-08 (Table 3.6). The allocated amount is not released. Only about 58 per cent is released. Even the released amount is not spent in some years. On an average 96 per cent of the released amount is spent. The expenditure to

Table 3.6 District-wise funding under SSA in AP (cumulative up to 2007-08) (Rs. in lakhs)

S. No	District	Allocation	Releases	Expenditure	% of utilization of fund	% of releases out of allocations	Exp/Releases
1	Srikakulam	12,997	7,772	7,971	61.3	59.8	102.6
2	Vizianagaram	11,848	6,821	6,890	58.2	57.6	101.0
3	Visakhapatnam	17,747	8,920	8,836	49.8	50.3	99.1
4	East Godavari	23,122	16,807	16,794	72.6	72.7	99.9
5	West Godavari	19,263	11,927	12,441	64.6	61.9	104.3
6	Krishna	20,517	12,629	12,421	60.5	61.6	98.4
7	Guntur	14,134	8,007	7,917	56.0	56.7	98.9
8	Prakasham	13,463	7,594	7,929	58.9	56.4	104.4
9	Nellore	11,214	7,094	7,409	66.1	63.3	104.4
10	Chittoor	20,783	10,682	10,499	50.5	51.4	98.3
11	Kadapa	13,336	7,723	6,895	51.7	57.9	89.3
12	Anantapur	23,715	10,893	10,521	44.4	45.9	96.6
13	Kurnool	18,717	9,285	9,861	52.7	49.6	106.2
14	Mahabubnagar	19,532	11,361	11,403	58.4	58.2	100.4
15	Hyderabad	15,205	9,196	8,013	52.7	60.5	87.1
16	Rangareddy	13,092	6,571	4,696	35.9	50.2	71.5
17	Medak	13,573	7,967	8,255	60.8	58.7	103.6
18	Nizamabad	10,788	6,224	6,202	57.5	57.7	99.6
19	Adilabad	16,197	8,898	8,736	53.9	54.9	98.2
20	Karimnagar	11,887	6,472	6,786	57.1	54.5	104.9
21	Warangal	14,722	7,003	6,422	43.6	47.6	91.7
22	Khammam	14,789	9,020	8,379	56.7	61.0	92.9
23	Nalgonda	16,406	8,869	9,528	58.1	54.1	107.4
24	SPO	6,695	8,860	3,135	46.8	132.3	35.4
25	Total	373,743	216,594	207,939	55.6	58.0	96.0

Source: Geetha Rani (2010); SSA AP Annual Report 2008-09.

allocation is little above half (55.6 per cent to be precise). Out of 23 districts 10 districts have spent more than what is released by the state government, i.e. more than 100 per cent. These districts could have spent that amount from the previous unspent balance returned by the schools and other agencies. That means these districts might have spent less in the previous financial year than what they have shown in the records. Other than this there is no source of funds for SSA at the district level. Whatever funds comes to the SSA office of any district it has to come from state government only except the donations made by any philanthropists. Even those donations are very nominal donated by philanthropists here and there. Therefore, the districts spent more than 100 per cent of releases definitely from the balances remaining of the previous financial years returned in that particular year by the school authorities or other agencies.

Data presented in Table 3.6 show the huge gap between approved budget and actual expenditure incurred not only at the state level but also at the district level. In some districts such as Anantapur the gap is wide where less than half of the approved budget is released and spent. On the extreme there are some districts like East Godavari where more than 70 per cent is spent.

In some districts the actual expenditure by the districts exceeded the amount released. It is not clear how and from what other sources the excess amount is drawn. The Report (2008) also points out that no proper mechanism is adopted in spending more than the amount earmarked. The inter-district differences not only exist in the allocation and expenditure but also in per-student expenditure and proportion of students (Table 3.7). There are differences between proportion of SSA funds and proportion of students. It appears that some developed districts are able to get more SSA funds and also able to utilize more. Though it is difficult to explain the differences, there is a need to look into the overall development of the districts in education and other sectors.

The expenditure per student is supposed to be high in backward districts than developed districts due to special needs but the expenditure figures show the contrary picture. The backward districts like Mahaboobnagar, Medak, Warangal, Ranga Reddy, Prakasham, Srikakulam, Vizianagaram and Visakhapatnam have received less share of budget than their share of enrolment in the state during the last seven years period of time. On the other hand the developed districts like Krishna, East Godavari, West Godavari, Nellore and Kadapa have received more budget than share of enrolment in the state (see Table 3.7). Developed districts could secure more budget with the support of political leadership, well supported bureaucrats at the highest level of administration and other pressure groups from these districts.

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Table 3.7 District-wise expenditure under SSA and enrolment in EE, 2002-03 to 2008-09

S. No	District	Avg exp per student (Rs.)	Total expenditure	Share of enrolment	Share of exp
1	Srikakulam	3,256	2,990	3.8	3.9
2	Vizianagaram	3,296	2,546	3.2	3.4
3	Visakhapatnam	3,065	3,479	4.9	4.7
4	East Godavari	3,331	3,237	6.3	6.6
5	West Godavari	3,451	3,355	4.8	5.2
6	Krishna	3,816	3,670	4.5	5.5
7	Guntur	2,627	4,089	5.0	4.2
8	Prakasham	2,973	3,248	4.1	3.8
9	Nellore	3,647	3,283	3.3	3.8
10	Chittoor	3,374	4,664	5.1	5.5
11	Kadapa	3,974	2,582	3.0	3.8
12	Anantapur	3,511	4,593	5.0	5.6
13	Kurnool	2,859	4,634	5.5	5.0
14	Mahabub Nagar	3,066	3,892	5.7	5.5
15	Ranga Reddy	2,311	2,401	4.4	3.2
16	Hyderabad	3,417	1,463	2.7	2.9
17	Medak	2,919	2,837	4.3	4.0
18	Nizamabad	2,841	2,213	3.4	3.0
19	Adilabad	3,495	3,414	4.1	4.5
20	Karimnagar	2,478	2,302	4.4	3.4
21	Warangal	2,815	3,635	4.3	3.9
22	Khammam	3,576	2,860	3.9	4.4
23	Nalgonda	2,929	3,385	4.5	4.2
	AP	3,154	74,771	100.0	100.0

Source: Government of AP (2009); APSSA Annual Report 2008-09.

Comparative study of Ranga Reddy and Nalgonda districts

The two districts of AP are taken for detailed analysis of fund flow and resource use under SSA. They are Nalgonda and Ranga Reddy districts. It may be noted that Ranga Reddy district has more urban area when compared to Nalgonda district. This district is found to be in low developed category in agricultural sector, infrastructural facilities and overall socioeconomic sector (Narain *et al.* 2009). Nalgonda district is backward

compared to the Ranga Reddy. Ranga Reddy district was formed (1978) after formation of the state but Nalgonda district was in existence before the state was formed. Educationally Ranga Reddy is more developed as it is closer to capital city and in fact the capital city is surrounded by it from all sides. However, there are some parts of the district that are backward both economically and educationally. The population of Ranga Reddy is 52.96 lakhs which is 6.25 per cent of the total population of the state whereas Nalgonda population is 34.83 lakhs with 4.11 per cent of the state population. In case of density of population again Nalgonda has lesser (245) than state (308) density of population and Ranga Reddy district has higher (707) density of population. According to 2011 Census the literacy rate in Nalgonda (65.05 per cent) is less than state average (67.66 per cent) and Ranga Reddy (78.05 per cent). Even in male and female literacy rates Ranga Reddy district is ahead of state but Nalgonda is backward on both the counts.

The basic statistics related to primary education indicates that number of primary schools increased in both the districts in the last decade (Table 3.8). But the increase is more in Ranga Reddy district than in Nalgonda. The enrolment in Nalgonda showed declining trend whereas it increased in Ranga Reddy district. The GERs are more than 100 per cent in both the districts though it is less in Nalgonda than in Ranga Reddy. The dropout rates are more in Nalgonda when compared to Ranga Reddy.

The approved outlay increased during the last few years in both Nalgonda and Ranga Reddy (Table 3.9). However, the approved outlay is rarely released and as a result there is a large difference between the actual

Table 3.8 Primary education in Nalgonda and Ranga Reddy districts

	Primary schools	Enrolment I-V	No. of teachers	GER	Dropout rate I-V	Teacher/pupil ratio
Nalgonda						
2001-02	2,450	416,583	5,093	128.1	38.5	39
2005-06	2,816	340,910	8,087	119.78	38.5	28
2009-10	2,975	307,782	7,577	100.2	29.2	29
Ranga Reddy						
2001-02	1,760	482,320	2,916	137	42.0	43
2005-06	2,438	481,480	9,599	153.7	31.4	35
2009-10	2,561	540,960	9,780	160.0	13.5	32

Source: Educational Statistics of AP, for the relevant years.

Table 3.9 SSA outlay (Rs. in lakhs)

Year	Approved outlay	Ex outlay
Nalgonda		
2002-03	1,625	
2003-04	942	
2008-09	5,367	3.1
2010-11	8,048	4.8
2012-13	18,737	10.9
2013-14	13,562	5.1

Source: Unpublished Record

expenditure and outlay level information on Nalgonda and Ranga Reddy resources are utilized well or approved outlay is spent about 50 per cent Board (PAB) at New De implement in the district ally increased the utilization rate is about 50 per cent.

The expenditure in R of time but the expenditure consistently. During the initial and increased faster. This authorities and political. The political interference Residential Bridge Court. The political awareness District people are having the project officer posted the support of state administration. The SSA besides the state office so district officers who enable more effectively.

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Table 3.9 SSA outlay and expenditure in Nalgonda and Ranga Reddy districts (Rs. in lakhs)

Year	Nalgonda			Ranga Reddy		
	Approved outlay	Expenditure	Exp. as % of approved outlay	Approved outlay	Expenditure	Exp. as % of approved outlay
2002-03	1,625	710	43.7	1,249	298	23.9
2003-04	942	612	65	927	422	45.5
2008-09	5,367	3,385	63.1	5,065	2,940	58.1
2010-11	8,048	4,867	60.5	7,539	1,391	18.5
2012-13	18,737	10,954	58.5	20,683	13,877	67.1
2013-14	13,562	5,193	38.3	12,665	6,845	54

Source: Unpublished Records of SSA - Nalgonda and Ranga Reddy districts.

expenditure and outlay in both Nalgonda and Ranga Reddy. The district level information on utilization of resources released to the district of Nalgonda and Ranga Reddy shows that more than 90 per cent of released resources are utilized with few exceptions. But it is less than their proposals or approved outlay in all the years. These districts have succeeded to spend about 50 per cent of the amount approved by the Planning Appraisal Board (PAB) at New Delhi and much less than what they have planned to implement in the districts to achieve the desired results. Though marginally increased the utilization rate is quite low and the average utilization rate is about 50 per cent in Nalgonda and 42 per cent in Ranga Reddy.

The expenditure in Ranga Reddy has increased gradually over period of time but the expenditure in Nalgonda district has not increased consistently. During the initial years there was a sudden increase but declined and increased faster. This is mainly due to the capabilities of implementing authorities and political interference in implementation of the activities. The political interference was observed mainly in activities like running Residential Bridge Courses for out-of-school children and civil works. The political awareness is more in Nalgonda District. In Ranga Reddy District people are having less concern with school activities. Besides, the project officer posted in the Ranga Reddy district generally enjoys the support of state administration and guidance from time to time in implementation. The SSA office of Ranga Reddy district is situated just besides the state office so the state administration closely monitors the district officers who enable the district to implement the programmes more effectively.

Table 3.10 (Continued)

S. No	Intervention	Aggregate (2002-03 to 2008-09)		Achievement out of approval	Share of each intervention in the total expenditure
		Approval	Expend		
12	Free textbooks	63	21	33.8	0.2
13	Maintenance grant	792	480	60.6	3.9
14	Teacher salary	6,541	2,360	36.1	19.1
15	Equipment	306	246	80.4	2.0
16	Remedial teaching	36	28	77.7	0.2
17	Innovative activity for disabled	287	174	60.6	1.4
18	Girls education	82	13	15.9	0.1
19	Planning and management	10	1	7.5	0.0
20	Project management	119	92	77.1	0.7
21	Distance education	6	0	1.1	0.0
22	Focus areas by groups	272	257	94.6	2.1
23	Pedagogical school improvement	778	315	40.5	2.6
	Total	23,886	12,353	51.72	—

Source: Office of DPO SSA, Nalgonda.

per the SSA guideline the proportion of allocation in budget should not exceed 33 per cent for Civil Works. The aggregate expenditure incurred on civil works shows that the Nalgonda district has incurred more than stipulated ceiling expenditure on civil works but the Ranga Reddy district expenditure on civil works is within the limits. The Nalgonda district expenditure is 42.90 per cent and Ranga Reddy expenditure is 32.00 per cent.

Aggregate expenditure of civil works in Nalgonda district is about 63 per cent of the approved budget and Ranga Reddy district is 65.39 per cent. Though the achievement of aggregate expenditure on civil works in Nalgonda district is less than the achievement of Ranga Reddy district of approved budget but the share of Nalgonda district is greater than the share of Ranga Reddy district (see Table 3.11). The target is not achieved due

Table 3.11 Aggregate inter
Ranga Reddy dis

S. No		
1	Civil works	4
2	Research and evaluation	4
3	CWSN	
4	Girls education	
5	Management and MIS	
6	Teacher training	1
7	ECCE	
8	Community mobilization	
9	Teachers salary (recurring)	3
10	Teachers grant	
11	School grant	
12	Maintenance grant	
13	Black resource centre	
14	School complex centre	
15	Interventions for OOSC	1
16	Media	
17	Free textbooks	
18	Community training	
19	Remedial teaching	
20	SC/ST	
21	Computer education	

Table 3.11 Aggregate intervention-wise approvals and achievement under SSA in Ranga Reddy district, 2002-03 to 2008-09

S. No		Aggregate (2002-03 to 2008-09)		Achievement out of approval	Share of each intervention in the total expenditure
		Approved	Expenditure		
1	Civil works	4,836	3,162	65.4	32.0
2	Research and evaluation	180	63	35.2	0.6
3	CWSN	297	145	48.9	1.5
4	Girls education	35	35	100.0	0.4
5	Management and MIS	385	353	91.6	3.6
6	Teacher training	1,345	894	66.5	9.1
7	ECCE	84	81	95.6	0.8
8	Community mobilization	147	73	49.6	0.7
9	Teachers salary (recurring)	3,498	1,894	54.2	19.2
10	Teachers grant	306	193	63.2	2.0
11	School grant	338	332	98.0	3.4
12	Maintenance grant	394	286	72.6	2.9
13	Black resource centre	283	54	18.9	0.5
14	School complex centre	41	41	100.0	0.4
15	Interventions for OOSC	1,354	675	49.9	6.8
16	Media	11	11	95.2	0.1
17	Free textbooks	230	4	1.5	0.0
18	Community training	180	96	53.5	1.0
19	Remedial teaching	49	49	101.2	0.5
20	SC/ST	126	93	74.2	0.9
21	Computer education	50	48	96.0	0.5

(Continued)

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It is presumed that employment opportunities are brighter for engineering graduates than general graduates. It is true that unemployment is less among the former than among the latter. It may be noted that many engineering graduates are working for meagre wages. The prospects of bright future of IT graduates have become bleak with the slump in the global market. Further, the employment depends on the availability of other facilities for investment to establish factories and other establishments. The state has experienced the closure of many industrial units, including some from the public sector. The out turn from the colleges is several times the requirement and hence only those with better grades and communication skills are absorbed in the newly emerged IT sector.

FRS has led to unethical practices like some management recruiting agents to get the students. The colleges with poor infrastructure and staff, mainly located in rural areas, have indulged in these practices such as advertisement with tall claims and luring students by offering sops such as free transport and hostel facility and laptops.

FRS has created imbalances within higher education. The component of technical and professional education has increased, while the general higher education declined. FRS has indirectly encouraged many to opt for expensive courses such as engineering and management. Further, within technical and professional education, the higher (undergraduate and PG) levels increased while the lower levels (polytechnic and ITIs) have not increased much. This is contrary to the requirement in the job market where more polytechnic and ITIs than engineering graduates are needed.

The financial burden on state government has increased from about ₹1,600 crores in 2008–2009 to about ₹5,000 crores by 2013–2014. On the other side, engineering graduates benefited under FRS have remained unemployed, indicating the waste of financial resources.

PROBLEMS IN THE IMPLEMENTATION OF FRS

Initially the implementation was successful. But within no time FRS started facing problems. There are some in-built deficiencies in the design of FRS, some of which include the following.

At first, FRS was intended to financially support the BCs but subsequently extended to other sections whose parents' annual incomes are less than the prescribed amount. Many of the students could manage to get prescribed income limit certificate and were covered under FRS. Second, the fee reimbursement implies that the student has to pay the fee to the institution first and the same has to be reimbursed by the government to the student. But contrary to this, the government is giving assurance to the education institution that the tuition fee of all those eligible students will be reimbursed. This has created an artificial demand for the courses which otherwise would not have been demanded due to high cost. Third, the admission to professional, technical and other courses has two categories, that is, government quota and management quota. The government quota seats are filled by the admission authority created for the purpose and cover under FRS as per eligibility, whereas management quota seats are filled by the managements as per the government rules but are not covered under FRS. But the managements are managing the universities through lobbying, political pressure or corruption to consider the students admitted under the management quota as government quota. Once it is approved, all these eligible students are also covered under FRS. Consequently, the financial burden on state government has increased.

Fourth, the FRS is implemented on an exhaustive mode which means that every student who applied for FRS has to be sanctioned as per the eligibility. By taking this as an advantage, the managements have admitted the students who are not able to attend the college. The private managements are identifying such students and admitting them in their colleges. In the process, competition between the private managements has increased to admit such students in their college by offering incentives (mobile phones, cash and so on) to the students. If such students are admitted, there is no burden on the management to provide additional facilities related to teaching, accommodation, library, laboratory, drinking water, toilets and the likes. Even if the management spends one year fee income to offer incentive to students, the management will have two or more year's fee income with them. With this, corruption has increased for sanction of FRS.

After the bifurcation of the state, the new governments in two states (Telangana and Andhra Pradesh) are taking several measures to

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 reduce the financial burden of the FRS results. The Telangana government is prescribing age limit, that is, 34 year FRS, one professional course or PT biometric attendance for student institution and these linked to i The Telangana government has from police and revenue dep and submitted report to gov colleges. Only after verifica The UG courses admissv Telangana (DOST) mir reduce financial burder reduction in the numb year 2017-2018, also have remained vaca department of his engineering colle a duration of tv asked the colle and computer fee. The mor About one- also due to closed. T both the TDP in due to owir

reduce the financial burden of the FRS as it is not producing expected results. The Telangana government is imposing new conditions such as prescribing age limit, that is, 34 years as the maximum age to receive FRS, one professional course or PG course but not both, insisting for biometric attendance for students and staff, and CC cameras at each institution and these linked to the affiliating universities to monitor. The Telangana government has constituted a task force with officials from police and revenue departments. They have inspected colleges and submitted report to government on availability of facilities in the colleges. Only after verification, the colleges are admitted under FRS. The UG courses admissions made through Degree Online Services Telangana (DOST) minimize the fictitious admissions and thereby reduce financial burden under FRS. As a result, there was significant reduction in the number of students at UG level. During the academic year 2017–2018, alone out of the 4.2 lakhs seats about 52 per cent have remained vacant at UG level. The Andhra Pradesh government department of higher education reportedly issued a circular to the engineering colleges asking to introduce skill development courses with a duration of two months for the UG BTech students. The circular asked the colleges to enrol students in the courses in civil, mechanical and computer sciences courses on payment of ₹2,000 each as admission fee. The move intends to equip the engineering students with job skills. About one-third of the colleges which do not satisfy the conditions and also due to lack of sufficient demand have either reduced the intake or closed. The political party that introduced the FRS is not in power in both the states. The two parties in power TRS in Telangana state and TDP in Andhra Pradesh do not want to continue it in the same form due to financial burden. At the same time, they cannot discontinue it owing to political compulsions.

CONCLUSION

Whether the main purpose of the FRS is achieved or not can be viewed both from students, private and social angles. Within private also, one has to examine both from the students and management angle.

From the student angle, in the narrow sense, FRS has benefited those who could not have entered into the portals of technical

education. All most all categories of students SC, ST, BC, EBC, minority and disabled have access to technical education. Therefore, FRS has helped to increase the access and equity. It may be noted that, majority of them got access to low-quality education and these low-quality graduates are remaining as unemployed or underemployed.

The FRS has benefited those who could not enter into the portal of technical education but majority of them got low-quality education and have remained unemployed/underemployed.

From the management angle, many seats are filled in most of the private colleges under FRS. Otherwise many colleges would have become defunct. They have also benefited from FRS by increasing the intake capacity and admission quotas. It was done by the managements by following it with government in changing of admission quotas and fee structure and also inclusion of different categories of students under FRS.

But the college managements are benefitted from FRS by way of filling up of seats, increasing the intake capacity, changing of admission quotas and fee structure.

From the social angle, the state could produce more number of engineering graduates from all categories (SC, ST, BC, EBC and Minority). But in the process, unemployment and underemployment has increased.

Educationist late J. P. Naik remarked that there is an elusive triangle in the Indian education system. The triangle he was mentioning related to quantity, quality and equity. Generally, quantity is supposed to ensure equity as did happen in the case of India to some extent, but had an adverse effect on quality. In the case of technical education in Andhra Pradesh, both equity and quality are affected due to quantity.

FRS, though good, is a poorly designed and implemented intervention. Poorly designed interventions may reduce the overall welfare if they result in wasted resources or education that does not best meet the needs of students, institutions and the society.

In Andhra Pradesh, the higher education system in terms of quality and equity in technical education has suffered rather than benefiting from FRS. The quality and equity in technical education. FRS, though

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good, is poorly designed and implemented. Poorly designed interventions may reduce the overall welfare of welfare of the society by wastage of resources. FRS, though good, they did not meet the needs of students.

The government has to establish a mechanism to provide quality education for education for education students. If it is not possible, FRS has to be discontinued. FRS has implementing conditions which include 100% attendance by introducing biometric attendance directly linking to monitoring agency, 100% of students in each academic year, 100% of students to maintain academic standards to be maintained. No punishments have to be awarded to students involved in unethical practices.

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good, is poorly designed and implemented and resulted in reduction of welfare of the society by wastage of precarious financial resources as they did not meet the needs of students, institutions and the society.

The government has to establish the educational institutions to provide quality education for educationally and socially disadvantaged students. If it is not possible, FRS has to be continued by rigorously implementing conditions which include ensuring minimum 75 per cent attendance by introducing biometric machines with CC cameras directly linking to monitoring agency, ensuring minimum performance of students in each academic year, ensuring that all the institutions maintain academic standards to be made eligible for FRS, and serious punishments have to be awarded to those (institutions, officials and students) involved in unethical practices to claim funds under FRS.

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Dr. K. Anji Reddy

Assistant Professor, Department of Economics,
Mahatma Gandhi University, Nalgonda, T.S.
E-mail: kanjireddy036@gmail.com

Abstract

The last two decades are known for several important developments all over the world. There has been a perceptible change in the values and goals. New goals, policies and practices replaced traditional and well established values, concepts and approaches. Market-driven policies have been replacing social, democratic and welfare-oriented policies. The world is moving towards globalisation making existing arrangements – economic, cultural and legal – obsolete and irrelevant.

The paper is divided into four sections. Following section (Section II) briefly summarises the basic provisions related to Education under GATS. The trends in internationalisation of higher education in India is analysed in Section III. Some of the implications of trade in educational services for India are examined in Section IV. The concluding observations are made in the last section.

*The WTO has identified four modes trade in education. **Mode 1 – Cross-border Supply:** Any type of course that is provided through distance education, web-based program, any testing service and educational material which can cross-national boundaries. **Mode 2 – Consumption Abroad:** This mode involves the education of foreign students. Students have to move to the country of supplier for pursuing all or part of their education in another country. **Mode 3 – Commercial Presence:** This mode includes offshore campuses, joint ventures and subsidiaries. **Mode 4 – Presence of Natural Persons:** This mode refers to the ability and the freedom for the people to move between countries to provide education service through temporary stay.*

Majority of the Indian students' destiny for higher education is developed countries like United States of America, United Kingdom, Australia, New Zealand and other countries. They are moving to these countries for employment along with education. India is also attracting foreign students mainly from developing countries and the number is increasing year by year both going abroad and incoming. But the provisions under GATS may restrict movement of students. Available statistics suggest that India continues to be net importer of higher education despite having huge human resources.

India is in a strong position to benefit from both export and import of higher education. India is in advantageous position both politically and economically by exporting education, particularly to developing countries that have substantial Indian diaspora. This is the appropriate time to change and attract the students. Any loss of time would cause irreversible damage in terms of loss market credibility, resources and opportunity to transform to meet the challenges.

Indian higher education system developed more on democratic, equity oriented lines and hence not paid much attention to the efficiency and quality concerns. Now, the new situation demands that every action should be based on these concerns. Therefore, it is time to relook into the relevance of earlier concerns in the new situation which demands more market orientation in every sphere of activity.

including education. It is not an easy task to completely reorient the system that has been built over the last half century and which has become immune to adjust to the changing global scenario.

Introduction

The last two decades are known for several important developments all over the world. There has been a perceptible change in the values and goals. New goals, policies and practices replaced traditional and well established values, concepts and approaches. Market-driven policies have been replacing social, democratic and welfare-oriented policies. The world is moving towards globalisation making existing arrangements – economic, cultural and legal – obsolete and irrelevant.

The most important development in the 1990s is the emergence of WTO that has significantly affecting almost all sectors, sections and regions of the world. India is not an exception to this. Among the sectors, the service sector is brought under the purview of tradable sector. This is because of increase in the share of sector to the national economies all the countries—both developed and developing. Among the services, education is treated as an important service to be traded globally. The global market for international higher education was estimated at 27 billion dollars in 1995 (Azad and Chandra, 2002) has increased manifold in the last few years. The report issued by the London-based investment bank IBIS Capital, the global education market is now worth of 4.4 trillion dollars and is set to grow a lot over the next five years, it is fastest-growing sector, not surprisingly, e-learning is expected to grow around 23% by 2017. Under GATS framework, trade in education has implications for educational development of a country—particularly for countries like India.

In this paper, a modest attempt is made to examine the implications of WTO for higher education sector in India. It is based on secondary sources of information and on the available data. Some of the studies related to the theme are used to examine the issues rather than making any special attempt to analyse them.

The paper is divided into four sections. Following section (Section II) briefly summarises the basic provisions related to Education under GATS. The trends in internationalisation of higher education in India is analysed in Section III. Some of the implications of trade in educational services for India are examined in Section IV. The concluding observations are made in the last section.

Education Services under GATS

GATS rules apply to education services in four ways:

1. Each member country, including India, has to give Most Favoured Nation (MFN) status to all member countries;
2. Each member country, including India, has to make a request offer or a particular service to be a part of the agreement;
3. Each member country, including India, has to eliminate any restraint on competition when requested by another member country;
4. Each member country, including India, has to ensure that all measures are administered in reasonable and impartial manner.

Five levels of education have been identified for trade. They are: Primary Education, Secondary Education, Higher Education, Adult Education and Other Education. These are based on the UN Provisional Central Product Classification (WTO, 1998, Annex-I). Though identified for trade, the first two are still restricted to domestic providers. The last three have received more attention as tradable services. Even among them, higher education has become focus of attention because it in this sector that is already in existence and likely to expand under WTO regime.

WTO has identified four modes of trade in education:

- **Mode 1 – Cross-border Supply:** This mode of trade does not require the students to move physically. Cross-border supply of service includes any type of course that is provided through distance education, web-based programme, any testing service and educational material which can cross-national boundaries.
- **Mode 2 – Consumption Abroad:** This mode involves the education of foreign students. Students have to move to the country of supplier for pursuing all or part of their education in another country.
- **Mode 3 – Commercial Presence:** This mode involves the service provider establishing a presence of the foreign investors in the host country, such as foreign universities setting up of educational facility in another country to provide the service. In other words, the actual institutions and courses in other country are covered under this mode. This mode also includes offshore campuses, joint ventures and subsidiaries.
- **Mode 4 – Presence of Natural Persons:** This mode refers to the ability and the freedom for the people to move between countries to provide education service through temporary stay.

Growth of Higher Education in India

After Independence, Indian higher education system expanded rapidly. The number of universities increased from 28 in 1950-51 to 799 by 2015-16. The number of colleges offering undergraduate and post-graduate courses increased from 578 to 39071 during the same period. The enrolment in higher education increased from 0.2 million to 34.6 million during 1950-51 and 2015-16 (See Table 1). The growth of enrolment is more than the growth of number of institutions.

Table 1

Year	Universities	Colleges	All	Enrolment (Millions)
1950-51	28	578	606	0.20
1960-61	45	1819	1864	0.60
1970-71	93	3277	3370	2.00
1980-81	123	4738	4861	2.80
1990-91	184	5748	5932	4.40
2000-01	266	11146	11412	8.80
2005-06	348	17625	17973	10.50
2015-16	799	39071	39870	34.6

Source: Agarwal (2006) and AISHE 2015-16, Department of Education, MHRD, GOI, New Delhi.

Table 2: Growth of Professional Education in India

Name of the Course	Institutions 1990-2000	Institutions 2016-17	Percentage Increase	Private Share (%)		Public Share (%)	
				2003-04	2015-16	2003-04	2015-16
Engineering	669	6472	867.41	88		12	25.48
Pharmacy	204	1524	647.06	94		6	12.40
Hotel Management	41	105	156.10	90		10	19.04
Architecture	78	169	116.67	67		33	

Teacher Education	1050	5190	394.29	68	32	
MCA	780	1233	58.08	62	38	14.43
MBA	682	3359	392.52	64	36	8.37
Medicine	174	412	136.78	46	54	
Physiotherapy	52	238	357.69	92	8	
Total	3730	18702	401.39	78	22	

Source: Agarwal (2006) and AICTE, MCI Websites (2015-16 and 2016-17).

There are three important changes that have taken place during the last few years which have some relation with globalisation. First, the role of private sector in higher education increased rapidly. More than half of the institutions of higher education are under the private management. Second, the expansion of higher education has taken place mainly in professional courses. More than three-fourth of professional institutions are under the private management. Third, financing of higher education has moved away from institution-based to student-based financing that enhanced individual purchasing power to buy educational services. This has opened avenues for the emergence and expansion of the private sector on the one hand, the promotion of cross-border higher education and trade in education, on the other hand.

Internationalisation of Higher Education in India

Internationalisation of education has been in existence in one form or the other and India has been a partner in it. However, internationalisation of education as defined under GATS has some serious implications. It is defined as the process of developing/implementing policies and programmes to integrate an international, intercultural or global dimension into the purpose, functions and provision of post secondary education.

Cross-border Supply: Emergence of new technologies and IT revolution has expanded the scope of distance education through cross-border supply. India's presence in this mode is limited though efforts are being made to increase the scope of it. When compared to other modes, Mode 1 is generally non-controversial in nature. However, even under this mode, there are certain barriers, particularly related to use of national satellites or receiving dishes and certain types of educational materials (Kaushik, 2004).

Consumption Abroad: Of the four modes of trade in education services, Consumption Abroad (Mode 2) has existed for centuries. Quite a few Indian students have been going abroad for higher education which has been tagged along with brain drain (Khadria, 2004). Statistics presented in Table 3 suggest that most of the Indians are going to developed countries for studies. And very few from these countries are coming for studies in India. During 1994-95 and 1995-96, the number of foreign students enrolled in Indian universities has declined (Azad and Chandra, 2002). However, there is some increase in foreign students in recent years. Most of those coming for studies in India are from developing countries.

Table 3: Changing Destination of Indian Students Abroad

Sr. No.	Host Country	2005-06	2014-15
1	USA	76503 (55%)	132888(47%)
2	Canada	7456 (5%)	48633(17%)
3	Australia	23894 (17%)	35380 (13%)

4	U.K.	19228 (14%)	19485 (7%)
5	China	5634 (4%)	16694 (6%)
6	New Zealand	2135 (2%)	16325 (6%)
7	Germany	3583 (3%)	11655 (4%)
8	Total	138433 (100%)	281060 (100%)

Source: <https://wenr.wes.org/2017/08/india-mapping-student-mobility-from-the-worlds-number-2-sender>.

At present, this is the major mode of trade in higher education services, and on this front, India is losing considerable amount. The number of Indian students studying in USA alone increased more than two-fold in the last decade (Table 3) as the proportion of foreign student Indians increased from about 8% to 13% during the same period indicating the dependence of American Higher Education system. According to Bhushan, there is excess supply in countries like USA and excess demand for higher education in countries like India. Therefore, excess demand in India is satisfied by the excess supply available in USA.

The net direct gainer in the process is USA as many institutions/courses there are supported by fees contributions from foreign students. For USA, education and training services generated 7.5 billion dollars in export. Higher education accounted for the fifth largest service sector of exports by the USA. In another way also, India is losing in the form of brain drain. Most of those go for higher studies settle there and make significant contribution for the development of the USA economy, and in return, India gets hardly anything. Needless to say, most of those going abroad for higher studies have been the beneficiaries of subsidised education in India.

Table 4: Number of Students from India in USA

Year	Number of Students from India	% of the Total
1993-94	34796	7.7
1996-97	30641	6.7
1999-2000	42337	8.2
2001-02	66836	11.5
2002-03	74603	12.7
2005-06	76503	
2009-10	104897	
2015-16	165918	

Source: Nauriyal and Bhalla (2004, Table 2).

Table 5: Number of Indian Students in Selected Countries

Country	2003-04	2015-16
USA	79736	132888
UK	11000	19485
Australia	17853	35380
New Zealand	2405	16325

Source: AISHE 2015-16.

Two types of organisations are functioning in India to deal with flu consumption abroad. They are:

(i) **Centers set up by Embassies** to provide information on various aspects of higher education abroad such as United States Education Foundation in India (USEFI) and Canadian Education Centre

(CEC). They provide information and counselling services to Indian students interested in pursuing higher education in their countries.

(ii) **Private Agencies:** Private Agencies are commercial organisations whose main business is to advertise courses offered by their collaborative foreign institutions and render paid services to interested Indian students for securing admission and sending them to these institutions. Many Indian students are approaching these agencies, existing in almost all major cities which provide necessary help in getting admission for a payment. The way foreign universities are marketing their higher education in India through information centers and by tying up with private organisations to maintain their commercial presence, they have generated a demand for themselves in India in the field of higher education. Limited number of seats in colleges and universities in professional as well as non-professional courses and increasing willingness of parents to send their children abroad for high studies irrespective of the heavy costs have further increased the demand for foreign universities in India (NIEPA, 2002: 157).

Table 6: Number of Foreign Students in India

Sr. No.	Foreign Country	Number of Students
1	Nepal	9574
2	Afghanistan	4404
3	Bhutan	2925
4	Nigeria	2090
5	Sudan	2059
6	Malaysia	1901
7	UAE	1479
8	Iran	1459
9	Yemen	1238
10	Sri Lanka	1189

Source: AISHE 2015-16.

With the GATS coming into effect shortly, Mode 3 may become the important mode of trade in higher education and again India is likely to be net loser than gainer. As a part of this foreign providers of education establish their own branch in one form or the other and supply the education services. Mode 2 may gradually be replaced by Mode 3 as it is cheaper for students to study within their country of origin than going abroad for the same purpose. In India, the presence of foreign providers of education has already been felt (Table 7).

Table 7: Foreign Providers Having Commercial Presence in India

Country	2001			2004		
	Universities	Others	Total	Universities	Others	Total
United Kingdom	9	1	10	16	7	23
Australia	3	—	3	2	4	6
USA	9	3	12	16	3	19
Canada	—	1	1	2	1	3
Others	—	1	1	4	6	10
Total	21	6	27	40	21	61

Note: Under universities are included institutions and recognised as such in the home country. Others include institutions that may or may not be recognised/accredited in the home country.

Source: Powar (2004).

The 1990s saw the entering of Foreign Providers in the higher education market under Mode 3. The number of providers increased sharply in the last few years (Table 7). The main providers are from the developed world and that too selected countries – UK, USA, Canada and Australia. It is clear that Indian higher education market is likely to be dominated by providers from these countries once the GATS come into existence.

As far as the Mode 4 is concerned, India already has a presence brain drain from India inherently implied movement for employment abroad for a short period. However, the scope under GATS is restricted to movement to and presence in foreign country.

Implications of Trade in Educational Services for India

Increased trade in educational services has both advantages and risks. Except in Information Technology, India has not realised its potential despite having a vast pool of highly skilled and mobile human resources (Kaushik, 2004). According to Kaushik, India is in a strong position to benefit from both export and import of higher education. India is in advantageous position both politically and economically by exporting education, particularly to developing countries that have substantial Indian diaspora. This is the appropriate time to change and attract the students. Any loss of time would cause irreversible damage in terms of loss market, credibility, resources and opportunity to transform to meet the challenges (Nauriyal and Bhalla, 2004:360). Import of education also helps India as local provision of education may benefit from international collaboration with quality institution and competition with them.

However, according to Altbach (2000), multinational higher education always has elements of inequality. When the reputed providers enter the country with high quality programmes, the access to these service are open only privileged few with economic means to pay for them. The inequality in education leads to inequality in economic opportunities as most of the courses offered by these institutions guarantees entry to given profession. Therefore, the very purpose of education to create a democratic and more equitable society is put to acid test. Further, they (foreign suppliers) provide 'off-the-shelf' programmes which are simply used overseas. The decision about curriculum, standard, faculty and requirement are always made by the sponsoring institution. The motive for establishing institutions by them is always to make money. British and Australian institutions have been active internationally, including India as a way of making up for budget cuts at home (Altbach, 2000).

India is not in a comfortable position as far as internationalisation of higher education is concerned. India has to take crucial decisions related to internationalisation of higher education. First, important step in this direction is to lay down a viable regulatory mechanism, to control the inflow of foreign institutions, vying with one another to open their campuses in India or enter into some kind of arrangement with their ever-too-willing Indian counterparts (Azad and Chandra, 2002).

Conclusion

This paper made a modest attempt to examine the position of Indian higher education in the context of globalisation. Available statistics suggest that India continues to be net importer of higher education despite having huge human resources. Indian higher education system developed more on democratic, equity oriented lines and hence not paid much attention to the efficiency and quality concerns. Now, the new situation demands that every action should be based on these concerns.

Therefore, it is time to relook into the relevance of earlier concerns in the new situation which demands more market orientation in every sphere of activity including in education. It is not an easy task to completely reorient the system that has been built over the last half century and which has become immune to adjust to the changing global scenario.

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23. The increasing number of foreign students in India indicates the quality of education that some universities are offering is better than the neighbouring countries. "There are many reasons why students pursue their higher education abroad. For some, it is a chance to broaden cultural and intellectual horizons. Others go abroad to avoid frustrations of under-resourced universities. Many have no choice but to go abroad in order to pursue a particular field of education or type of academic programme" (UNESCO, 2013, p. 80).

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SOCIAL SECTOR DEVELOPMENT IN TELANGANA STATE*

Prof. B.Shiva Reddy** and K.Anji Reddy***

1. Introduction:

Telangana is a newly formed State which came into existence after a prolonged struggle for a separate state. After the state formation in 2014 the people of the Telangana got the freedom to shape the destiny of its development. Erstwhile governments have not paid much attention to hopes and aspirations of different sections/groups of people in Telangana State. Only in separate state they can be realised. After the formation of the state the hopes and aspirations have even gone up.

Many of them can be realised through socio-economic development of the state. What is needed is a development that is inclusive and sustainable. The state is endowed with rich resources which include both natural and demographic, which can be properly nurtured and used to realise it.

Many of the aspirations of the people have direct and indirect bearing on social sector. Therefore, social sector development considered important not only for the development of economy but also to fulfil the aspirations of the people. To sustain efforts in the form of devising strategies and implementing them effectively with proper allocations.

Among the sectors that can really address the hopes and aspirations of the people on the one hand and contribute to inclusive and sustainable development is the social sector. It is considered to be an important sector, development of which ensures growth with social justice. In the present context of decline in the role of agriculture where human capital over employment generation and rise of knowledge economy urgency to focus on social sector, particularly in the newly formed states like Telangana, Social sector development is considered important not only for the development of economy but also to fulfil the aspirations of the people Telangana state.

*Thematic Paper prepared for presentation in.....

the formation of the Telangana State, the Government has taken many initiatives, many of which, broadly, fall under Social Sector. The Government initiated programs in the areas of education, health, rural development, social welfare etc.

the importance of social sector for inclusive and sustainable development the focus of the Government is on its development makes it a case for its scrutiny. Therefore, this paper makes an attempt to examine the social sector component in the Telangana state.

context it is necessary to define what constitutes social sector: The term *social* refers to social and economic activity aimed at benefiting the society and led, in part or whole, by the Government. Social Sector includes education, and nutrition, water supply and sanitation, housing facility, poverty alleviation and nutrition schemes. In the budget documents the social services budget is given and to get social sector budget add rural development budget to it.

paper we have concentrated on few but important components in analysing social sector development in the state. They account for major part of the budget so impact on inclusive and sustainable development. They include education, and welfare schemes.

paper is divided into five sections. In Section-2 role of Social Sector in the economic development is discussed. In section-3 the development of Social with focus on education and health in Telangana state is discussed. Financing Social Sector is examined in Section-4. The last section draws conclusions and some suggestions.

paper is based on the secondary sources of information. As the state is new the or the earlier period is not available on many aspects of Telangana. Hence, paper is based mainly on the secondary sources information available for the period. However, there are some rich sources of information available across the issues associated with social sector in the Telangana state. The tant sources of information/data used in the study are (i) Socio-Economic k-2017: Reinventing Telangana published by Planning Department, nment of Telangana(Govt. of Telangana, 2017) (ii)NSS 71st Reports on consumption -Education (NSSO, 2016a) and Health in India(NSSO, 2016b) report of the Commission of Enquiry into the Socio-Economic conditions slims in Telangana(Govt of Telangana 2016b) and (iv) CPSS Report on

2. Role of Social Sector in Development of Telangana:

Social sector plays an important role in human development. Spending on Social Sector contributes to all round development of the human being and creates a strong and healthy manpower base of the country. And it stimulates economic growth and reduces disparities in development. The earlier view of social sector as an unproductive sector is now regarded as a contributor to economic development, both, directly as well as indirectly.

The importance of social sector has increased with the emphasis on human development as the ultimate goal of development. The treatment of human beings as a means of development to an end in itself has changed the priorities between social and other sectors and within social sector between components which contribute to both economic and human development and those only to welfare.

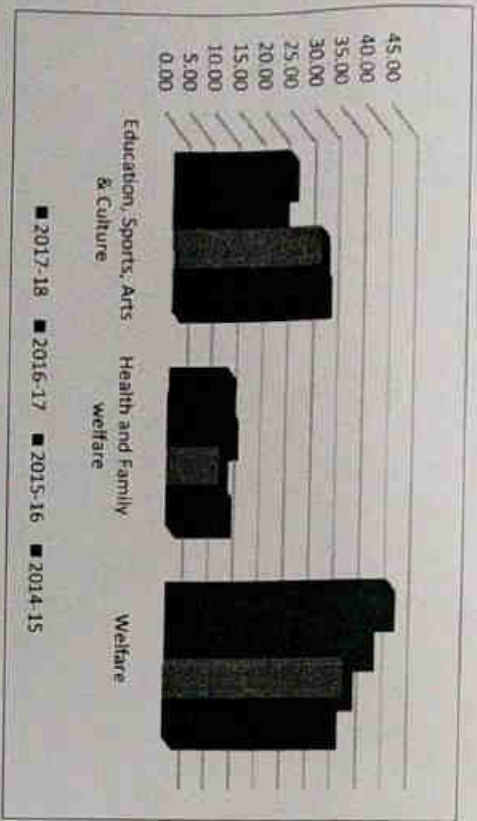
According to Prabhu (1998) the role of social sector in economic development can be analysed from two perspectives-Human Resources and Human Development. While the former treats human beings as a means to development the latter as an end in itself. Till seventies the former approach has influenced the policies and strategies related to social sector across the globe. The human development approach has become popular since 1990s.

As stated earlier social sector is not homogeneous but consists of several components. Each component of social sector contributes to development directly and indirectly by interacting with other components.

While education enhances the productivity, health extends the productivity period of the educated. Basic education has become a fundamental right and access to higher education has become necessary to get a job in the organised sector. Education has become necessary for economic growth, reducing inequality and poverty. When compared to the other initiatives providing educational opportunities to the deprived sections is more acceptable to reduce both poverty and inequality. Further, improvements in education can help alleviate poverty both directly and indirectly by increasing income, improving health, and nutrition and reducing family size (Psachropoulos and Wood hall, 1980, p.287). Stiglitz (2000) has argued for government intervention in education on a large scale, particularly for the education of marginalised sections of society. According to him education is not a pure public good because the marginal cost of educating an additional child is not zero.

According to World Development Report 1993 improved health contributes to economic development in four ways. (i) It reduces production losses caused by

Figure-14: Share of Education, Health and Welfare in social sector Budget of Telangana



Within the social sector the shares of education, health and welfare programmes changed significantly in the last four years (Figure-14). While the share of education increased from about 30 percent in 2014-15 to 23 percent, the share of welfare increased from about 33 percent to about 44 percent in the current budget.

However, the fluctuation in the share of health and family welfare in the social sector budget is insignificant and remained around 11 percent. Health sector budget 5 percent of GSDP increased from 0.5% to 0.8% while it has shown some marginal decline in the total budget.

Within the education budget the major share (about two-third) is going to school education. Within school education elementary education share varied between 5% to 51% and that of secondary education between 54% to 49%. The share of university education has declined from 6.2% to 3.8% while that of technical education increased from 2.8% to 4.3% during 2014-15 and 2017-18 (Figure-15).

Besides the education department there are other departments financing education the form reimbursement of tuition fee (RTF) and Maintenance Fee (MTF). All the Departments of Welfare have some education component in their budgets. Key include Social Welfare, Tribal Welfare, Minority Welfare, Backward Classes Welfare, Disabled Welfare and Women & Child Welfare. The education component in these departments include mainly for the management of residential schools, hostels, RTF and MTF.

amount spent under RTF and MTF is very high in the state (Figures-16 and 17). Provision of RTF and MTF has helped many marginalised sections in pursue higher education. Almost 80% of the students of higher education are covered under them. In the state about 40% of the households have received some or the financial assistance towards education of their children (Government of Telangana, 2016b).

Figure-15: Sub-Sectoral Allocation of Education Budget(%)

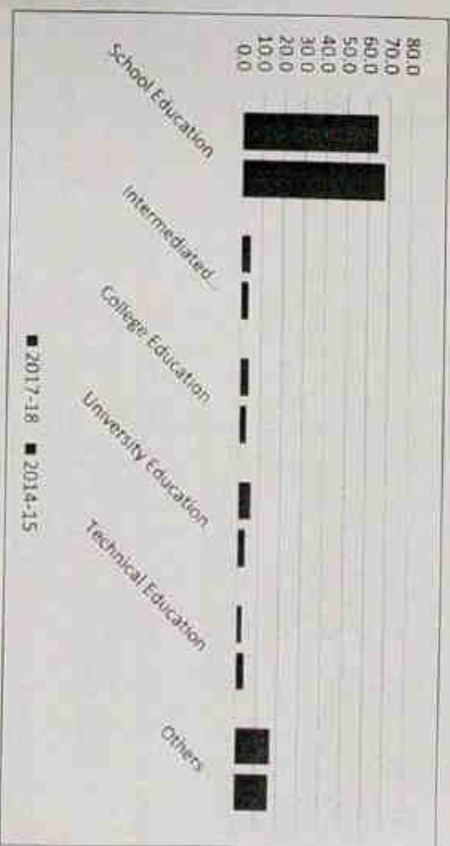
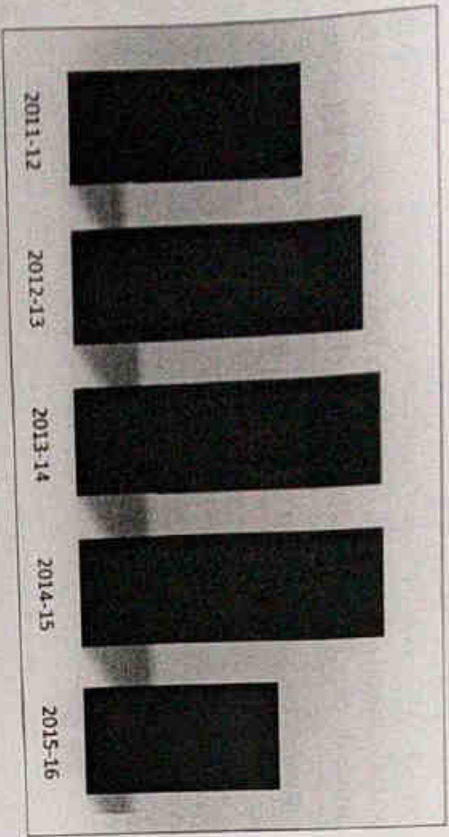


Figure-16: Year wise number of students received RTF & MTF



Despite the financing of education by the government, both directly and indirectly, the private financing of education continue to play an important role. More than half of school students and about 80 percent of students of higher education are studying in private institutions. Even those getting financial assistance have to incur some expenditure on education. According to NSSO (2016) the average expenditure on education is...

Figure-17: Year-wise Amounts disbursed under RTF & MTF (Rs in Lakhs)



Source: <http://telanganaexpress.cgg.gov.in/>

Table - 29
Average expenditure (₹) per student incurred academic session by type education, 2014

Type of education	Expenditure
General education	9600
Technical/Professional (Except vocational)	47788
Vocational	14744

Source: Table-14, NSS 71st Round, 2014

11th and Family Welfare budget components include public health, family care, medical education, administration and other systems of medicine. The share of public health, family planning and medical education increased between 4-15 and 2017-18. The share of other systems of medicine which is very low

in the Welfare budget the major share is for the SCs followed by STs (Table-30).

Figure-18: Head wise % of Health & Family Welfare Budget



Table-30: Share of different SRCs in Budget earmarked for Welfare in Telangana- 2015-16

Community	Share in the population	Share in the Budget 2015-16
SCs	15.4	47
STs	9.3	25.0
BCs	41	19.0
Minority	14.9	9.0
All	100.0	100.0

Source: Govt of Telangana, 2016b.

4. Conclusion and Suggestions

From the Social Sector development point of view Telangana state has attained a better place in India. The Government initiatives have further contributed to development but not to the extent anticipated. There is scope for further development such that it can attain sustainable and inclusive development. There are some areas of concern on which the attention may be focussed.

The benefits of well intended policies and programs have not been fully realised due to inadequate preparation. Underutilisation of budgetary resources is one such instance. Well intended but badly designed programmes may sometimes be counter

ity. This attitude in the implementation of, even well designed programs, not to have full impact on the quality of life of the very section of the people for whom the benefit they are intended.

For allocation to Social Sector should go up considerably to address the quality of education in education and health sectors. In the field of education there is a necessity to organise the existing system of elementary education such that each class has a separate class room and teacher to improve the learning. Though residential schools address the quality concerns of upper primary and secondary level but not the primary education. There is a need to integrate Anganwadi centres with primary schools. There is a possibility that opening of more residential schools may reduce enrolment in the existing schools further. In higher education there is need to strengthen the infrastructure and take up recruitment to fill the vacancies. There is a need to streamline the fee reimbursement scheme which has created imbalances.

A half of the health problems are attributed to life styles it is necessary to focus on health education. As about 30 percent of health problems are related to environmental factors focus should be on provision of better housing, safe drinking water, sanitation, clean and green environments. Nutritional support programs for children and mothers should be monitored and checked whether they had any improvement. Nutritional level of residential school students also should be monitored regularly such that after completion of the schooling the products should be healthy and also healthy.

es:

The use of both traditional and modern methods of production is prevalent in the state.

Different indicators are used in the literature to measure the extent of school participation. Example for primary stage (Classes I-V) and Age-Group 6-10 (6 started and 10 completed):

$$GER = \frac{\text{Enrolment of children in classes I-V}}{\text{Total number of Children in the Age-Group 6-10}} \times 100$$

$$CAB = \frac{\text{Number of children attending classes I-V}}{\text{Total number of Children in the Age-Group 6-10}} \times 100$$

$$CAB = \frac{\text{Number of children in the Age-Group 6-10 attending classes I-V}}{\text{Total number of Children in the Age-Group 6-10}} \times 100$$

$$CAB = \frac{\text{Number of children in the Age-Group 6-10 attending school}}{\text{Total number of Children in the Age-Group 6-10}} \times 100$$

1. The matter has gone to the Supreme Court which opined that a school without a student is like existence of an individual without health or life without essence or purpose of living.

2. A primary school is said to be having optimum size if it 150 students @30 per class. At this rate there is hardly any such school in the state.

3. The programs like BADI BATA are aimed to increase the enrolment in government schools.

4. There is some difference between the CAG data and the data used in the paper because there is some difference in the components included under social sector.

5. Social Services account for about 90% of the social sector budget in the state.

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Financing of Elementary Education in India by Central Government through Centrally Sponsored Schemes

A Study of Sarva Shiksha Abhiyan

B. Shiva Reddy and K. Anji Reddy

Introduction

Education is important for economic and social development. Though the relative importance of different types and levels of education changes over time, place and level of development, all have their own place and role in their contribution to development. Therefore for overall development of the economy and society, overall development of education is of paramount importance.¹

In the last six decades Indian education system (IES) has grown in all respects in terms of number of institutions, enrolment, teachers and in all other parameters used to measure the progress. This could not have been possible without earmarking sizeable resources—both financial and physical—and without the active support of the Central government, state governments and local bodies, and also the private sector. Though recent developments indicate an increase in the role of private sector, Government continues to play an important role in the management and financing.²

1. See Ozturk (2001) for the role of education for social and economic development.
2. The role of private sector increased in all levels and types of education in recent years. Even in elementary education the enrolment in private schools increased significantly in recent years from 18.7 per cent in 2006 to 28.3 per cent in 2012 (ASER, 2012:47). In some states like Kerala and Manipur, it is more than 60 per cent. This is also the period during which the number of schools opened under Sarva Shiksha Abhiyan (SSA) increased.

Among the different levels of education, Elementary Education (EE) accounts for the major share in terms of number of institutions, enrolment, teachers and financial resources. When compared to other levels and types of education, EE is receiving the maximum support from the government.

In the management and financing of EE, all levels of government—Central government, state governments and local bodies—are involved. The Constitution of India clearly specified their role and responsibilities in education. Amendments to the Constitution brought certain changes in their role. The 42nd Amendment shifted education from the State list to the Concurrent list. Through the 73rd and 74th Amendments, local bodies were assigned more role in education. Despite these amendments to the Constitution, the main responsibility in the management and of financing of EE continues to be with the state governments. However, the Central government's role is increasingly felt in the development of EE in recent years, mainly in the form of financing several schemes. The main form of financing EE by Central government is in the form of Centrally Sponsored Schemes (CSS) and at present the important CSS to finance EE is the SSA. Despite the increase in the role of Central government in financing of EE through CSS, not much research is done on different aspects related to it.

Therefore, in this paper an attempt is made to examine the role of Central government in financing of EE in India through SSA, the trends in the Central government expenditure on EE, particularly for the period after economic reforms, and the basic features of and trends in financing SSA. The problems and implications of financing of SSA by Central government for the development of EE are also explained and we conclude with a few possible suggestions.

The paper is based on the information/data collected mainly from the research work done on the related theme and some official publications. Though an attempt was made, authentication of data sources is not done except by acknowledging the sources from which the material is drawn.

Role of Central Government in Elementary Education

There is a controversy on the role of Central government in education. It was a state subject till 1976. The Constitutional Amendment of 1976

shifted education to the Concurrent List. Despite the fact that it was a state subject the Central government intervention in education continued even before 1976. According to Naik (1963) there were three important developments that necessitated the presence of Central government in education. First, there was a growing desire to evolve a national system of education for the country as a whole. Second, was the revival of central grants for education in the financial and administrative set-up created by the Constitution which vests all the best resources in the Centre and makes the states responsible for all the expensive social services. Third, development and adoption of centralised planning, and the creation of the Planning Commission, gave more responsibility of taking decisions to the Centre than to the States with regard to national targets, the fixation of priorities, the allocation of resources to different sectors including education (Naik, 1963).

All these developments have necessitated the amendment to the Constitution through which education was shifted from the State List to the Concurrent List. This had both legalised and also legitimised the involvement and dominance of the Central government in education sector. Many state governments have opposed this shifting of education to the Concurrent List. Though education was put under the Concurrent List, it did not show any difference in terms of organisation and financing of education in India till recently (Varghese and Tilak, 1991). After economic reforms, there were significant changes in the management and financing of all levels and types of education, including EE in the country. The most important change was the dominance of Central government in financing of EE through sponsoring different programmes.

The Central government intervenes in education in three main ways. The Central government has its own sector in education³ besides the sectors listed in the Union List. Management as well as financial functions of this sector are the total responsibility of the Central government. These activities are planned, implemented and financed exclusively by the

3. The list includes Central Schools, the Regional Colleges of Education, National Scholarships, the programmes of the University Grants Commission (UGC) such as the creation of Centres for Advanced Study, etc.

Centre. Secondly, there is a sector⁴ which is completely funded by Central government but implemented by the state government. They constitute a part of the central plan in respect of which the states act as executive agencies. Normally the states do not accept responsibility on their own for such activities. The Central government could, however, persuade the state governments to accept the responsibility of implementation of such activities. Thirdly, there is a sector⁵ which includes activities in the promotion of which the Centre is actively interested though they are embodied in the state plans. The states only partially accept the financial responsibilities of this sector. The financial contribution of the Centre to such activities might vary according to the activity and the place of its implementation. But in a majority of the cases, the Central Government bears more burden than the states in the total cost of these activities. These activities which have become the dominant mode of financing by the Central government are referred to as CSS. The central grants for these three categories often lead to the decision-making at the state level being replaced by central decisions and to that extent such grants erode state autonomy (Chelliah *et al.*, 1981).

The role of Central government in education before the Constitutional Amendment of 1976 was explained by Naik (1963). Of the 18 functions of Central government in education there was one aspect dealing with EE. According to the Article 45 (read with Article 22) EE is the joint responsibility of both Central and state governments though it was part of the State list. According to Naik (1963: 25) "The role of the Government of India would obviously be restricted to the formulation of national targets to be reached, to the grant of financial assistance to State Governments for implementing this programme and to the maintenance of an equal standard of attainment, both in quantity and quality, in all parts of the country."

Naik also made a reference to the financing of education by Central government for the development of education in the states. According to him there are three forms of grants to states for financing education.

4. The activities in this sector include promotion of Sanskrit, Hindi in non-Hindi speaking states, promotion of students' tours, etc.
5. The opening of non-formal education centres, enrolment of handicapped students in the integrated schools, etc., are some of such activities. At present, all the major schemes in education fall under this category.

The first is a transfer of additional revenues in order to enable the State Governments to plan their programs in all welfare services with greater confidence and self-reliance; the second is the institution of a general grant for educational purposes but not earmarked for any specific program; and the third is a specific purpose grant which is intended for a program organised and implemented with the approval of the Centre. It is obvious that if the autonomy and independence of the States is to be respected in the educational field, greater reliance will have to be placed on the first two of these grants (Naik 1963: 26).

But contrary to what Naik preferred, the third form i.e., the specific purpose grant has become the dominant mode of funding EE by Central government. Under this mode there are two forms: Central Schemes (CS) and CSS. The former are totally financed by the Centre while the latter are financed by both the Central and state governments together. The rationale for CSS is to enable state governments to undertake programmes that are considered to be in the wider national interest, which the state governments may not be able or willing to undertake on their own. Provision of EE, though considered a state subject, has considerable national importance and hence the need for the intervention and support by the Central government through CSS.

At present the specific purpose grant to State governments is provided mainly through CSS. There are several reasons for financing EE by Central government through CSS. Due to fiscal problems many state governments could not allocate required funds for EE. As a result of the fiscal crisis of 1991, India had to go in for economic reforms that had implications for budget allocation to social sectors like education. International funding to education was sought to minimise adverse effects of economic reforms on EE budget. At present, for many CSS in education international funding is available.

CSS are formulated by the Centre which also funds a major part of the implementing costs. States, which are the implementing agencies, fund the remaining portion. The sharing arrangement between the Centre and states vary according to the scheme and the phase of its implementation. In all CSSs, the major share of the burden is borne by the Central Government while the state governments have to bear the remaining costs. The states have shown preference for CSS as it is given as grants and not loans which reduce their fiscal burden.

Centre's grants-in-aid assistance to states took the shape of CSS and there were several of them to finance EE during the late 1980s and early 1990s. There were many CSS in EE covering several dimensions. Important among them which have made some impact are Operation Blackboard (OBB) and District Primary Education Programme (DPEP). However, many CSS in EE which existed in the late 1980s and early 1990s were mainly aimed at infrastructure provision and teacher training. The funds received by the state governments under CSS cannot be reallocated in favour of any other sector. Earlier funding through CSS was not significant as it formed very insignificant part of total education finance in India.

Now CSS have become critical players in education finance. According to Saxena (2006) as a consequence of liberalisation, Central government's involvement with industry and energy sector was reduced, and so more plan resources were left in its hands for state subjects. These plan resources are usually allocated through CSS, and education being a concurrent subject, CSS has been one of the key resource transfer mechanisms for education.

A common trend noted in the earlier years was that while many new CSS were launched during the eighties and nineties, their share in the total expenditure usually declined after the few initial years following their launch. Saxena (2006) explained how these schemes give political mileage to the party which initiates them as their benefits can be identified easily. So it is to the Central government's advantage to increase resources through CSS rather than increase aggregate expenditure. But when the political party in power undergoes a change, the new government loses interest in their implementation for the success will be credited to the earlier government. Therefore, rather than putting in more efforts and resources for continuing the earlier schemes, new schemes are announced periodically. DPEP however was an exception. Except for a couple of years, it has maintained a fairly stable share of 20-25 per cent of the total expenditure. But an adverse side effect of introducing these schemes in selected areas has been creation of islands of excellence without proper integration into the mainstream. Accordingly, their positive effects tend to fade away once they are over.

It is interesting to note that the *National Policy on Education* (Gol, 1986) puts emphasis on decentralised planning and management of education even though education continues to be in the Concurrent List. In many states the local bodies manage the majority of the schools though funds for them mainly come from the state government and to some extent from Central government. The CSS in EE like DPEP and SSA have also emphasised decentralisation. However, the decentralisation in EE has been confined to certain aspects only and Central government's dominance is felt in the form of norms and conditions laid down in the implementation of these programmes.

Trends in the Central Government Expenditure on Elementary Education

With regard to public expenditure on education the Central government allocation has steadily increased since 2001-02. In the last decade there has been a five-fold increase in Central government's budget allocation for education. As a percentage of GDP (gross domestic product), it increased significantly and was almost one per cent in 2008-09 (Table 14.1). However, the total education budget (both Centre and States together) did not exceed four per cent of GDP compared to six per cent as suggested by the Kothari Commission.⁶

As a per cent of total budget also Central government expenditure on education increased from 2.3 per cent in 2001-02 to 5.3 per cent in 2009-10. As a result of this the share of Central government in financing of education in India increased significantly. From 12.8 per cent in 1993-94 it increased to 24.3 per cent by 2005-06 and that of state governments declined from 87.2 per cent to 75.7 per cent during the same period (Table 14.2). The share of Central government has further increased in recent years due to introduction of new and continuation of the existing CSS in education.

6. Kothari Education Commission, 1964-1966.

Table 14.1

Public Expenditure on Education in India by Union Government

Year	Central Government (₹ in crore)	Central Government as % of GDP	Pelementary Education as % of GDP	As % Total Budget
2001-02	14120	0.67	3.81	2.22
2002-03	16157	0.71	3.78	2.20
2003-04	17101	0.67	3.51	2.16
2004-05	18026	0.63	3.36	2.66
2005-06	23210	0.71	3.45	3.52
2006-07	34018	0.91	3.64	4.09
2007-08(RE)	38107	0.88	3.74	5.35
2008-09(BE)	46328	0.94	3.78	5.15
2012-13(BE)	74056	-	-	5.13*

Note: *2009-10.

Source: Planning Commission (2011) (Chapter-6: Table 6.1) and Kapur and Chowdhury (2012) for 2012-13.

Table 14.2

Share of Central and State Governments in Total Public Expenditure on Education

Year	Central Government	State Governments	Total
1993-94	12.77	87.23	100
1994-95	11.74	88.64	100
1995-96	14.54	85.46	100
1996-97	14.38	85.62	100
1997-98	14.67	85.33	100
1998-99	15.71	84.29	100
1999-2000	14.58	85.42	100
2000-01	12.36	87.64	100
2001-02	17.70	82.30	100
2002-03	18.90	81.10	100
2003-04	19.20	80.80	100
2004-05	20.22	79.78	100
2005-06	24.30	75.70	100

Source: De and Endow, 2008: Table-A2:39.

The expenditure on EE (plan+non-plan) has increased steadily in the last six decades. The share of Central government in financing of EE was

negligible till the 1980s. The funds provided by the Central government increased steadily since the 1990s. The share of Central government in total budget for EE was less than 1 per cent till early 1980s, less than 5 per cent till mid-1990s, less than 15 per cent till early 2000s, and more than one-fourth in the last half decade. Thus, the major share of increased education budget of Central government is earmarked for EE. The share of EE continues to be more than half of the education budget of Central government.

The increase in Central budget for EE from ₹ 12,244 crore in 2005-06 to ₹ 38,298 in 2012-13 was mainly in the form of plan expenditure. Plan expenditure is by and large considered to be development expenditure financed by the Planning Commission. Part of the non-plan expenditure is met from Finance Commission (FC) transfers and considered to be non-developmental in nature and aimed at meeting the committed expenditure. The role of Central government is more in financing plan expenditure than non-plan expenditure and has increased significantly in recent years. The Central government's share in total plan expenditure on EE was less than 10 per cent in the mid-1990s but increased significantly thereafter accounting for more than half of the plan expenditure on EE in the last eight years. Correspondingly the state Governments' share declined considerably (Table 14.3).

The increase in the Central government's share is due to launching of several programmes in the last two decades. The important programmes for development of EE include OBB (1980s), DPEP (1990s) and SSA (from 2002 onwards). In the last decade, SSA was in vogue and has been playing an important role in the development of EE in India. The Right to Education (RTE) Act of 2009 further increased the responsibility of Central government in financing of EE through SSA.

Financing of Elementary Education under SSA

SSA is a comprehensive and integrated flagship programme to attain universalisation of EE in the country in a mission mode and in a time bound manner. It is being implemented in partnership with the state governments. The stated goals of SSA are: (i) enrolling all children in the age-group of 6-14 years in school, (ii) bridging gender and social gaps, (iii)

Table 14.3
Plan Expenditure on Elementary Education

(₹ '0,000,000)

Year	Central Government						State Governments	
	Total Allocation on Education	Allocation on Elementary Education	% Allocation on Elementary Education	% Increase Elementary Education	% Allocation on Mid-day Meal Education to Total Elementary Allocation	% Budget to Education	% Budget to Elementary Education	
2000-01	4858.8	3117.4	64.2		42	20.1	9.8	
2001-02	5560.1	3569.2	64.2	15	29	18.2	9.7	
2002-03	6380.0	4257.6	66.7	19	24	18.0	9.7	
2003-04	7371.1	5201.0	70.6	22	26	16.3	9.6	
2004-05	10133.2	7710.2	76.1	48	21	16.4	9.5	
2005-06	14552.5	11749.3	80.7	52	27	17.0	10.2	
2006-07	20213.8	16560.0	81.9	41	32	17.1	10.3	
2007-08	25452.4	20304	79.8	23	37	17.4	10.4	
2008-09	34393.5	21795	63.4	7	37	17.6	10.4	
2009-10	42000	25000	59.2	15	35	17.8	10.3	

Sectors such as department of languages, scholarships, book promotion, planning and administration are included in the total.

Source: Union Budget 2008-09: Expenditure Budget Vol II and earlier years and documents; and Financial Statistics of Education during the Eighth, Ninth (1997-2002) and the Tenth (2002-2007) Five-Year Plans; MHRD Budget Statistics 2000-2009.

retaining all children in school till they complete EE, and (iv) providing education of satisfactory quality. Thus, the focus of SSA is on providing access to quality education for all children of the relevant age group (6-14 years) by ensuring norm-based supply, provision of school infrastructure including buildings, boundary walls, regular teachers' training, use of teaching-learning material and such other educational inputs, leaving scope for innovative activities as well (See Annexure A-14.1).

The implementation process of SSA programme starts with the preparation of Annual Work Plans and Budgets (AWPB). An autonomous state level implementation agency (state project office or SPO) is set up for this purpose, with counterparts at the district level. It is the SPO that receives the funds from the Central government and accounts for them, with the state governments playing an active role through deputation of staff, supervision, regular monitoring and financial contribution.

Table 14.4
Centre-State Sharing of SSA Costs

Year/Plan	All States (Excluding North-Eastern States)			Remarks
	Proposed	Revised	North-Eastern States	
Tenth Plan (2002-03 to 2006-07)	75:25	75:25	90:10	There is demand from the state governments to increase the Central government's share further to reach 90:10.
Eleventh Plan (2007-08 to 2011-12)	50:50	65:35 for first two years		
		60:40 third year (2009/10)		
		55:45 fourth year (2010/11)		
		50:50 last year (2011/12)	90:10	
		65:35 (Proposed Under RTE) and 68:32	90:10	

Source: SSA.

SSA is a cost-shared programme with state contribution required in the mandated ratio to match the central contribution (Table 14.4). There are some broad factors specified along with weights to determine the overall state shares, but the system is intrinsically a demand-driven one with the AWPB playing a crucial role. Before the beginning of each financial year, states are expected to send their AWPB prepared as per programme guidelines for approval to the concerned department of the Ministry. The

plans are expected to be prepared in a bottom-up fashion with the full involvement of the local body and the community. Detailed budgets have to be prepared for schools and other bodies like the mandal/block/cluster resource centres and administrative offices.

SSA is based on the premise that financing of EE is sustainable and the state governments have to maintain the funding of EE at the level of 1999-2000 in real terms. As per the SSA provisions the Central government has to release the project funds in two instalments every year. The release of the first instalment should take place in the month of April and the second in the month of September subject to the fulfilment of certain conditions. The first condition is that state governments have to maintain the EE budget at a level not less than the level during 1999-2000. Second, the state governments have to release their share to the SSA implementing agency within a month of the release of the Central government share. Further, various provisions and checks have been incorporated with an objective to ensure the timely availability and utilisation of funds.

The AWPB is examined and approved by the designated central level committee. The first instalment is then released at the beginning of the financial year on the basis of the approved budget and balance carried forward from the previous year. The second instalment is to be released normally in September on the basis of demand supported by all the necessary accounts, certificates and other documentary requirements as per guidelines.

The major part of the Central government budget on EE is allocated to finance SSA (Table 14.5). Funds to SSA increased from ₹ 2,732 crore in 2003-04 to ₹ 25,555 crore in the current (2012-13) budget of Central government. It accounts for about two-third of the EE budget of the Central government. Part of the SSA budget is financed through the 2 per cent cess levied by Central government on all the central taxes which increased from ₹ 83,160 crore in 2007-08 to ₹ 119,920 in 2011-12. The SSA received 74.7 per cent of the revenue generated through the cess in 2007-08 but it declined to 65.4 per cent by 2011-12. The percentage of SSA expenditure met from the cess declined from 63.1 to 57.1 during the same year (Mukherjee and Sikdar, 2012: Table 2.1, p.19).

Table 14.5
Central Government Budget to SSA

<i>Year</i>	<i>Amount</i>
2003-04	2732.3
2004-05	4753.6
2005-06	7166.3
2006-07	10145.7
2007-08	12020.2
2008-09	11940.0
2012-13(BE)	25555.0

Note: For the year 2009-10, 2010-11 and 2011-12, data not collected.
Source: Mukherji and Sikdar (2012).

As per the SSA sharing arrangement the Centre-State Ratio (CSR) was fixed at 75:25 for all the states except for Special Category States (North Eastern States) where it was 90:10. Central government has to bear 75 per cent of the costs while the rest is borne by the state governments. Some states have either contributed less (Orissa, Karnataka and Gujarat, Himachal Pradesh) or more (Andhra Pradesh, Kerala, Maharashtra, Punjab, Rajasthan) than the state share stipulated (Table 14.6). Some states do, however, conform to the sharing ratio of 75:25. In 2009-10, CSR was fixed at 60:40 for non-special category states. Rajasthan, Madhya Pradesh and West Bengal have contributed less while others (Punjab, Gujarat and Bihar) have contributed more than the stipulated state share. Most states do, however, conform to the sharing ratio of 60:40. It was observed that at 2009-10 sharing levels of 60:40 for the SSA, as many as 14 states defaulted on their shares. Andhra Pradesh, Maharashtra, Rajasthan, Chhattisgarh, Himachal Pradesh, Odisha are among the defaulters.

Problems and Implications of Financing of SSA

The evaluation of CSS is done using several parameters. First, whether objectives for which the scheme is introduced are realised or not? If not, the factors responsible for it. There have been evaluation studies which claim that the CSS have not only eased the resource constraint, but have had a positive impact on the outcomes in the education sector. The OBB and DPEP had led to a decline in the number of single-classroom primary

Table 14.6

Central Government Contribution as % of Total Release to SSA and Expenditure as % of Assistance to SSA

State/UT	Central Government Contribution as % of Total Release to SSA		Expenditure as % Assistance to SSA(Centre+States)	
	2003-04	2006-07	2003-04	2006-07
Andhra Pradesh	69	75	116	93
Andaman Islands	57	75	75	79
Arunachal Pradesh	59	96	116	92
Assam	83	73	171	62
Bihar	75	66	95	99
Chandigarh	82	51	61	120
Chhattisgarh	75	76	74	96
Daman&Diu	0	0	16	89
Delhi	90	78	29	91
Goa	0	59	0	145
Gujarat	84	65	106	122
Haryana	75	74	99	87
Himachal Pradesh	85	75	98	122
Jammu & Kashmir	73	79	50	708
Jharkhand	75	85	73	108
Karnataka	90	77	116	101
Kerala	69	55	84	130
Lakshdweep	0	80	0	69
Madhya Pradesh	73	62	78	84
Maharashtra	72	65	114	127
Manipur	100	73	0	86
Meghalaya	80	79	53	121
Mizoram	88	90	88	98
Nagaland	0	60	203	101
Odisha	88	73	102	104
Puducherry	38	0	46	410
Punjab	68	83	47	102
Rajasthan	71	72	102	106
Sikkim	66	58	164	106
Tamilnadu	75	69	165	98
Tripura	83	71	139	116
Dadra & Nagar Haveli	100	100	0.3	310
Uttar Pradesh	75	75	105	101
Uttarkhand	75	76	89	71
West Bengal	75	76	65	110
All India	76	70	97.7	110.0

Source: Planning Commission, 2010: Annexure 5.1 and 5.2, pp.87-88.

schools, improvement in average number of teachers and availability of teaching learning material in primary schools.

However, there is some scepticism about the impact financing of EE by Central government through CSS. Whether these schemes have added to available resources or substituted other sources? There are some in-built constraints in the design of CSS like SSA which have limited their usefulness of them in the development of EE in India.

Inadequacy of Funds

Adequacy of funds can be judged from the release of approved outlay for SSA by Central government to the MHRD (Table 14.7). However, the funds released as per cent of approved outlay ranged between 50 to 75 per cent in the last decade. Releasing less than the approved outlay indicates that adequate funds for the scheme are not allocated. The required outlays arrived at by following the SSA norms at the district and the state level are considered to be conservative (Geetha Rani, 2010). Needless to say, the inadequacy of funding has its negative effect in the achievement of SSA objectives.

Table 14.7

Central Government Budget to SSA

(₹ in crore)

Year	Approved Outlay by MHRD under SSA	Central Government Allocation	Funds Released by MHRD under SSA
2000-01	----	325	----
2001-02	1138	500	500
2002-03	3080	1567	1569
2003-04	8335	2732	2733
2004-05	11019	4754*	11015
2005-06	12931	7156	8741
2006-07	20085	10041	13318
2007-08	20060	10671	15039
2008-09	22321	13100	12612
2009-10	27235	13100	13637
2010-11	27588	15000	----

Source: Geetha Rani (2011: Table -1).

Delay in the Fund Flow

As per the norm, the first instalment is to be released in April and the second and the last instalment in September every year. This is rarely adhered to in many states. According to Geetha Rani (2010), in a majority of the states the first instalment was released in September or later and the last instalment in the last month of the financial year (Table 14.8).

Table 14.8

Timing of Release of SSA Funds by Central Government to States

<i>Year</i>	<i>No of States Who Received 1st Instalment in/or After September</i>	<i>No of States Who Received 11nd Instalment in March</i>
2001-02	19	5
2002-03	22	10
2003-04	13	5
2004-05	12	11

Source: Report of the Comptroller and Auditor General (CAG) (2006).

For example in Andhra Pradesh, Centre and state shares were not received as per the norm in the last 10 years (Table 14.9). There was a delay not only in the release by Central government and state governments but also a time lag between the release and the receipt by the implementing society.

The proportion of funds utilised from those released varies for different states and is usually lower for the poorer states. The need to obtain matching grants and approval of the annual work plan and budget is useful for efficient resource utilisation. However, this puts the poorer states at a disadvantage for their resource base is smaller and they also have lower institutional capacity (De and Endow, 2008: 28).

From the information provided on quarterly release of central funds for SSA during 2009-10, it can be seen that the average quarterly release is around 30 and 50 per cent for Q1 and Q3 respectively, while Q2 and Q4 together account for around 20 per cent. In general, this is what we would expect to happen if states follow the financial management and reporting norms under SSA.

Table 14.9

Date-wise Release of Centre and State Shares in Andhra Pradesh

Year	Central Government		State Government	
	Date of Release	Date of Receipt by Society	Date of Release	Date of Receipt by Society
2001-02	21-08-2001	24-11-2001	16-08-2001	21-12-2001
	19-09-2001	12-12-2001		
2002-03	14-03-2002	19-12-2002	15-07-2002	19-12-2002
	03-09-2002	16-10-2002		
	20-01-2003	14-02-2003	28-12-2002	04-06-2003
2003-04	27-08-2003	17-09-2003	11-03-2003	04-06-2003
	23-03-2004		19-12-2003	31-05-2004
			23-10-2004	16-12-2004
2004-05	18-05-2004	16-06-2004	01-01-2005	22-01-2005
	09-08-2004	08-09-2004	19-02-2005	
	18-01-2005	11-02-2005	22-03-2005	
2005-06	26-05-2005	23-06-2005	27-09-2005	17-02-2006
	07-06-2005	29-06-2005	22-03-2006	30-03-2006
	05-09-2005	24-10-2005		
2006-07	23-12-2005	16-01-2006	20-12-2006	07-03-2007
	14-06-2006	27-07-2006	20-01-2007	19-02-2007
	21-08-2006	06-11-2006	10-08-2007	06-12-2007
	29-03-2007	04-04-2007	12-10-2007	17-12-2007
2007-08	07-08-2007	29-08-2007	21-10-2007	04-03-2008
	25-02-2008	28-02-2008	15-03-2008	03-04-2008
			07-07-2008	17-09-2008
2008-09	23-05-2008	27-06-2008	17-10-2008	23-03-2009
	02-11-2008	25-02-2009		
2009-10	02-06-2009	06-06-2009	08-10-2009	04-12-2009

Source: SSA unpublished records.

However, the low average figure for Q4 masks the fact that for three states—Andhra Pradesh, Bihar and Jharkhand—the fourth quarter releases are still substantial. As per the SSA financial management guidelines, the centre is supposed to release funds in Q1 and Q3 depending on the state fulfilling its obligations. For five states—Himachal Pradesh, Karnataka, Kerala, Punjab and Tamil Nadu—the whole tranche was released in Q1 and Q3 combined. For eight other states, the ratio of release of funds was between 80 and 90 per cent, which is also very good considering the

conditionalities of the release. The states which are of concern as far as fund flow is concerned are those where Q1 and Q3 releases taken together fall below 70 per cent (Gupta *et al.*, 2011: 50).

The timing of release, however, reveals some problems with the system of flow of funds. There are five states for which there was no release in the first quarter at all. Clearly, these were states where the necessary documentation was delayed, or did not meet with quick approval. Similarly, there were two states (Andhra Pradesh and Jharkhand) where releases in the fourth quarter were unduly large; in particular, Andhra Pradesh received more than 60 per cent of its releases only in the last quarter. While the consequent ill-effects of such a pattern of releases are well-known, the state-specific nature of the problem indicates that it was not systemic (Gupta *et al.*, 2011: 51).

According to De and Endow (2008: 25-26) there are two important reasons for inefficiency in the utilisation of SSA funding. They are: (i) asymmetry in allocation within the sector, and (ii) lack of coordination among the three tiers of government.

Inequality

One of the objectives of SSA is to reduce the inequalities in the development of EE through the provision of basic inputs. For a country that still has a significant number of out-of-school children especially from marginalised communities, the most pressing need is equitable financial allocations across all regions. For long, EE was a state subject and a 'protected' sector and was not open for central/any external aid. The financial allocations for education sector varied among the states depending upon their fiscal capacities and priorities. The capacities of mobilisation of resources by the states differed considerably leading to vertical and horizontal disparities in education financing and resultant outcomes. To correct the vertical and horizontal imbalances, education sector was transferred from State List to Concurrent List in 1997, paving the way for the much needed transfer of funds to the states from the Centre's pool. It is essential that policy and programme designs in the crucial educational social sector should promote a strong equity-oriented approach that ensures that regions and population groups that have EE lagging behind receive much higher attention and resources. Providing a more equitable

distribution of public resources and effort would be a pre-requisite for bridging gaps in education.

CSS are a channel through which the Central government has been adding resources to the state education sector. However, their coverage has varied over time and there has been no uniformity in its distribution over different states. Maharashtra and Karnataka, two of the educationally better developed states, have received a major share of OBB funds (17.4 and 10.9%) while Madhya Pradesh and West Bengal received very little (4.5 and 2.1%). This brings us to an important aspect in the education scenario—regional imbalances in state education indicators and failure of budgetary mechanisms to compensate for it. Similar imbalances are also felt in the regional distribution of SSA funds.

The disbursements to the districts was not based on any criteria of educational backwardness/low female literacy or high percentage of socially disadvantaged groups (tribal areas) but on the number of schools, unspent balances, utilization. In Andhra Pradesh, Uttar Pradesh and West Bengal, districts with more number of educationally backward blocks were disbursed less funds than other districts. In 2003-04, East Godavari district (Andhra Pradesh) which has only one backward block received Rs.29.5 crores as compared to Chittoor with 20 backward blocks which received Rs.15.09 crores (Planning Commission, 2010: 40).

According to Jingran and Sankar (2009):

There is an apparent disconnect between the 'real investment needs' of the districts, reflected in their level of educational development and the actual allocations made on an annual basis. The analysis shows that although all districts received more funds for investing in Elementary Education programs, the most disadvantaged and needy districts received proportionately more funds, which helped these districts to bridge access and infrastructure gaps and appoint more teachers. Benchmarking sector development by spatial entities helps not only in monitoring the outcomes, but also in targeting planning and funding to reduce disparities.

According to Jingran and Sankar (2009: 17) SSA financial allocations were not strongly linked to educational disadvantage because of two reasons:

- (i) The normative framework of planning in SSA and the financial guidelines did not actively encourage an equity-oriented approach. The programme supported a uniform budgeting approach that was not able to specifically provide for differentiated allocations for different situations. Almost 67 per cent of the total AWPB

allocations of SSA are linked to the size of the district i.e., the number of schools and teachers in a district, and therefore not linked to any specific situation of a particular district.

- (ii) Several states and districts did not undertake evidence and need based planning processes that reflect real requirements of each district. Thus, AWPB were usually a summation of the costs allowed under each component of SSA without an in-depth and real analysis of the needs of each district. The revised norms to reduce the inter-state and inter district differences have met with partial success

Under-Utilisation and Misappropriation of SSA Funds

Despite all the crystal clear framework of funding, responsibilities, commitments and monitoring the SSA funds have remained under-utilised in many states. The released amount is much lower than the approved outlay in almost every case. Clearly, this is either because of problems in actually carrying out the planned activities (this could happen in the previous year also, in which case there would be unduly large opening balances that would reduce releases in the current year), or inability to meet the documentary requirements like utilisation certificates.

Under-utilisation of SSA funds is common across many states and districts within a state, and many activities within a district. There is a provision in SSA that funds not spent in the previous year are carried forward to the next year. Under-utilisation of SSA funds have thus given scope for the misappropriation in many states including Andhra Pradesh.

Though certain irregularities are reported in utilising the funds under different schemes, the misappropriation of funds under DPEP/SSA is worth noting. It reached such proportions that Government had to appoint a Commission (GoAP, 2008) to look into the irregularities. Though official sources say the amount of misappropriation is about ₹ 15 crore unofficial sources say it is several times more. The Commission in its Report has come out with interesting and useful findings about the lapses in the monitoring of fund flows and mechanisms by which funds are misappropriated. The funds from many districts were diverted when the district officials refunded the unutilised amount through demand drafts/cheques to the head office at Hyderabad.

Andhra Pradesh is not the only state where irregularities in the utilisation of SSA funds occurred. CAG Report (GoI, 2006) gave details about the financial irregularities, underutilisation of funds and under-achievement of targets and funds released to non-existing schools in different states.

Reasons for under-utilisation and misappropriation of DPEP/SSA funds, include among others, the appointment of non-education cadre officials, delay in release of funds and lack of proper maintenance of records.

Dependency Syndrome

Central grants for education has created a situation in which a very large part of the funds needed for educational development came from the Centre through grant-in-aid. Consequently, the states have tended to lose their spirit of self-reliance and self-confidence, and are developing a habit of looking up to the Centre for almost everything. It may be noted that almost all the CSS in EE in the last three-to-four decades made state governments depend on the Centre and the RTE Act of 2009 further increased their dependency.

There is also a fear that increase in expenditure by the Union government is 'crowding out' expenditure by the states. According to Mukherjee and Sikdar (2012: 23)

The initial evidence seems to indicate that the state governments have not increased their education expenditure commensurately. They are becoming increasingly more reliant on the union government to augment their resource base for education. Consequently, education policy is increasingly being determined at the national, rather than the state level, as was originally envisaged in the Constitution. The implementation framework of the RTE and the proliferation of centrally-sponsored schemes would essentially guarantee the pre-eminence of the union government in the financing of education in the near future.

Implementation Problems

As in the case of any programme there are also implementation problems in SSA. There is a lack of authority of Central government and a lack of a proper monitoring system at the state level. As a result there

is corruption, patronage and mediocre implementation. According to Ramachandran and Sharma (2009: 2), "Yet all these programmes, from the simplest to the relatively more complex, from the most rigid to the flexible, have been bogged down by a common problem of 'poor implementation'." Some states have done better than others due to effective implementation of SSA.

Resources But Not Outcomes

Under SSA many initiatives to expand access and improve quality of EE were taken up. They include opening of new schools in unserved and under-served habitations. Under SSA 2,05,294 new primary and 1,76,764 new upper primary schools were sanctioned upto 2012-13 and of these 1,94,717 new primary and 1,48,991 new upper primary schools were opened till 2011-12. As a result 99 per cent of the habitations have access to primary school/section within one kilometre and 92 per cent have access to upper primary school/section within three kilometres. Alternative and innovative education centres were opened in habitations having less than 25 out-of-school children. To promote girls' education Kasturba Gandhi Balika Vidyalayas were opened for girls from Scheduled Castes (SC), Scheduled Tribe (ST), Other Backward Classes (OBC) and Muslim minorities. National Programme for Girls education at EE level was also launched in educationally backward districts.

These initiatives have helped in reducing the percentage of out-of-school children of 6-14 years from 6.9 per cent in 2005 to 4.2 per cent in 2009 (Figure 14.1). In this respect it is not far off to realise the objective of Universalisation of EE shortly. However, the out-of-school children proportion is more among girls, SCs, STs and Muslims. Further, the data presented indicates STs are better than SCs and SCs are better than Muslims. As per RTE all these out-of-school children have to be enrolled in schools.

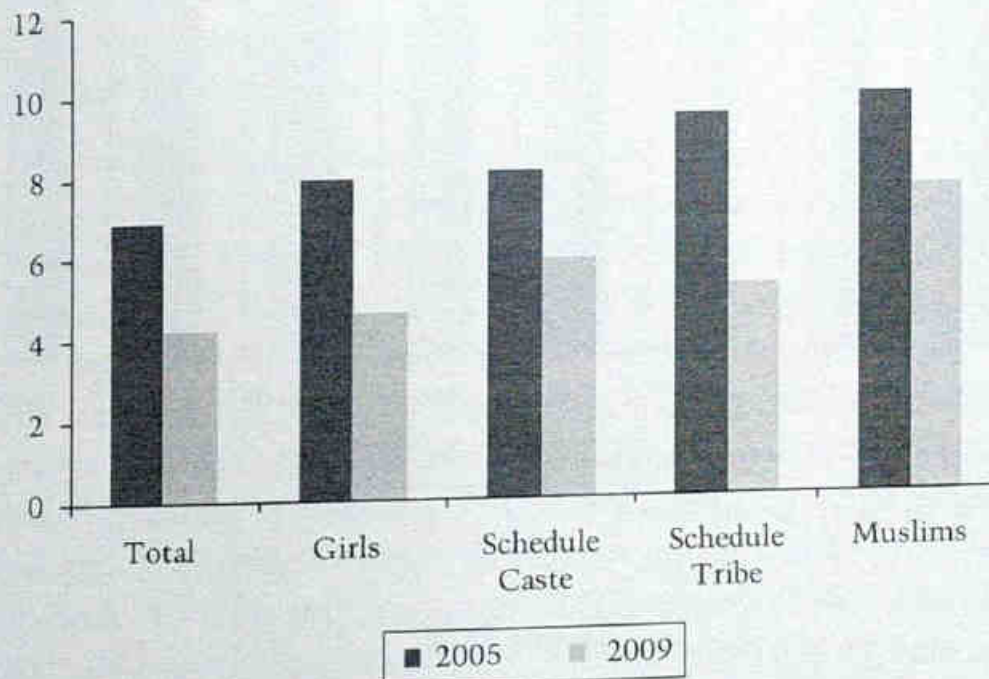
Along with the decline in out-of-school children, the drop-out rates⁷ also have declined significantly in the last decade (Figure 14.2). There was

7. Drop-out rate is calculated by dividing the number of students who discontinued before completing the given class by the total number of students in the beginning of the year. Drop-out rate in EE is the number of students in class VIII divided by the number of children in class I and is expressed in percentage.

a more than 10 percentage points decline in drop-out rates during 2001-2008. Unless the drop-out rate is reduced to zero, it is not possible to achieve Universalisation of EE in India. At this rate of decline, India needs many more years to achieve it.

Figure 14.1

Percentage of Out-of-School Children in the Corresponding Age Group 6-14 Years



Source: NUEPA (2012): Table 3.9, p.43.

The decline in drop-out rate is associated with increase in the transition rate⁸ (Figure 14.3). More than 80 per cent of the students who completed class V were able to enrol in class VI. The increase is partly due to upgrading of primary schools (classes I-V) in to upper primary schools (classes I-VIII). As per the requirement, an upper primary school for every two primary schools can be provided under SSA.

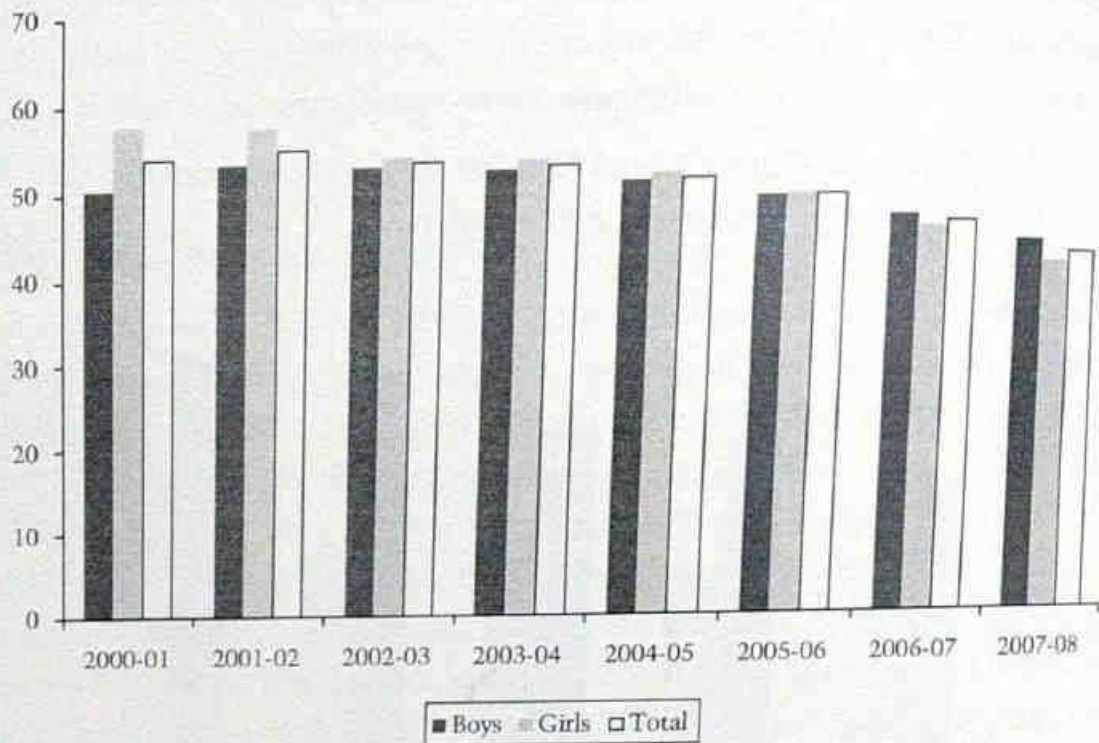
Compared to resources spent, there is little to show at EE level in terms of learning achievement. While the GoI has significantly expanded outlays for education in recent years, outcomes continue to be poor.

The most important objective of SSA is to provide education of satisfactory quality to all the children. Whether this is achieved or not

8. Transition rate is calculated by dividing the number of students in class VI by number of students in class V and expressed in percentage.

Figure 14.2

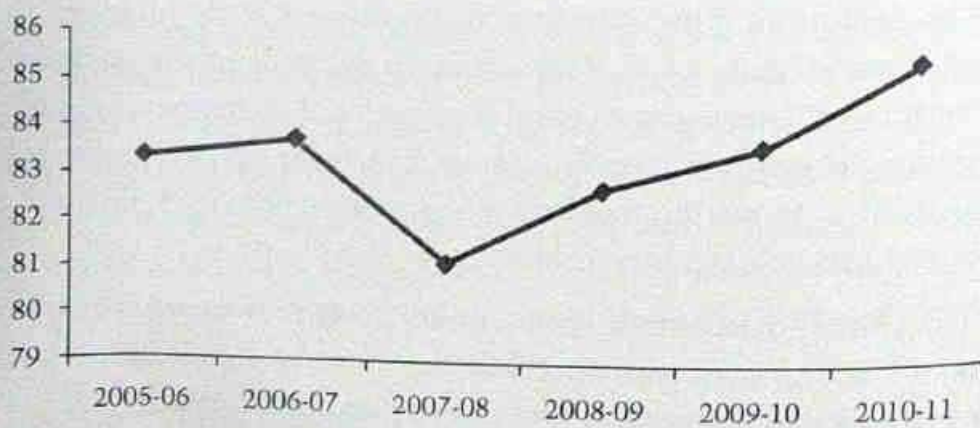
Drop-out Rates (%) in Elementary Education (Classes I-VIII)



Source: NUEPA (2012): 103.

Figure 14.3

Transition Rates (%) from Primary to Upper Primary Level



Source: NUEPA (2012).

can be seen by the achievement levels of the children. As per National Achievement Survey (NAS) of National Council of Educational Research and Training (NCERT) the mean score⁹ of children in Class V in language (Figure 14.4) and mathematics (Figure 14.5) show that learning levels are poor. In 2010, the mean scores were 56 in Language, 53 in Mathematics and 53 in Environmental Studies. In fact there is some decline in the mean achievement score in language during the period 2000-2010. In addition there are differences in the achievement levels between rural and urban areas and between boys and girls. (National University of Educational Planning and Administration (NUEPA), 2012).

As per the Annual Status of Education Report (ASER) (2012), the percentage of children in standard V in government schools who could not read a standard II level text increased from 49.3 per cent in 2010 to 58.3 per cent in 2012. The percentage of children in Standard III in government schools who could not read a standard I level text increased steeply from 53.4 per cent in 2009 to 67.7 per cent in 2012. All these schools received SSA grants. Further, ASER (2012) results show that the percentage of children in standard V who could not solve simple two-digit subtraction problem with borrowing increased from 29.1 per cent in 2010 to 46.5 per cent in 2012. The percentage of children in standard V who could not do division problems increased from 63.8 per cent in 2010 to 75.2 per cent in 2012.

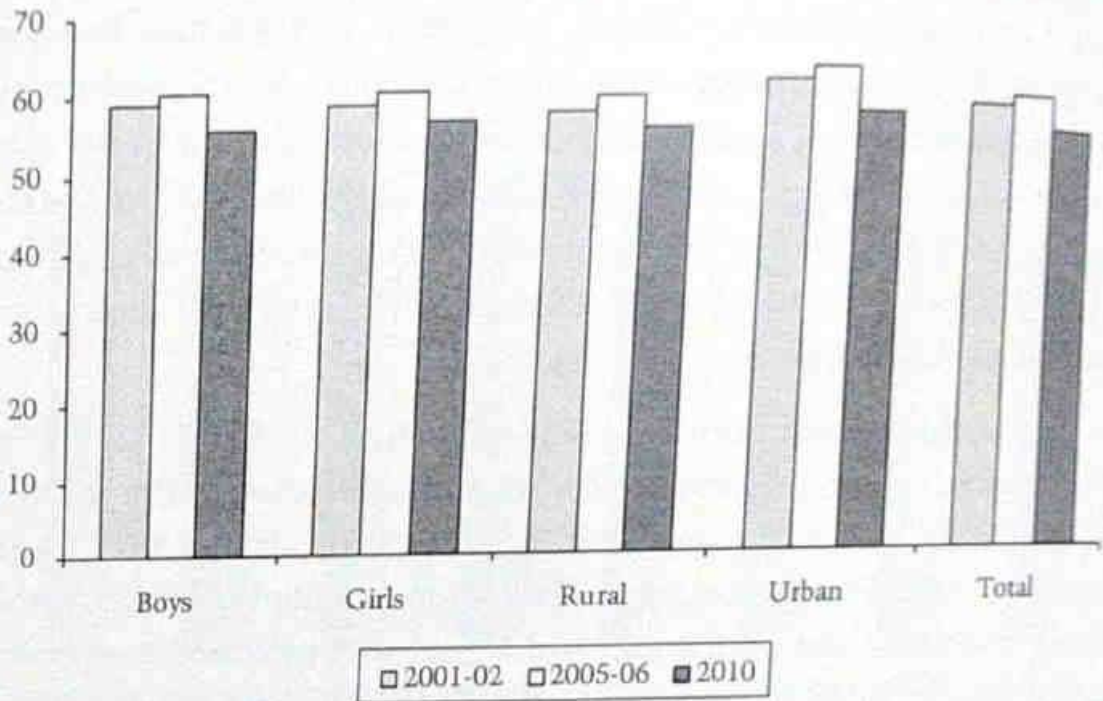
Summary and Conclusion

The quantum of public expenditure on education by the Central government has gone up significantly in the last decade. The bulk of this expenditure is earmarked for the key flagship programme of SSA (the vehicle for implementation of the RTE). The Central government funding in India did contribute to the development of EE in terms of increasing access and reducing social and gender disparities. However, the concerns related to the quality still remain. The SSA norms were found to be rigid in certain respects and have not been able to take into account the recent developments. There appears to be both education and economic inefficiency in the delivery of quality EE.

9. Mean score is the average number marks obtained out of a total of 100. There are extreme situations with majority scoring less than the average marks

Figure 14.4

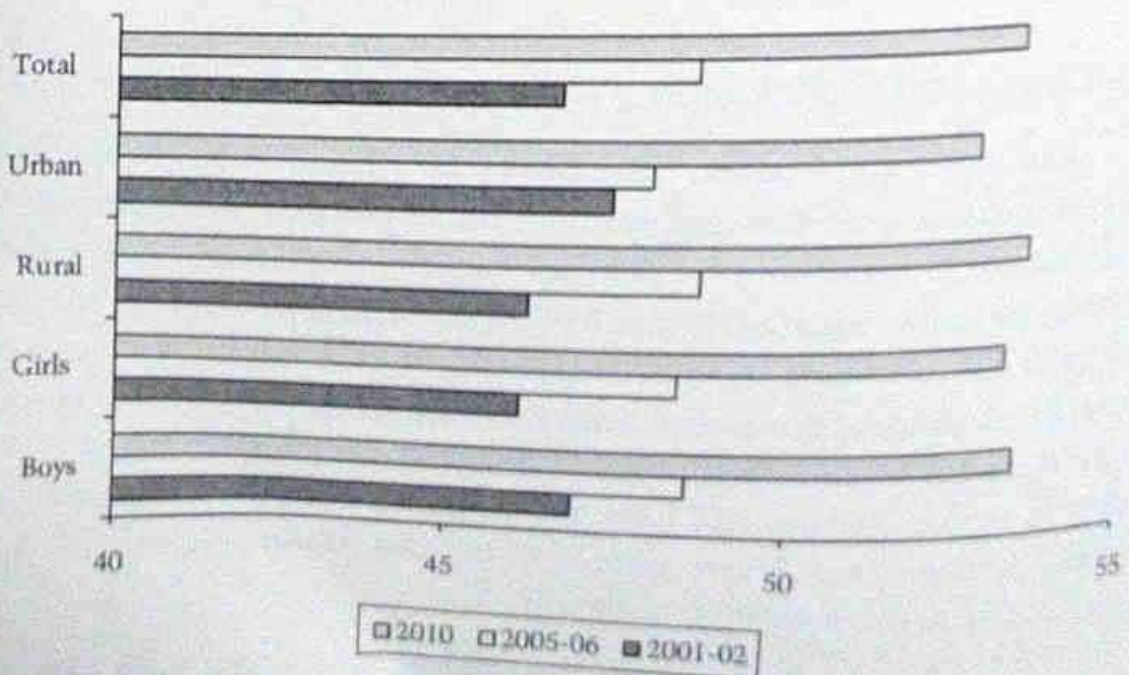
Language Achievement Mean Score (%) Class V



Source: NUEPA (2012).

Figure 14.5

Mathematics National Achievement Mean Score (%) Class V



One of the key issues that need the attention of policy makers is the decline in the number of children in many habitations in recent years. Due to decline in fertility rate, the number of children to be enrolled has come down drastically. This is a positive indication from the demographic point of view, but is a cause of concern from education point of view. From 1990s onwards there has been witnessed a decline in the number of children on the one hand, and increase in the number of primary schools, on the other. This has resulted in unviability of many schools. The increase in access in terms of decline of physical distance has followed by decline in quality and effectiveness of primary education in many schools located, particularly, in remote areas. In many schools, the number of students in each class rarely exceed single digit. Two teachers, one regular and the other a para teacher, have to attend to all the five classes. On many occasions one may find only one teacher to manage the entire school. Hardly anything worthwhile learning takes place.

In this context, it is necessary to look at the relevance of SSA norms—primary section within one kilometer and 1:40 teacher pupil ratio (TPR) with a minimum of two teachers. The distance norm was specified when the transport and communication system was not developed. Further, the 1:40 TPR norm was specified when there are enough number of children in each age group such that number of students in each class are about 40. Now many remote areas are connected. Transport facility—private or public—is available. Many parents do not hesitate to send their children to nearby schools. Therefore instead of having unviable schools—educationally and economically—in each small habitation, it is better to have a full-fledged school within a few kilometers. A full-fledged school should have one class room for each class and one teacher for each class. Additional sections can be added if the number of students exceeds 40. The students from nearby habitations can be provided transport facility. If public transport is not possible, the school should make alternative arrangement. The existing schools in small habitations can be used both as Integrated Child Development Services (ICDS) centers and also for school readiness programmes. Of the two teachers, one can be sent to full-fledged school. This alternative proposal may not add to the financial burden.

The main concern of the authorities is this proposal may violate the RTE Act of providing school facility within one kilometer. A carefully

planned initiative taking the norm into account is possible. The existing schools in the habitations can continue to function both as ICDS center and school. But there should be a full-fledged school within few kilometers which should be connected by proper transport. If the full-fledged school ensures teaching learning environment and proves to be a better place for learning than the school located in the small habitation, within a few years many parents from these habitations will prefer to send their children to this school.

Therefore, SSA funds should be utilised to create such a teaching-learning environment in schools that universalisation of EE become a reality in true sense.

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Annexure Table A-14.1

SSA Norms

Sl. No.	Intervention	Norm
1	Teachers	<ul style="list-style-type: none"> • One teacher for every 40 children in primary and Upper Primary School (UPS). • At least two teachers in Primary School.
2	School/Alternative Schooling Facility	Within one kilometre of every habitation.
3	UPS/Section	As per requirement based on the children completing primary education up to a ceiling of one UPS/section for every two primary schools.
4	Class Rooms	A room for every teacher in primary and upper primary (UP).
5	Free Education Text Books	A room for Head Master in UPS/section.
6	Civil Works	To all girls/SC/ST children at primary and UP level within an upper ceiling of ₹ 150 per child.
7	Maintenance and Repair of School Buildings	Ceiling of 33 per cent SSA programme funds. For improvement of school facilities construction of Block Resource Centre/Cluster Resource Centre (BRC/CRC). <ul style="list-style-type: none"> • Only through School Management Committee. • Upto ₹ 5000 per year as per a specific proposal by the school committee. • Must involve elements of community contribution.
8	Up gradation of Education Guarantee Centre to regular school	<ul style="list-style-type: none"> • Provision of Teaching Learning Equipment (TLE) ₹ 10,000 at per school. • Provision for teacher and class rooms.
9	TLE for UPS	₹ 50,000 per school for uncovered schools.

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Sl. No	Intervention	Norm
10	School Grant	₹ 2,000 per year per primary/UPS for replacement.
11	Teacher Grant	₹ 500 per teacher per year in primary/UPS.
12	Teacher Training	Provision of 20 days in service training for all teachers, 60 days refresher courses for untrained teachers and 30 day orientation for freshly trained recruits. One time assistance upto ₹ 3 crore.
13	State Institute of Educational Management Administration and Training (SIEMAT)	
14	Training of Community Leaders	For a maximum of 8 persons in a village for two days at ₹ 30 per day.
15	Provision for Disabled Children	Upto ₹ 1,200 per child for integration of disabled children, as per specific proposal.
16	Research, Evaluation, Supervision and Monitoring	<ul style="list-style-type: none"> • Up to ₹ 1,500 per school per year • By creating pool of resource persons, providing travel grant and honorarium for monitoring, generation of community based data, research studies, cost of assessment and appraisal teams and their field activities.
17	Management Cost	Not to exceed Educationd 6 per cent of the budget of District Plan.
18	Innovative Activity for girls' education, early childhood care and education, interventions for children belonging to SC/ST community, computer education especially for UPS	Up to ₹ 15 lakh for each innovative project and ₹ 50 lakh for a district.

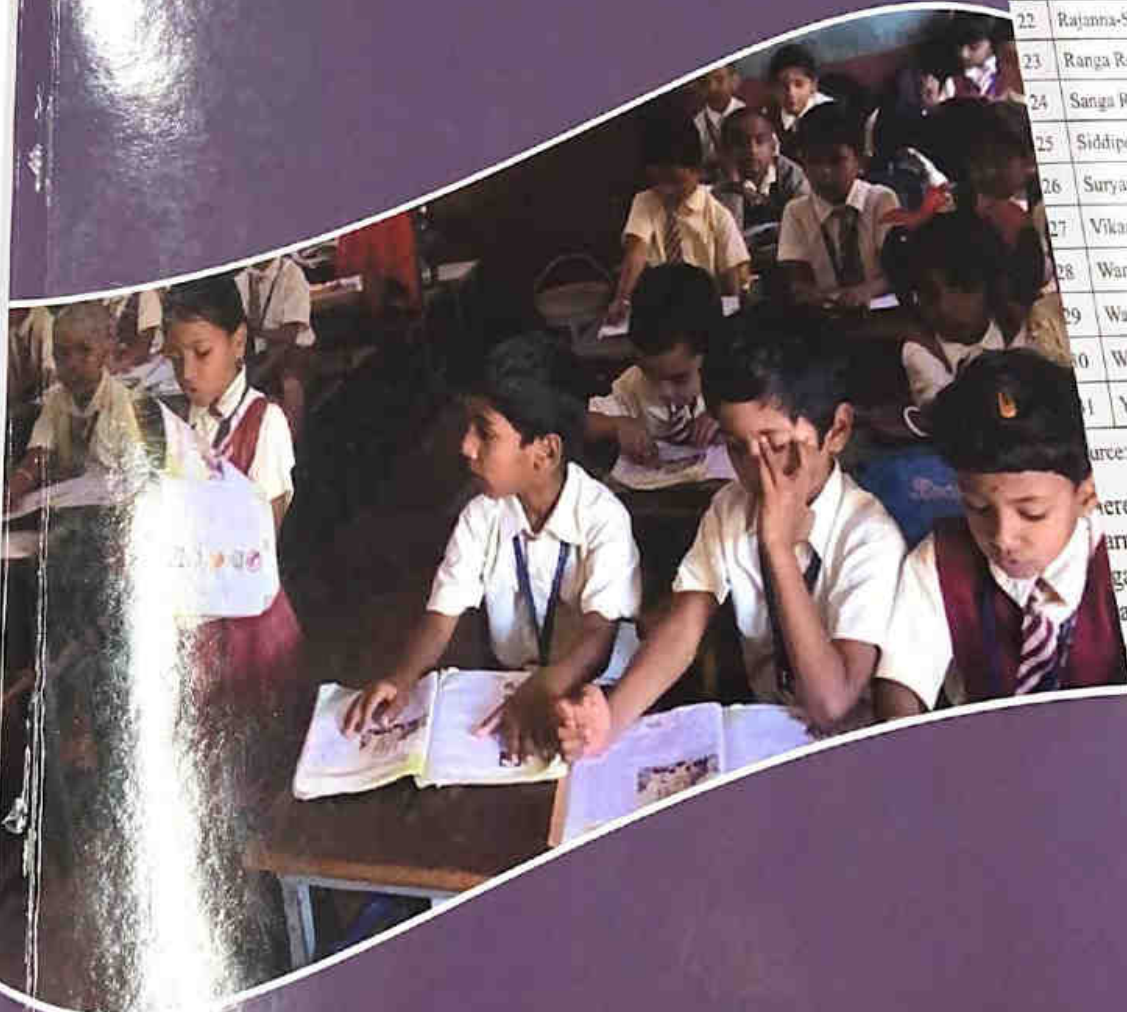
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Sl. No	Intervention	Norm	Remarks
19	BRC/CRC	<ul style="list-style-type: none"> • ₹ 6 lakh ceiling for BRC wherever required. • ₹ 2 lakh for CRC wherever required. • Deployment of upto 20 teachers in a block with more than 100 schools. • Provision of furniture etc @ ₹ 1 lakh for BRC and ₹ 10,000 for CRC. • Contingency Grant of ₹ 12,500 for a BRC and ₹ 2,500 for CRC per year. <p>As per norms approved under Education Guarantee Scheme & alternative and innovative education providing for. a. Setting up Education Guarantee Education Centre in unserved habitations, b. Setting other alternative schooling models, c. Bridge courses, remedial courses, back-to-school camps with a focus on mainstreaming out of school children into regular schools.</p> <p>As per specific proposals.</p>	
20	Interventions for Out-of-School Children		
21	Preparatory activities for micro planning, household surveys, studies, community mobilisation school based activities, office equipment etc		

Source: www.educationforallindia.com/ssr.htm

NATIONAL EDUCATION POLICY 2020: IMPLEMENTATION PROCESS AND CHALLENGES IN TELANGANA STATE



Edited by
Ghanta Ramesh
B.Shiva Reddy

Average achievement by class-subject

13	Mahabubnagar	65
14	Manshervil	73
15	Medak	63
16	Medchal-Malkajgiri	71
17	Nagarkurnool	64
18	Nalgonda	68
19	Nirmal	66
20	Nizamabad	67
21	Peddapally	69
22	Rajanna-Sircilla	70
23	Ranga Reddy	72
24	Sangli Reddy	74
25	Siddipet	75
26	Suryapet	76
27	Vikarabad	77
28	Wanaparthy	78
29	Warangal Rural	79
30	Warangal Urban	80
31	Yadadri-Bhongir	81

Source: NAS-2017, NCEER

There are inter-district learning levels are rural (Urban) and had have low learning private schools r

School Manager. The percent than in government basic arithmetic. This is true

CHAPTER-4

IS IMPLEMENTATION OF “FOUNDATIONAL STAGE” OF SCHOOL EDUCATION OF NEP2020 A SOLUTION TO THE LEARNING CRISIS IN TELANGANA STATE?

B. Shiva Reddy and K. Anji Reddy

1. Introduction

One of the important and landmark change suggested by the National Educational Policy 2020 (NEP2020) is the reorganisation of school structure from the existing 10+2 to new 5+3+3+4. While appreciating the earlier structure, it stated the necessity of redesigning it keeping in view the changing needs.

“The curricular and pedagogical structure of school education will be reconfigured to make it responsive and relevant to the developmental needs and interests of learners at different stages of their development, corresponding to the age ranges of 3-8, 8-11, 11-14, and 14-18 years, respectively. The curricular and pedagogical structure and the curricular framework for school education will therefore be guided by a 5+3+3+4 design, consisting of the Foundational Stage (in two parts, that is, 3 years of Anganwadi/pre-school + 2 years in primary school in Grades 1-2; both together covering ages 3-8), Preparatory Stage (Grades 3-5, covering ages 8-11), Middle Stage (Grades 6-8, covering ages 11-14), and Secondary Stage (Grades 9-12 in two phases, i.e., 9 and 10 in the first and 11 and 12 in the second, covering ages 14-18)” (NEP 2020 Section-4.1 p.11).

NEP 2020 categorically explained the importance of each and every part of this 5+3+3+4 design. “The Foundational Stage will consist of five years of flexible, multilevel, play/activity-based learning and the curriculum and pedagogy of ECCE.... The Preparatory Stage will comprise three years of education building on the play, discovery, and activity-based pedagogical and curricular style of the Foundational Stage, and will also begin to incorporate some light text books as well as aspects of more formal but interactive classroom learning, in order to lay a solid groundwork across subjects, including reading, writing, speaking, physical education, art, languages, science, and mathematics. The Middle Stage will comprise three years of education, building on the pedagogical and curricular style of the Preparatory Stage, but with the introduction of subject teachers for learning and discussion of

of the quality pre-primary education for all children vary from state to state, it is necessary to examine the possibility and problems of ensuring universal provision of pre-primary education at the state level.

Therefore, this paper examines the importance of pre-primary education of the Foundational Stage in addressing the problem of learning crisis in Telangana State. Before examining the status and possibilities of implementing pre-primary education of the Foundational Stage in Telangana State a brief explanation is given about the Learning Crisis in Telangana State (Section-2). Status of Pre-primary education in the Telangana State is analysed in Section-3. Implementing Process and Challenges for the Telangana State in providing free and compulsory Foundational Stage to all the children in the age group 3 to 8 years are analysed in Section-4.

2. Learning Crisis in Telangana State:

Learning Crisis is said to exist if:

- i. There is Gap between what is expected and Actual learning,
- ii. The Gap between what is expected and Actual learning is Widening,
- iii. The Gap is rising with increase in Grade/Class i.e cumulative deficiency is increasing,
- iv. The Gap is more for the recent Cohorts than earlier Cohorts,
- v. There are socio-economic differences in learning levels,
- vi. The policies/measures initiated have not answered the above.

In Telangana state one can observe the above and hence there is a need to look into the above and address them (See Shiva Reddy B and K.Anji Reddy, 2019 for details on the Learning Crisis in Telangana State).

In recent years one of the most debated issues in education is related to the quality of education. There would not have been much concern had the quality of education is satisfactory. Not only it is far away from satisfactory but it is also negatively afflicting the society and economy. Therefore, the debate on quality of education, referred to as the debate on learning crisis, is not confined to a particular country or a particular level of education but taken at a global level and for all levels and types of education.

The global level learning deficits are assessed through programme called PISA (Programme for International Student Assessment). The PISA test which tests the learning levels of 15 year old students conducted by OECD on a regular basis.

According to PISA ranking the average score in mathematics, science and reading is highest for Singapore, followed by Hong Kong, Japan and Macau. Of the 70 countries which participated in the test during 2015-16 the South East Asian countries have a better record even compared to some of the developed countries. The country known for global destination of higher education i.e. USA has secured score which is below the OECD average. The performance of several countries in the 75th PISA test is far below the OECD average performance.

According to World Development Report (2018:5) the percentage of grade 2 students who could not read was more than 80% in Malawi, India and Ghana. The percentage of grade 2 students who could not perform two-digit subtraction was more than 80% in India and Uganda. India's position in learning levels is far from satisfactory both in relative and absolute terms, its position was 73rd out of 74 countries in 2009-10.

There are two agencies regularly conduct survey on learning levels of children in India. One is National Council for Education Research and Training (NCERT) which conducts survey in the name of National Achievement Survey (NAS) on regular intervals by covering urban and rural schools. NAS survey covers only government and government aided schools. Second, Pratham a Non-governmental Organisation (NGO) conducts survey in the name of Annual Status of Education Report (ASER) every year by covering rural schools only. The NCERT survey is based on grade specific learning outcomes assessed through formal test to the selected students in selected schools, whereas ASER conducts oral test to the children of selected households in the selected villages on early reading and basic arithmetic ability.

ASER and NAS surveys, despite differences in test content, methodology, sampling purpose, and years reported poor learning levels at the national and state levels. At the national level ASER has presented poor learning levels over a period of 12 years (2005 to 2018) on a regular basis (ASER). Except a small section at the top of the class, the majority of the students have obviously been let down. While 53.1% of students in class V in rural government schools could read a text meant for class II in 2008 the corresponding figure for 2018 stood at 44.1%. In private schools the corresponding figures stood at 67.9% and 65.1% respectively. The performance in arithmetic is also far from satisfactory though there is some improvement since 2016. The improvement was 1.5% points in government and 1.8% points in private schools in class V.

In NAS survey during 2018 with 68% in the overall achievement (65.7%) by about 3%. Si India with 55.7% achieve 27th place with 42.0% achievement. Telangana State is better than other states and developed states. But its achievement is declining. It means learning achievement (68%) in class 3 and 5 but little less (55.7% in class 5) than National average. Telangana achievement (68%) is better than performance the Telangana State. Its position was 18 out of 28 states (NITI Aayog, 2019):

Learning levels are poor. Percentage of students who cannot read and write in classes i.e. Class I to VII is 1.8% in class VIII. Similar to double digit number. Students who cannot read and write about the matter and division the student in class VIII is an indication to World Bank (2018:3). Therefore, the main function of learning level as they decline.

Though the two surveys have differences in their methodology of both the surveys. The performance is better in lower classes. It was supposed to happen to the child. So, the decline in learning levels in lower classes is an indication

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In NAS survey during 2017 the Telangana state occupied 13th place in all India with 68% in the overall achievement in class 3rd and it is above the national average (65.7%) by about 3%. Similarly in class 5th also state occupied 13th place in all India with 55.7% achievement. But in class 8th it is lagging behind and occupied 27th place with 42.0% achievement only. In lower classes the achievement of Telangana State is better than many small and poor states and lagging behind big and developed states. But if we go to higher classes the achievement in Telangana is declining. It means when we go to higher classes the percentage of students' achievement is declining. In case of subject wise achievements the Telangana State achievement (68%) in language is on par with national average (68%) in class 3 and 5 but little less (53%) than national average (57%) in class 8. In case of mathematics, achievement of Telangana is better (69% in class 3 and 56% in class 5) than National average (64 % in class 3 and 53% in class 5) but in class 8 Telangana achievement (37%) is less than national average (42%). In the overall performance the Telangana state lagged behind almost all the major states in India. Its position was 18 out of 20 states in 2016 which was in 17th position the previous year (NTI Aayog, 2019: p.5).

Learning levels are poor in Telangana according to ASER survey in 2018. The percentage of students who cannot even recognise the letter are present in all the classes i.e. Class I to VIII but it varies from class to class. It is 24.2% in class I and 1.8% in class VIII. Similarly the children who cannot recognise the single digit and double digit numbers are present in all the classes. The highest percentage of students who cannot recognise two digit is 60.5% in Class 2 and 16% in Class 7. Forget about the mathematical operations like addition, subtraction, multiplication and division the students are not even able to recognise the two digit numbers in class VIII is an indication of poor levels of learning in Telangana schools. According to World Bank (2018:3) "...schooling without learning is a wasted opportunity." Therefore, the main function of schools is to make children learn and improve their learning level as they climb the education ladder.

Though the two surveys NAS & ASER are not strictly comparable due to the differences in their methodologies. But one common trend is observed in the analysis of both the surveys. The achievement of students in Telangana state is relatively better in lower classes and becoming worse as moving to higher classes. In fact it was supposed to happen otherwise due to cognitive and affective developments in the child. So, the decline in achievement of students as we are moving to higher classes is an indication of learning crisis in education.

In recent years there is increase in GER and decline in dropout rates. Unfortunately, they are not associated with increase in learning levels. This is probably due to the assessment test conducted by education system may not be able to comprehensively evaluate the children learning. So, the students are moving from KG to PG class without learning anything. Obviously, the University education also has become nominal. The students successfully qualifying post-graduation from the Universities without achieving minimum levels of learning and it is evident from that many of them are not able to grab the available employment opportunities and also applying for low level jobs for which they are not overqualified being holding post-graduation degree from Universities.

In recent time Telangana Public Service Commission (TSPSC) has issued notification for recruitment of low level jobs for various Departments with basic qualification as intermediate. For these low level jobs higher qualifications like MA, M. Sc, M. Com and Ph. Ds qualified candidates and professional qualifications like MBA, MCA, B. Ed, B. Tech and M. Tech qualified candidates have also applied. What it indicates is that the candidates though they are acquiring qualifications but failing in acquiring confidence in them resulting in standing them in queue for low paid jobs like Village Panchayat Secretaries, Village Revenue Officers, Forest Beat Officers and Lower Division clerks. The crisis in learning coupled with crisis of unemployment is leading to a peculiar consequence in highly educated applying for even lower level Jobs.

3. Importance of Pre-primary Education

According to NEP2020 universal access to quality early childhood education is perhaps the best investment that India can make for our children's and our nation's future. Realising its importance RTE Act is proposed to be extended downwards to include up to three years of ECCE prior to Grade-1 (Draft NEP 2019 P8.4.1 p189).

Nobel Laurette Joseph Heckman Equation: 'Early Childhood Education Benefits All' indicates the overall importance of pre-primary education. According to Heckman "What is remarkable is that there are some policies that both are fair—i.e., promote equity—and promote economic efficiency. Investing in the early years of disadvantaged children's lives is one such policy (Heckman, 2011)". Realising its importance UNESCO under SDG-4 Target 4.2 aimed at achieving quality ECCE to all children by 2030 such that they are ready for primary education

In the Indian context also there is a demand to include pre-primary education as part of RTE in view of its importance in influencing outcomes at primary education. It is observed in the Indian context that exposure to pre-primary education has a

direct relation with not only attendance and retention but most significantly with learning levels at primary stage and beyond. It is observed that over 85 percent of cumulative brain development occurs before the child enters the formal schooling (before six years)

According to ACER Report persistence of low levels of learning at primary level is mainly because children are unprepared for school and/or schools are unprepared for the children. By providing pre-primary education to all, the children are prepared to enter the primary schools without difficulty. Further, having a pre-primary section in every primary school the schools are prepared for children. Hence, opening a pre-primary section in every primary school is expected to solve the problem of not only access but also the learning crisis. Therefore, one of the remedial measures suggested to improve the learning levels is to provide pre-primary education to all the children in the age-group 3-5 years, preferably within the premises of primary school.

Further, "ASER 2019 'Early Years' data shows a clear relationship between children's performance on cognitive tasks and measures of early language and early numeracy, suggesting that a focus on activities that strengthen cognitive skills rather than subject learning in the early years may generate substantial benefits in terms of children's future learning. The entire age band from 4 to 8 needs to be seen as a continuum, and curriculum progression across grades and schooling stages designed accordingly. For an effective and implementable curriculum, the process of designing, planning, piloting, and finalizing needs to keep ground realities in mind" (ASER, 2019).

It is necessary to know to what extent the nation and for that matter the states are ready to provide pre-primary education to all the children and that too by having a pre-primary section within the school. To know this first we have to examine the status of pre-primary and then suggest measures needed. Here we make an attempt to examine them in Telangana state where promise is made to provide free education from KG (pre-primary) to PG (Post-graduation).

4. Status of Pre-Primary Education in Telangana State:

Pre-schooling facilities are available in one form or the other in majority of the areas in Telangana state. But to provide to pre-primary education to all the children in the age-group 3-5 years is a stupendous task on many counts-technical, financial and administrative. To know all the tasks, it necessary to know the status of pre-primary education in Telangana state. It is also necessary to know whether 3 to 4

year old children have access to pre-primary education facilities and whether they are acquiring the foundational skills and abilities that are necessary for subsequent success in school and beyond in Telangana state. The number of children in the age group 3+ and 4+ constitute pre-primary age-group. As per the Census 2011, the population in the age group 0 to 6 years is 39 lakhs accounting for 11.14 percent (13.6 percent for All India) of total population. About one-third of the 39 lakhs children constitute in 3+ and 4+ (pre-primary school going children). Due to demographic transition the population in the pre-primary school age group may be even less than one-third of it. Roughly about ten lakh children constitute pre-primary age-group who have to be provided pre-primary education in the state.

According to Socio-Economic Outlook 2020 pre-primary enrolment has declined drastically in Telangana State. A decade back about four lakh children were enrolled in pre-primary education which came down to 1.52 lakhs by 2018. Though it is difficult to explain the decline, probably it may be due to decline in fertility rate in the last decade and presence of over aged/under aged children in pre-primary education then than at present and finally underestimation of actual enrolment in pre-primary education.

In Telangana state, for that matter in India a wide range of Centres like Early Childhood Care and Education (ECCE) and Anganwadis (AWCs) besides some private/NGO agencies provide some sort of pre-primary education in the state. Anganwadi centres which exist in almost all habitations have been under the management of Department of women and Child Welfare. ICDS program, renamed as Anganwadi Services Project in 2017 provides a package of health, nutrition and education services to women and children. At present there are 147 Anganwadi Services Project with 31711 Main Anganwadi Centres and 3989 Mini Anganwadi Centres are functioning in all 33 districts of Telangana state. Under ICDS a package of services comprising supplementary nutrition, immunisation, health check-up and referral services, pre-school non-formal education are provided to 336987 pregnant and lactating women and 1337033 children of 7 months to 6 years of age (Economic Outlook 2020). 3 to 6 years age-group children are provided with mini-hot meal Rice, Dal, Oil, Vegetables and snacks every day at AWCs and 30 eggs per month, besides providing some sort of pre-primary education.

According to Save Education Study on ECCE out of 35700 AWCs sanctioned 35353 are functioning in the state. Out of them 33955 AWCs providing pre-school education with an enrolment of 6.39 lakhs (3.18 lakh boys and 3.21 lakh girls) in 2015.

About 38.3percent of AWCs are located in government school premises. Thus, less than two lakh children are getting pre-primary education and much less of it from AWCs located in government school premises. Pre-school- kit, developed and supported by ECCE experts is provided to all AWCs for the purpose of school readiness.

In the state AWCs cater to large number of children before they enter pre-primary grades. This can be strengthened to cover all the children in the state. How ever, the ability of AWCs to implement appropriate school readiness activities for 3and 4 years children needs to be strengthened.

In addition to AWCs some regular schools also provide pre-primary education in the state. According to CSF there are 0.2 percent of government primary schools and 16 percent of private primary schools have pre-primary section. The respective shares are15.5 percent and 43.3 percent at the all- India level. Thus, the state is lagging behind many states in providing pre-primary education.

According to ACER Report(2018) out of hundred 3+ old children 69 percent of children are in the AWCs, 1.7 percent Government schools and 12.4 percent are in private school are enrolled in pre-primary education. 13.5 per cent have not been enrolled in pre-primary section in rural areas of Telangana. Similarly out of hundred 4+ old children 48 percent of children are in the AWCs, 3.6 percent Government schools and 38 percent are in private school are enrolled in pre-primary education. Only 2.5 per cent have not been enrolled in pre-primary section in rural areas of Telangana.

In private schools no defined curriculum is followed as there is no specific guidelines from the State level bodies. In the state most of the time is spent formal teaching activities when compared to AWCs where time is used mostly for play based learning activity (IECE Impact Study, 2017).

Table-1: Time spent on different activities in Anganwadis/Private School in Telangana state

Time Spent on Different activities	Anganwadi Centres	Pre-Primary Section in Private School
1	2	3
Play based learning activities	68.4	11.9
Outdoor activities	0.4	0.0
School readiness a activities	0.4	2.4
Formal Teaching	5.7	58.6

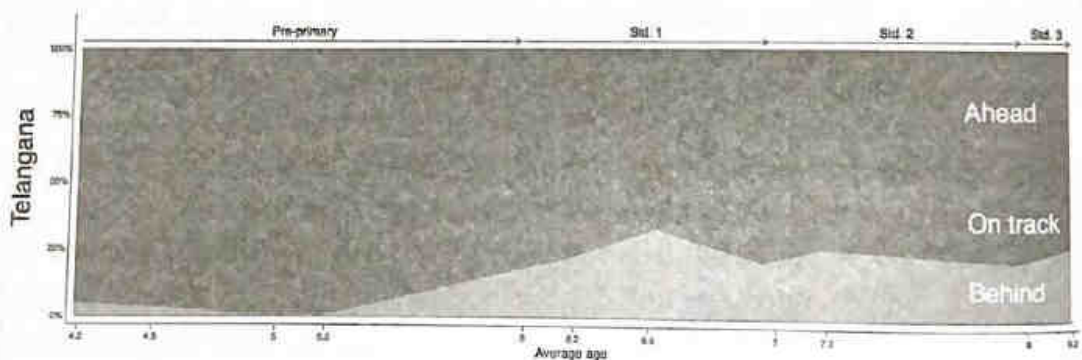
Routine activities	18.6	24.8
Unplanned activities	0.4	0.2
No activities	6.1	1.9
Any Other	0.0	0.0
	100.0	100.0

Source: Kaul, et al. (2017:p48)

From the Table-1 it may be noted that Anganwadi Centres are giving priority play based activities while Private Schools are focussing more on formal teaching to Pre-Primary students.

Further, the admitted students' progress is not uniform but vary widely with age and grade.

Figure-1 outlines the percentage of children in Telangana state whose progress is 'behind'(bottom), appropriate(middle), or 'ahead'(top) of track over time. For example, following the school year in which children turn 6, those who are in grade 1 are in the appropriate grade for age; those who are not participating in any educational institution, are in *anganwadi* or other ECE classes are 'behind'; and those who are in grade 2 or higher are 'ahead'. The following school year, children who are in grade 2 are in the appropriate age for grade, and so on. Survey waves are depicted in the graphs according to average child age at the given survey point. The charts highlight that in each state a substantial percentage of children are 'behind' or 'ahead' of track for most of the pre-primary and primary cycle (ASER 2019:p. 15).



Source: ASER 2019 Figure -2 P 15

Figure-1: Proportion of children who are in the appropriate grade for age, by age in Telangana State

At the first survey wave (average age of 4.2 years) almost 100 percent students are in the appropriate grade meaning that they are attending ECCE centres. At average child age 5.2 years Close to a half of children in Telangana are 'ahead', indicating that state norms permitting earlier entry into primary school matter far more in the state. From age six onwards substantial percentage of students are present in all the three categories. Further, at average child age 8.2 years, in Telangana State approximately a quarter of the children are 'behind' track, roughly 30% 'on' track and remaining 40% 'ahead' of track. While state norms of earlier school-entry age can explain why a large proportion remain 'ahead', those who are behind are conforming neither to national nor to state policy norms.

5. Implementation of Foundational Stage in Telangana State

The NEP2020 suggests significant expansion and strengthening of facilities for ECCE.

"ECCE shall be delivered through a significantly expanded and strengthened system of early-childhood education institutions consisting of (a) stand-alone Anganwadis; (b) Anganwadis co-located with primary schools; (c) pre-primary schools/sections covering at least age 5 to 6 years co-located with existing primary schools; and (d) stand-alone pre-schools - all of which would recruit workers/teachers specially trained in the curriculum and pedagogy of ECCE (NEP 2020, p 7).

The above stated ways of strengthening of facilities for ECCE as part of Foundational stage would in fact, not serve the purpose for which pre-primary education is included as part of Foundational stage. Having heterogeneous arrangement would not only inhibit the access to quality pre-primary education but also would hinder the learning environment. Though there are some technical aspects in bringing Foundational stage under one umbrella they can be sorted out by co-ordinated efforts if the Government really wants to strengthen it and there by strengthening the entire education system.

Government of Telangana can initiate steps in having exclusive structure for the Foundation Stage by combing pre-primary part of ECCE and Grade-1 and Grade-2 part of existing primary stage for children in the age-group 3 to 8. There are few issues which needs to be discussed/ addressed.

First, at present pre-primary education is provided by AWCs which are under the Department of Women and Child welfare. Pre-primary education is one of the activities and hence cannot be expected to provide full-fledged Pre-primary education by AWCs. Though it is advantageous to locate AWCs in the primary school complex, till now, many are far away from the school.

Second, availability of trained Teachers is critical to deliver quality pre-primary education in AWCs. At present there are few trained teachers exclusively meant for pre-school education. Readiness to handle pre-primary education by AWC teacher is far from satisfactory. Even in regular schools (whether government or private) where pre-primary section is located no separate trained teacher is provided. Therefore, it is important to provide exclusively trained teacher to handle pre-primary section irrespective of where it is located.

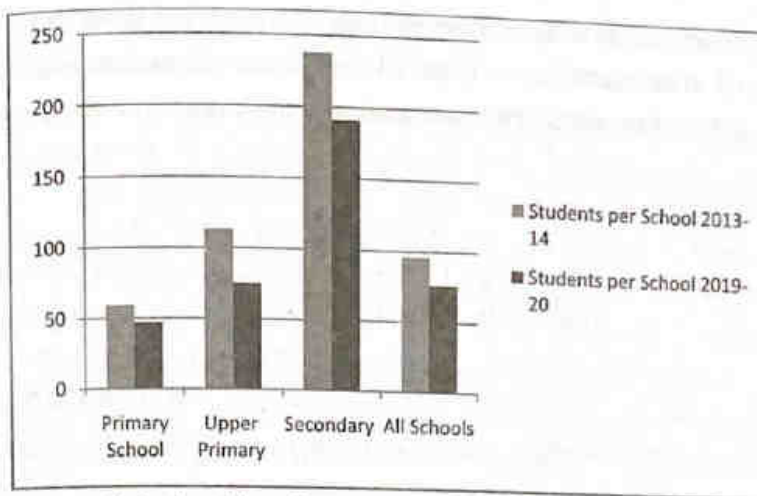
3. Physical infrastructure also needs an improvement as delivery of pre-primary education require a somewhat different teaching learning equipment and environment than a normal school. There are no separate rooms in many AWCs exclusively for the pre-primary section. Unless the children in the age-group 3 to 6 are separated from below 3 years children it is difficult to provide play based and activity based learning.

4. Curricular and Pedagogical aspects play an important role in providing quality pre-primary education. As suggested by ACER provide flexible and foundational curriculum which may be designed in upward continuity along the early learning continuum. It should focus on development of school readiness and early learning competencies through play and activity based pedagogical methods, with provision to learn at their own pace and consolidate their basic foundation.

The above are related to the pre-primary part of the Foundation Stage. The other part of the Foundation Stage includes Grade-1 and Grade-2. At present all the children appropriate to their age are Grade-1 and Grade-2 are enrolled in schools. Grade-1 and Grade-2 are part of the primary/upper primary or secondary school. The teachers of these schools mostly concentrate on higher grades and very junior or part time teachers handle Grade-1 and Grade-2 classes. As a result the deficiency in learning levels start from the very beginning because of organisational arrangements.

Therefore, having separate school structure for Foundational Stage is necessary. If the Government is serious about addressing the Learning Crisis which has been impacting not only the education system but also the economy and society can take the initiative on the following lines to create a separate structure/ school for Foundational Stage.

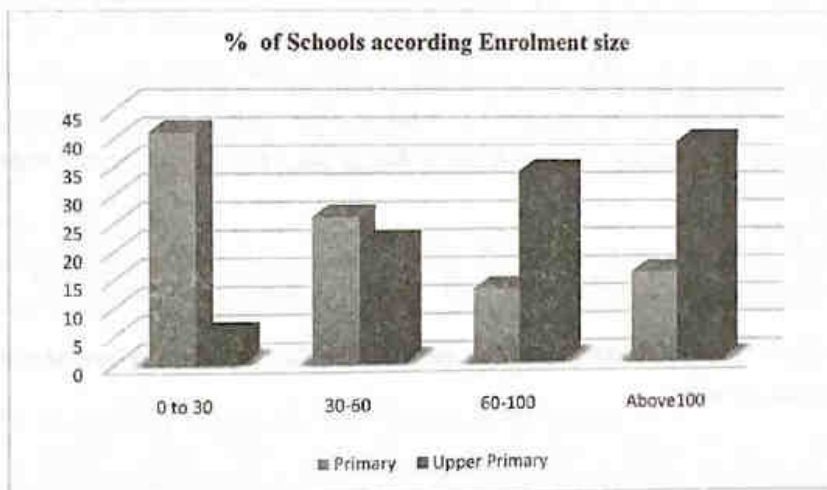
First, in the state majority of the primary schools are having very low enrolment. At the aggregate level average enrolment in primary school (having classes from one to five) declined from 59 to 47 in rural Telangana (Figure-2). The average enrolment per class declined from 15 to less than 10 during 2013-14 and 2019-20.



Source: Calculated based on U-DISE Data

Figure -2: Change in Students per School in MPP/ZP(Rural) Schools in Telangana State during 2013-14 and 2019-20

Further, there are many primary schools in the state having less enrolment than required to run it effectively. As per ACER Study (2019:222) the percentage of primary and Upper primary schools with less than 60 students increased from 17.2% in 2010 to 34.8% in 2018. In two-third of the primary schools the enrolment is less than 60 and as many as 40 percent of them have less than 30 children in 2015-16. Similarly, in upper primary schools also there are less number of students. About 5% of the schools have less than 30 students; 27% have less than 60 students and 61% have less than 100 students (Figure-3).



Source: Shiva Reddy and Anji Reddy (2019: Figure- 9)

Figure -3: Schools according to Enrolment Size in Telangana, 2016

Added to this, the enrolment in Grade-1 and Grade-2 as percentage of total enrolment in school education has declined from about 22 percent in 2013-14 to about 20 per cent 2019. The above two developments-decline in average enrolment per primary school and grade-1 and grade-2 students call for reorganising the school structure for the Foundational Stage. Students of the Class -3 to Class -5 can be accommodated in nearby Middle/Secondary School. All the primary schools having less than 60 can be converted into Foundational Stage School covering Grade -1 and Grade-2 students of primary school and Pre-primary students of Anganwadis. At no extra/ marginal cost the rearrangement can be made. However, covering the existing primary schools into Foundational Stage School requires support from the Education Department, Health Department and Women & Child Welfare Department.

Besides addressing the learning crisis, as pointed out by Nobel Laurette Joseph Heckman, taking such measures yield both monetary and non-monetary returns both in the short and long run to the individual (child/family) and to the society.

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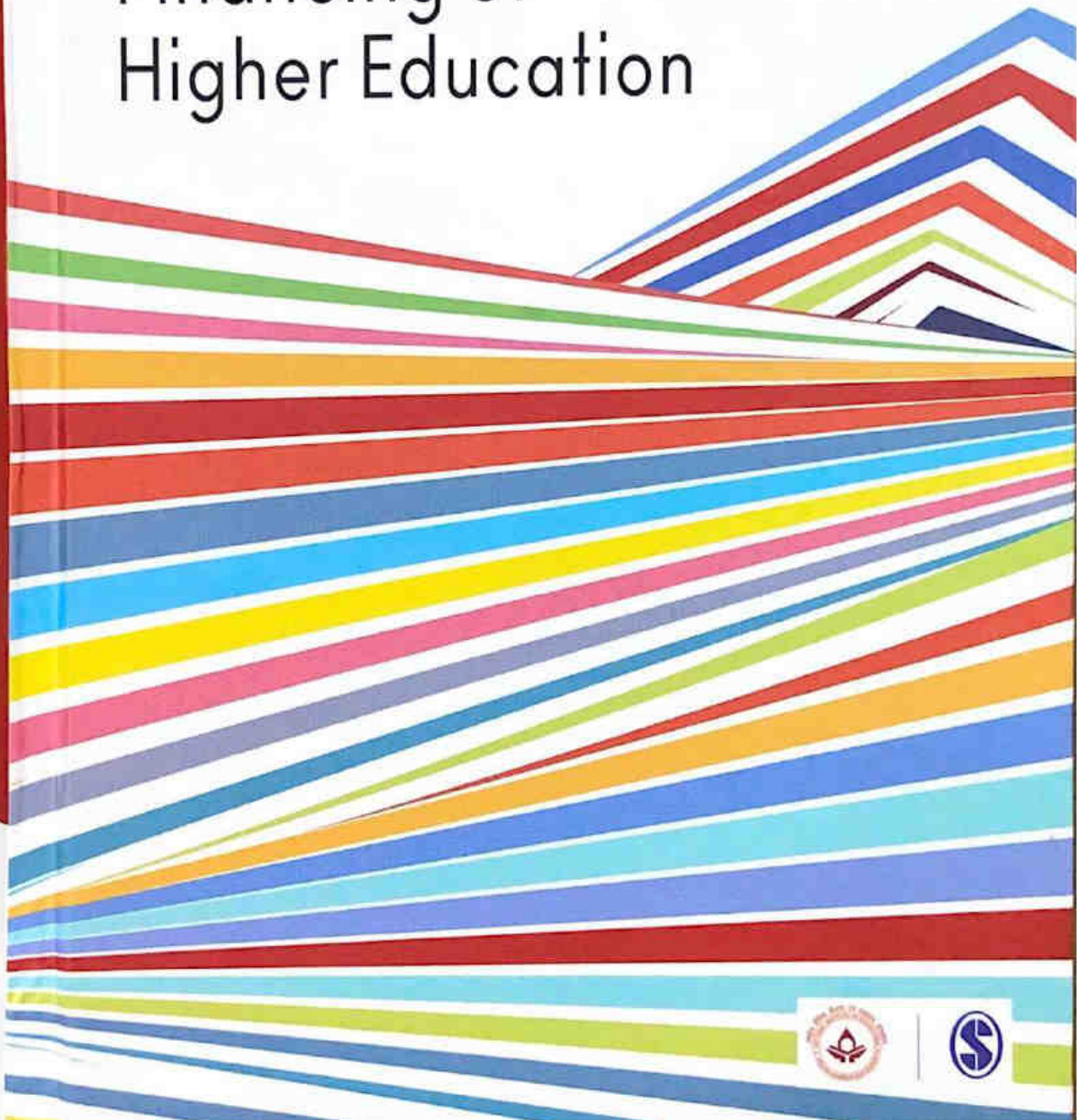
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Chapter 11

Public Financing of Private Education

A Case Study of Fee Reimbursement Scheme (FRS) in Andhra Pradesh

B. Shiva Reddy and K. Anji Reddy

INTRODUCTION

Development of education is a pre-requisite for the overall development of economy and society and it requires public funding on a larger scale. Financing of education by the government is common in many countries and India is no exception to it. However, the extent of public funding varies across different levels and types of education. Not only the level of funding but also the method of funding affects the access, equity and quality, the three important parameters of education development.

Public funding to higher education takes three forms in Andhra Pradesh. First, government funds the institutions under its management. This form of funding has not been increasing significantly. Second, the institutions under private management are funded by the government in the form of grants-in-aid, mainly to meet the salary of teaching and non-teaching staff (known as private aided). This is the traditional

tion of public funding of private sector which is on the decline due to decrease in the number of aided institutions. The third form is the public funding of private education in the form of FRS. The public funding to higher education, including technical and professional education, is taking this form in Andhra Pradesh.

Much has been written and researched on the effects and implications of financing of higher education. Also some research is done on the issues related to the private financing of higher education. There is hardly any research related to the public financing private education through FRS. Though there are some studies related to similar methods of financing (such as voucher system), no such studies exist for India. Therefore, this chapter attempts to examine issues associated with the FRS in Andhra Pradesh. When compared to other states, Andhra Pradesh has introduced FRS on a large scale in higher education and is continuing with it even after bifurcation of the state in 2014. Compared to general higher education, professional and technical education is dominated by private sector and is funded through FRS. Within professional and technical education, engineering education is the most important component funded and affected by the FRS. This chapter focuses its analysis on financing of higher education, especially engineering education through the new modality of FRS.

The plan of this chapter is as follows. The next section examines the background and the need for the introduction of FRS in Andhra Pradesh. The salient features and implementation design and coverage of FRS are examined in second section. The third section discusses admission procedure and fee structure for engineering education in Andhra Pradesh. In the fourth section, the impact of FRS on higher education, particularly on engineering education, in Andhra Pradesh is analysed. The issues associated with the implementation of FRS are discussed in the fifth section. Summary and concluding observations are made in the last section.

BACKGROUND AND THE NEED FOR FRS

The higher education institutions (HEIs) in Andhra Pradesh were funded and managed by the government till the 1980s.

The role of private sector increased both in of the management and financing of higher education in the 1980s. Public funding to higher education declined in the subsequent period in the state partly due to the proliferation of private unaided colleges providing general and technical higher education. Further, the government believed that benefits of higher education largely accrue to the individual and hence permitted the colleges to levy fees at the level to recover full cost. This shows that higher education was not even recognized as a merit good.

As a result, the access to higher education was restricted to those willing to pay for it and hence the poor were kept away from getting access to it. The trade-off between efficiency and equity was evident with the state tacitly supporting the former by reducing the state funding and encouraging the cost recovery methods. Though statistics on the extent of private funding is not available, it may be inferred that funding of higher education through fees and other income was more than the public funding in the state till early 2000 in the state. Private sector expanded more in technical and professional education when compared to general education as the former is comparatively more rewarding both for the student and the college management.

The strategy of encouraging the private sector also helped the outflow of children from middle-class families to neighbouring states to seek technical education. The access to higher education, technical and professional education, in particular, has remained a dream for the poorer sections. Even the reservation system could not help them as their economic conditions did not permit them to study despite getting admission.

The option of taking loans from the banks, though available, is limited due to various conditions laid down by the banks. It is easier and cheaper to take loans for acquiring property (physical capital) compared to getting loans for education (human capital). Further, the uncertainty of getting economic returns from the education and consequent inability to pay back the loan also discouraged them from seeking loans.

All these issues have led to some discontentment, particularly among the backward communities (BCs) in their efforts to get access to higher education. On the one hand, the poor students from SC/ST

of the management and public funding to higher education in the state partly due to providing general and management believed that individual and hence cover full cost. This is regarded as a merit good.

restricted to those who come from getting higher education. It was evident that the state funding statistics on higher education inferred that there was more private education when there were more

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communities got financial assistance to meet the costs of higher education. On the other hand, of those outside the reservation system some have got access to technical and professional education due to their economic position as they can get admission under management quota. Only students from BCs who have reservation were denied access to higher education, particularly technical and professional education, due to their poor economic background. At present, 29 per cent of the seats in all HELs are reserved for BCs.

The BCs were demanding the government to bear the cost of higher education for their children admitted in private institutions. The scholarship scheme available to them was insufficient to bear the cost of technical and professional education. The efforts did not materialize till the election period where the political compulsions made the then ruling party (Indian National Congress) to promise financial assistance to children of BCs pursuing higher education. This culminated in the form of FRS introduced from the academic year 2008–2009, originally meant for children of BCs in Andhra Pradesh.

FEATURES AND IMPLEMENTATION DESIGN OF FRS

FRS is a unique method of intervention that has features different from other methods of public financing. Some of the important features of FRS are as follows.

The term 'fees reimbursement' implies that the student first pays the tuition fee and later gets the reimbursement from the government. Contrary to this, there is no need to pay the fee by the student. Government gives an assurance to pay the fees to the management after the admission, as per the guidelines. FRS covers all the eligible students (parents annual income must be less than the prescribed amount by the government along with the caste certificate, and the student should have secured a rank in common entrance test conducted by government) with no ceiling on the total number and amount. FRS is different from grant-in-aid, a common method of public funding of private education, though in both methods funding is given to the management. In the grant-in-aid method, the government provides funds to the private institution to meet, mainly, the salary component of

teaching and non-teaching staff. The management gets the funding based on the number of teaching and non-teaching staff and not based on the number of students. In the case of FRS, the funding is based on the number of students admitted, which makes the management admit maximum number of students.

FRS appears to be similar to the voucher system, a method of public funding of education, which is prevalent in many countries (Epple, Romano, & Urquiola, 2017). Both of them cover public as well as private institutions, but the main aim of FRS is to provide access to private education. In both the cases, the institutions compete for the students as the total public funding is based on the number of students. However, they differ in several respects.

Voucher system covers only school education (foreign countries), whereas FRS is serving only higher education (India). There are instances of higher education being covered too (foreign countries). Under voucher system, the student has complete freedom to choose the institution. But under FRS, student has limited freedom and choice as the admission to the course and the college, based on merit and social background, is decided by the admission authority (known as Convener, Admissions).

The vouchers are allowed to be claimed by the institutions which are accredited and maintaining quality, but under FRS no such conditions exist. In voucher system, the school curriculum and teaching varies from school to school depending on the teachers and management but in FRS there is uniform curriculum and teaching. Voucher system encourages efficiency, while FRS emphasizes access and equity.

FRS is aimed at influencing the demand for education, unlike others which are aimed at influencing the supply. This has created an artificial demand for the courses which otherwise would not have been demanded due to high cost and less prospects. However, though aimed at the demand side, the supply side is also not completely immune to it. In fact, it was supply rather than demand that was influenced by the FRS at the later stage.

Though FRS covers both public and private institutions, it is mainly aimed at providing access to corporate and private education.

FRS is classified as a welfare program. FRS is administered by Government of Andhra Pradesh through the Department of Social Welfare for STs, Department of Social Welfare for Economically backward classes, and Department of Minority Welfare for minorities and Disabled. These departments refer the students belonging to the respective categories.

Only those students admitted under FRS and those admitted under

Implementation

The Government of Andhra Pradesh has implemented FRS for the students admitted from the year 2014-15 and made available to all eligible students belonging to the SC/ST/BC/EBC/minorities and Economically backward classes to pursue higher studies. The students are admitted to the affiliated colleges whose admission is controlled by the designated authority. Under FRS, the students whose family income is less than Rs. 10,000 per annum are eligible under the FRS. To ensure transparency, the Government has started a programme called Social Benefit Management System (SBMS) after consultation with welfare departments. The SBMS is sanctioned and disseminated electronically.

The students allotted into various categories are notified by the authority based on the eligibility criteria under FRS. After the allotment, the students are admitted to the college; the student needs to upload the documents required for admission to the respective welfare department.

FRS is classified as a welfare activity as it is funded and administered by the welfare departments and not by the education department. FRS is administered by various welfare departments of the Government of Andhra Pradesh. The departments implementing FRS are the Department of Social Welfare for SCs, Department of Tribal Welfare for STs, Department of Backward Classes, Welfare for BCs and Economically backward communities (EBCs), Department of Minority Welfare for minorities and the Department for Welfare of Disabled. These departments reimburse the tuition fees of the students belonging to the respective categories.

Only those students admitted under convener quota are eligible for FRS and those admitted under management quota are not eligible.

Implementation Design of FRS

The Government of Andhra Pradesh has been implementing FRS for the students admitted from the academic year 2008–2009 onwards and made available to all eligible students on a 'saturation basis' among the SC/ST/BC/EBC/minority/physically challenged communities to pursue higher studies. The scheme applies to all universities and its affiliated colleges whose admission process is regulated/administered by the designated authority. Under the saturation basis, all eligible students whose family income is less than the stipulated amount are covered under the FRS. To ensure timely sanction and disbursement of post-matric scholarships, IT&C department of the government has initiated a programme called Social Benefit Management System (SBMS) in consultation with welfare departments. One of the components of the SBMS is sanction and disbursement of post-matric scholarships electronically.

The students allotted into various courses and colleges by admission authority based on the eligibility under convener quota are eligible under FRS. After the allotment, students join in their allotted course and college; the student need to apply online on the ePass website and upload the documents required and submit a hard copy of the same to the respective welfare departments through their college principal by

enclosing all necessary documents for sanction of FRS. Initially, it was done manually but subsequently was made online. The welfare departments have to verify the application of students whether the student is satisfying all the conditions.

Coverage under FRS

As stated earlier, the FRS covered all the post-matric courses and all the eligible students with no ceiling on the number or the amount. Students in all the private colleges offering general, technical and professional courses, besides public institutions, have become eligible for the FRS. However, the exact number of students who benefited from the FRS is not known as it runs into millions of students. Once admitted and satisfied the conditions, the student is eligible to get financial assistance under FRS for the entire period of the course.

With the increase in the number of students year after year, the amount required under FRS also increased. The government has to make provision for it in the budget. Therefore, the budget allocation to different welfare departments has increased. However, the budget allocations made did not match with the requirements and as a result there was always a gap between the requirement and the allocation.

In Andhra Pradesh, students from various social categories get financial assistance from the government known as post-matric scholarship, including FRS. The number getting post-matric scholarship has increased significantly after the introduction of FRS (Table 11.1). The number jumped to almost two million in 2008–2009 from 1.4 million in 2007–2008. By 2012–2013, the figure crossed 2.8 million. About 80 per cent of the students in higher education were covered by the scheme. The amount spent under FRS varied from year to year. The exact amount allocated and spent for the scheme is only an approximation, as there is a delay in the release of the funds. Initially, the scheme covered first-year students admitted during 2008–2009 and all senior students were not eligible for the scheme. Therefore, the amount required was less in the beginning. But gradually the amount required increased as the first year students entered second year along with the newly admitted students. By the year 2011–2012, all the eligible

Table 11.1 Number of Beneficiaries and the Amount under Post-matric Scholarship* in Andhra Pradesh

S. No.	Year	Amount (₹ Crores)	No. of Beneficiaries (in Lakhs)
1	1997–1998	125.00	3.99
2	1998–1999	144.90	4.25
3	1999–2000	149.73	5.03
4	2000–2001	203.72	5.21
5	2001–2002	294.05	5.84
6	2002–2003	268.48	6.12
7	2003–2004	310.07	6.97
8	2004–2005	381.31	8.25
9	2005–2006	368.09	9.67
10	2006–2007	572.88	11.47
11	2007–2008	828.01	14.09
12	2008–2009	1,615.86	19.94
13	2009–2010	2,061.45	23.82
14	2010–2011	2,931.54	25.74
15	2011–2012	3,970.59	26.23
16	2012–2013	3,748.91	28.18

Source: Ramana (2014, Table 25, p. 148).

Note: * Post-matric Scholarships include both FRS and mess charges.

students came under FRS. The amount required to cover all of them increased substantially when compared to the budget allocation. One estimate suggests that amount required increased from ₹2,000 crores to ₹5,000 crores during 2008–2013 (Rao, 2012).

It may be noted that the number of students covered under FRS started declining after 2011–2012 in Telangana (Table 11.2). This is because the government started imposing restrictions and plugging the loopholes to reduce the amount. After the bifurcation, both the states have continued the FRS but the Telangana government initiated

Table 11.2 Year-Wise Number of Students Availing Reimbursement of Tuition Fee

Year	Telangana	Andhra Pradesh	Total
2012–2013	1,444,358	1,403,771	2,848,129
2013–2014	1,432,488	1,394,951	2,827,439
2014–2015	1,377,589	1,479,914	2,857,503
2015–2016	1,411,477	1,514,197	2,925,674
2016–2017	1,365,102	1,580,181	2,945,283
2017–2018*	1,213,083	NA	1,213,083

Source: epass.cgg.gov.in (2017).

Note: * Provisional.

measures that have restricted the misuse of funds under FRS. Hence, there is drastic reduction in the number of beneficiaries in Telangana. On the other hand, the number of beneficiaries increased in the rest of Andhra Pradesh (Table 11.2).

ADMISSION AND FEE STRUCTURE IN ENGINEERING EDUCATION

The admission to the engineering courses was made on the basis of marks secured at +2 and (intermediate) level up to the year 1981. Thereafter, it was done on the basis of marks secured in the entrance examination conducted by the universities. The students need to apply separately for university and private colleges. The admissions were made university-wise, though the entrance examination was common to all the universities. In the year 1985, the government introduced Engineering and Medical Common Entrance Test (EAMCET) for admission into engineering and medical courses simultaneously. Based on the performance in the EAMCET, students were ranked. Later weightage to the performance in the intermediate examination was given to the extent of 25 per cent in awarding the ranks.

Private colleges wanted to make their own admissions but the universities did not permit them to do so. The private managements insisted for their say in the process of admission that led to the quota

system in admissions. Initially managements were given the freedom to fill 10 per cent of seats while the rest (90%) were filled by admission authority (convener quota). Subsequently, owing to pressure, the management quota kept on increasing from 10 per cent to 15 per cent to 20 per cent and finally to 30 per cent. The seats under the convener quota are filled through counselling method. While filling the seats under the management quota, the norms are rarely observed. Spot admission procedure is adopted to fill vacant seats under the convener quota. However, these students are not eligible under FRS.

The government role was in the form of regulating admission and fixation of fee. During the late 1980s, government introduced the quota system where the admissions are made under the convener quota (90%) and management quota (10%). Initially, within the convener quota the government created 50 per cent free seats and 50 per cent payment seats. The fee charged for the free seat was nominal, whereas it was more under the latter (Table 11.3). Fee under the payment seat was more than five times the fees fixed under free seat. Therefore, there was cross-subsidization of those admitted under the free quota by those admitted under the payment quota. The fee fixed under the management quota was, obviously, more than the fee charged to the payment seat. Though the capitation fee was banned, it existed in different form(s); the extent depended on the demand for the course and the college.

The free quota system was removed in 2002–2003 due to controversy over subsidization of some at the cost of others. The removal followed by increase in the management quota from 10 per cent to 15 per cent. The fee fixed under the convener quota was more than the fee charged under free seat and less than the fee for payment seat, but was less than the average. For example, in 2002–2003, the fee under the free quota was ₹8,000 and ₹43,000 for the payment seat. The average worked out to be ₹25,500. But, the common fee fixed was ₹22,000 only. This arrangement continued till 2005–2006 (for 3 years only).

The managements were not satisfied either with the fees fixed or with the management quota as these did not generate sufficient income to maintain the academic standards and make profits. The government has accepted to increase the fee from ₹22,000 to ₹26,000

Table 11.3 Fee Structure under Convener and Management Quotas (₹ per Annum)

Year	Seats		Fee Structure		
	Convener Quota	Management Quota	Convener Quota Free Seat Payment	Free Seat	Management Seat Fee
1999–2000	90	10	5,000	35,000	60,000
2000–2001	90	10	8,000	43,000	68,000
2001–2002	90	10	8,000	43,000	68,000
2002–2003	90	10	8,000	43,000	68,000
2003–2004	85	15	The free seat category was abolished	22,000	68,000
2004–2005	85	15		22,000	75,000
2005–2006	85	15		22,000	75,000
2006–2007	80	20		26,000	79,000
2007–2008	80	20	27,500	79,000	
2008–2009	80	20	30,200	91,700	
2009–2010	70	30	30,200	91,700	
2010–2011	70	30	30,200	95,000	
2011–2012	70	30	31,000	95,000	
2012–2013	70	30	Common for both convener and management quotas. The minimum and maximum fee fixed by AFRC is 35,000 and ₹120,000 depending on the cost incurred by the college		
2013–2014	70	30			
2014–2015	70	30			

Source: Information compiled from various GOs issued in various years by Andhra Pradesh government.

and management quota from 15 per cent to 20 per cent. Along with increase in the management, quota the fee fixed under this category also underwent upwards revision gradually. The student admitted under the management quota had to pay more than three times the fees fixed

for the convener quota. In 2002–2003, the fee under the management quota was ₹68,000 when compared to ₹22,000 under the convener quota. There was an upward revision of fee for both categories.

The managements demanded for further increase in management quota to 50 per cent to generate sufficient income for financial viability to maintain the institutions. So, these quotas changed from 80:20 per cent to 70:30 in 2009–2010. Thus, changes in the fee and the quotas had their implications for access, equity and quality.

The Supreme Court objected to the differential fee structure for the same course and directed the government to follow a uniform fee structure. The difference between fees under the convener quota (₹31,000) and management quota (₹95,000) was very high. Therefore, from the academic year 2012–2013, there is a common fee.

After the introduction of the common fee system and FRS, the managements wanted a reduction in the management quota and increase in the convener quota. The managements are at disadvantage because of uncertainty about admissions under the former and even those admitted are not eligible under FRS. But government has not taken any decision to change the quota.

The government has constituted a committee called Admission and Fee Regulation Committee (AFRC) to fix the fee under the chairmanship of a retired high court judge. The committee fixes the fee based on certain institutional norms and once fixed, valid for three academic years. Accordingly, the fee is revised from time to time. The AFRC takes into consideration the following factors while prescribing the fee—location of the institution, nature of the course, cost of available infrastructure, expenditure on administration and maintenance, a reasonable surplus required for growth and development of the institution, revenue foregone on account of waiver of fee, if any, and any other relevant factor.

IMPACT OF FRS ON ENGINEERING EDUCATION

The introduction of the FRS has brought many developments in higher education, particularly in engineering education. Some of them are explained in this section.

Access to Engineering Education

FRS has definitely increased the access to engineering education. To get admission into technical and professional courses, the candidates have to get through the entrance tests conducted for different courses. The number of candidates appeared for the entrance test increased significantly after the introduction of FRS in 2008 (Table 11.4). It suggests that candidates aspiring to study engineering increased significantly. The increase is more significant after the introduction of FRS in 2008–2009.

Table 11.4 Year-Wise Number of Students Appeared and Qualified in EAMCET

S. No.	Year	No. of Students Appeared	No. of Students Qualified	% of Students Qualified
1	2002–2003	191,124	160,958	84.22
2	2003–2004	170,634	123,609	72.44
3	2004–2005	162,195	136,691	84.28
4	2005–2006	192,756	154,759	80.29
5	2006–2007	234,419	177,999	75.93
6	2007–2008	282,750	265,656	93.95
7	2008–2009	350,087	327,090	93.43
8	2009–2010	365,302	294,299	80.56
9	2010–2011	367,269	304,715	82.97
10	2011–2012	321,174	278,854	86.82
12	2013–2014	376,976	282,086	74.82
13	2014–2015 AP & TS	373,216	313,628	84.03
14	2015–2016 AP & TS	375,635	298,882	79.57
15	2016–2017 AP & TS	425,222	292,716	68.84

Source: Annual Report 2011–2012 of Andhra Pradesh State Council of Higher Education (APSCHE), Hyderabad, APSCHE & TSCHE.

But after 2011–2012, the number of students appearing for the entrance tests declined. This is because the uncertainty about the continuity of FRS prevented many aspirants from opting for courses having high tuition fees. This included engineering education.

The number of engineering colleges has increased significantly after the introduction of FRS in 2008 (Table 11.5). There were very few colleges and seats in the beginning. There were just 9 engineering

Table 11.5 Number of Engineering Colleges and Intake Capacity in Andhra Pradesh

Year	Colleges	Seats
1	2	3
1996–1997	37	10,455
1997–1998	57	14,155
1998–1999	89	19,773
1999–2000	102	25,064
2000–2001	106	30,716
2001–2002	178	46,540
2002–2003	217	62,290
2003–2004	225	65,710
2004–2005	236	78,720
2005–2006	261	92,600
2006–2007	291	98,928
2007–2008	339	125,587
2008–2009	540	175,767
2009–2010	657	225,905
2010–2011	701	269,175
2011–2012	710	306,309
2012–2013	716	339,106
2013–2014	718	340,099
2014–2015	742	357,529

Source: TSCHE (2015).

colleges with 1,140 seats in 1976–1977. At first, technical education was started in public sector only and continued till 1977–1978. For the first time in 1977–1978, engineering education was permitted in private sector to a limited extent. By the year 2002–2003, the total number of colleges had gone up to 215 and the number of seats available for children also increased to 62,270. Now, another problem has cropped in, that is, opting of admission in rural engineering colleges by the children who are seeking admission in engineering course. Even before the introduction of FRS, the growth of engineering education had been significant. However, the number of engineering colleges has more than doubled after the introduction of FRS (339 in 2007–2008 to 720 in 2013–2014). With increase in the number of colleges and additional sections in the existing colleges, number of seats also increased significantly from 199 thousands to 340 thousands during the same period. Thus, access to engineering education increased significantly (Table 11.5). Within few years, the intake capacity increased by 50,000 per year due to the introduction of FRS.

Gap between Demand and Supply

In Andhra Pradesh, technical and professional education expanded so much that in almost all the courses there are vacancies (Table 11.6). The courses which were in great demand such as MCA and MBA also lost their charm. In some courses less than half seats were filled. Needless to say, students pursuing all these courses were eligible under FRS.

The expansion of engineering education has resulted in the growing number of vacant seats. Though the vacant seats existed even a decade back, the number has gone up significantly. Except in 2008–2009, the number of vacant seats also increased significantly despite the existence of FRS, accounting for one-third of the total seats in 2013–2014. In the absence of FRS, the unfilled component would have been much more. The gap between demand and supply has reversed. Earlier the demand was more than the supply till 2000, but thereafter, supply continued to exceed demand and the gap started increasing. The expectations of the managements that FRS would boost the demand did not sustain for long. When compared to 35 per cent in

Table 11.6 Number of Colleges, Courses: 2011–2012

S. No.	Course	No. of Colleges
1	Engineering	710
2	ME/MTech	365
3	BPharm	283
4	MBA	958
5	MCA	625
6	MPharm	225
7	BEd	609
8	BArch	10
9	BPed	10
10	UG DPed	07
11	LLM	19
12	3LLB	50
13	5LLB	

Source: APSICHE (2015).

2003–2004, only 5 per cent of all the seats in all the branches included, the proportion would

When compared to the seats filled is more in the case as the FRS is applicable to the later. The percentage of seats introduced. But within two years absolute and percentage terms

For viability of the colleges maximum as possible. In most cases filled was less than 50 per cent in 2011–2012, which is unviable due to few admissions

Table 11.6 Number of Colleges, Intake and Enrolment in Professional Courses: 2011–2012

S. No.	Course	No. of Colleges	Sanctioned Intake	Enrolment	%
1	Engineering	710	306,309	178,827	58.4
2	ME/MTech	365	23,898	16,748	70.1
3	BPharm	283	27,740	22,495	81.1
4	MBA	958	93,231	57,488	61.7
5	MCA	625	44,530	13,965	31.4
6	MPharm	225	9,207	7,437	80.7
7	BEEd	609	65,018	63,141	97.1
8	BArch	10	925	794	85.8
9	BPed	10	760	745	98.0
10	UG DPed	07	665	479	72.0
11	LLM	19	781	720	92.2
12	3LLB	50	7,150	4,285	59.9
13	5LLB		2,940	2,500	85.0

Source: APSCHE (2015).

2003–2004, only 5 per cent of the colleges in 2014–2015 could fill up all the seats in all the branches. If all those excluded colleges were included, the proportion would have been much less than 5 per cent.

When compared to the management quota, the percentage of seats filled is more in the convener quota (Table 11.7). It is expected as the FRS is applicable to those admitted under the former than the later. The percentage of seats filled increased in the year the FRS was introduced. But within two years, the seats filled stated declining both absolute and percentage terms.

For viability of the college, the number of seats filled should be as maximum as possible. In more than 100 colleges, the number of seats filled was less 50 in 2011–2012. About one-third of the colleges were unviable due to few admissions (Gosavi, 2013).

Table 11.7 Number of Seats and Seats Filled under Convener and Management Quotas

Year-Wise Engineering Convener Quota Seats Filled and Vacant in AP						
Year	Total Seats	Convener Quota Seats	Seats Filled	Surplus Seats	% Seats Filled in the Total Seats	% Seats Filled in the Convener Seats
1996–1997	9,608	8,762	8,762	0	91.19	100.00
1997–1998	14,278	12,796	12,796	0	89.62	100.00
1998–1999	20,943	18,742	16,868	1,874	80.54	90.00
1999–2000	26,246	23,310	20,690	2,620	78.83	88.76
2000–2001	31,926	27,037	24,364	2,673	76.31	90.11
2001–2002	48,307	40,283	39,049	1,234	80.84	96.94
2002–2003	64,412	52,668	51,205	1,463	79.50	97.22
2003–2004	67,590	49,891	46,668	3,223	69.05	93.54
2004–2005	82,430	64,731	50,814	13,917	61.65	78.50
2005–2006	97,450	70,792	56,866	14,432	58.35	80.33
2006–2007	104,525	67,653	61,510	6,649	58.85	90.92
2007–2008	133,912	107,130	96,324	10,806	71.93	89.91
2008–2009	192,247	144,186	129,362	6,671	67.29	89.72
2009–2010	229,560	160,693	148,720	11,973	64.78	92.55
2010–2011	262,221	185,160	144,887	40,273	55.25	78.25
2011–2012	292,616	206,207	129,897	76,310	44.39	62.99
2012–2013	340,000	234,765	134,373	100,392	39.52	57.24
2013–2014	340,099	238,069	126,862	111,207	37.30	53.29
2014–2015*	357,329	250,130	188,665	61,465	52.80	75.43
2015–2016*	283,542	198,480	124,611	73,869	43.95	62.78
2016–2017*	214,077	149,855	126,987	22,868	59.32	84.74

Source: APCHE, TSCHE and Daily News Papers (Eenadu, 2014).

Note: * Unpublished data collected from State Council of Higher Education of two states (Telangana and Andhra Pradesh).

Over a period of time, the position of the colleges has further worsened. The vacancy position has increased. For example, in 2003–2004, there was no vacancy in as many as 35 per cent of colleges. But by 2014–2015, only 5 per cent of the colleges got full strength. More than 100 seats were vacant in only 4.5 per cent of colleges in 2003–2004 but by 2014–2015 in almost 30 per cent of the colleges the number of vacant seats were more than 100. In few colleges, not a single admission took place (Eenadu, 2014).

The vacancy position is not the same for all branches of engineering. When compared to 2003, the percentage of seats filled had gone down drastically. There was hardly any vacancy in courses such as Electronics and Communication Engineering (ECE), Civil and Mechanical Branches in 2003. At present, these branches are also facing the vacancy problem (Table 11.8).

After the introduction of FRS, the number of seats in CSE and ECE increased significantly as they are more in demand than others. The increase is due to increase in the number of colleges and sections in the existing colleges. However, the number of seats available and filled declined in the last few years. This is true not only in technical and professional education but also in general higher education. For example, in the state of Telangana more than half of the seats in UG courses have remained vacant due to strict implementation of FRS (Table 11.9).

Equity in Engineering Education

The introduction of FRS has increased the educational opportunities to various sections, particularly in reputed private institutions. The tuition fees charged by them were beyond the paying capacity of the poor. Now, they could get access to it. In this respect social and economic equity is ensured by FRS.

However, the accessibility to quality engineering education to poor socio-economic groups is also not guaranteed by FRS. The admission is based on the candidates' performance in EAMCET. If the candidate gets a good rank, he/she has choice of choosing the course and the college.

Table 11.8 Course and Year-Wise Total Number of Seats and Seats Filled in Engineering Education in Andhra Pradesh

Course	2003			2008			2012			2015	
	Total Seats	Seats Filled	% Filled	Seats Filled	Total Seats	Seats Filled	% Filled	Seats Filled	Total Seats	% Filled	Seats Filled
CSE	11,186	9,691	86.64	54,985	52,153	27,705	53.12	39,863			
IT	7,526	4,417	58.69	29,330	17,338	6,212	35.83	4,342			
ECE	11,359	11,342	99.85	62,570	61,135	38,912	63.65	38,926			
EEE	8,867	8,720	98.34	37,755	34,797	18,433	52.97	18,539			
Mech	4,201	4,160	99.02	18,285	31,879	22,541	70.71	22,904			
Civil	1,220	1,217	99.75	-	22,613	15,184	67.15	19,360			

Source: Information compiled from various sources.

Note: CSE = Computer Science and Engineering; EEE: Electronics and Electrical Engineering; Mech: Mechanical Engineering.

Table 11.9 UG Courses in Telangana

University	No. of Seats	Seats Filled	Seats Vacant	No. of Colleges
All	410,267	195,731	214,536 (52.3%)	1,092
Government	50,199	21,396	28,803 (57.4%)	122
Private	322,250	145,360	167,022 (51.8%)	992

Source: Eenadu (2017).

To get a good rank, a candidate has to spend a good amount of money as well as time to prepare for the test. For the poor students, it is beyond their paying capacity. A poor student with good rank may benefit from the present system, but this rarely happens. Most of the students studying in reputed private engineering colleges come from families where parents have better education and economic background. Wards of businessmen and professionals followed this as they can get seats under management quota. Almost all students came from high-income background that is income more than 1 lakh (DFID, 2001). Now, the poor student with not so good rank either opts for a low-quality engineering college or borrow money to get admission under the management quota in a high-quality engineering college.

It is the access to good coaching institutes that decides the rank and then the course and the college. Needless to say, paying capacity is still the main criterion for admission into such institutes. Under these circumstances, the expansion of engineering education does not guarantee equity in the long run.

Regional distribution of engineering colleges suggests that they are highly concentrated in certain districts and FRS has not helped in reducing the concentration. Rather, it has widened it to a certain extent. The number of colleges increased in almost all the districts. But the increase is more in certain districts. In absolute terms, the number of colleges are more in developed districts or districts closer to the cities. For example,

Ranga Reddy district, surrounding the capital, has the highest number of colleges exceeding the number in the entire Rayalaseema region. On the other hand, in districts like Adilabad and Srikakulam, there are very few colleges because they are far away from the capital city and backward (APSCH).

If we look at the distribution of engineering colleges among the regions such as Coastal Andhra, Telangana and Rayalaseema, it is not equal. According to Census 2011, the proportion of distribution of engineering colleges, according to the population, is supposed to be 41.7 per cent, 40.5 per cent and 17.8 per cent, but the actual distribution is 33 per cent, 55 per cent and 12 per cent, respectively. Unlike in many other indicators, the share of Telangana is more.

When engineering colleges are opened in every district and all the rural areas have become more accessible to all students, this appears to be impressive on the face of it. It may be noted that there is no reservation for the local (district level) students. The choice of the course and then college are the important considerations and location of the college is hardly taken into consideration. Therefore, we can find many students of other areas and not the local area studying in any college. The distance is a matter of concern in school education but it is hardly important in higher education, that too in engineering education. Local students hardly prefer the college located in the vicinity unless the quality is good and the course of their choice is available. FRS has in fact discouraged the local students from opting for nearby colleges unless they ensure quality. When an industry is opened in backward areas, it is likely to be developed due to externalities in terms of providing employment opportunities and using local resources. But this may not be so when a college is opened in such areas. It may be mentioned that in some cases, both faculty and students commute every day from nearby city/town to attend the college located in backward areas. Both students and teachers commute from nearby town/city every day. Majority of students and faculty from engineering colleges in Ranga Reddy district commute from Hyderabad which is also causing traffic, pollution and road-safety problems in the city. Only for getting permission or some concession, the college is opened in remote areas and not with the intention of providing education to local students.

Quality of Engin

One of the main problems faced by In whatever terms the quality is de ing education is far from satisfact should fulfil minimum requiren equipment and laboratory and Only few colleges have all of th the other facility.

In Andhra Pradesh, deteriorat has fastened, particularly after t deterioration of quality had sta a stage where majority of the p

The most important and ge ting the well-qualified faculty. year, it is very difficult to ge to work as faculty. As such th neering education at PG and Audit Report (2011–2012), colleges (started before 1996) members are available. The n 451, associate professors 438 against 2,217. About half of

The faculty strength of Moreover, prospects of ge sector in India or abroad ar teaching jobs is less. Since towns/cities, this also mak out of teaching jobs. Add pay the salaries suggested l of the colleges are not sati ment over the staff also l the middle of the academ job promotions are imp As far as the infrastruc buildings and laborator

Quality of Engineering Education

One of the main problems faced by the education system is the quality. In whatever terms the quality is defined, the present status of engineering education is far from satisfactory. For ensuring quality, a college should fulfil minimum requirements such as buildings, classrooms, equipment and laboratory and well-trained and committed faculty. Only few colleges have all of them in place and majority lack one or the other facility.

In Andhra Pradesh, deterioration of quality in engineering education has fastened, particularly after the introduction of FRS. Though the deterioration of quality had started much before the FRS, it reached a stage where majority of the products have remained unemployable.

The most important and genuine problem for many colleges is getting the well-qualified faculty. If many colleges are opened in a given year, it is very difficult to get engineering postgraduates or doctorates to work as faculty. As such there are very few institutes offering engineering education at PG and PhD levels. According to the Academic Audit Report (2011–2012), the total requirement of faculty for 31 colleges (started before 1996) is 3,620 out of which only 1,754 faculty members are available. The number of professors available is 341 against 451, associate professors 438 against 952 and assistant professors 1,334 against 2,217. About half of the faculty positions are vacant.

The faculty strength of colleges started after 1996 is even less. Moreover, prospects of getting better jobs in the industry or service sector in India or abroad are more for them and hence, preference for teaching jobs is less. Since many of them are located away from the towns/cities, this also makes the otherwise qualified candidates to opt out of teaching jobs. Added to this, some colleges are not willing to pay the salaries suggested by the AICTE. Working conditions in some of the colleges are not satisfactory. Sometimes, control of the management over the staff also forces some of them to leave the college in the middle of the academic year. Therefore, conditions of security and job promotions are important in retaining and attracting the faculty. As far as the infrastructure is concerned, many colleges have their own buildings and laboratories but many lack proper maintenance and use,

again, partly due to lack of manpower. All these lead to deterioration in the quality of engineering education.

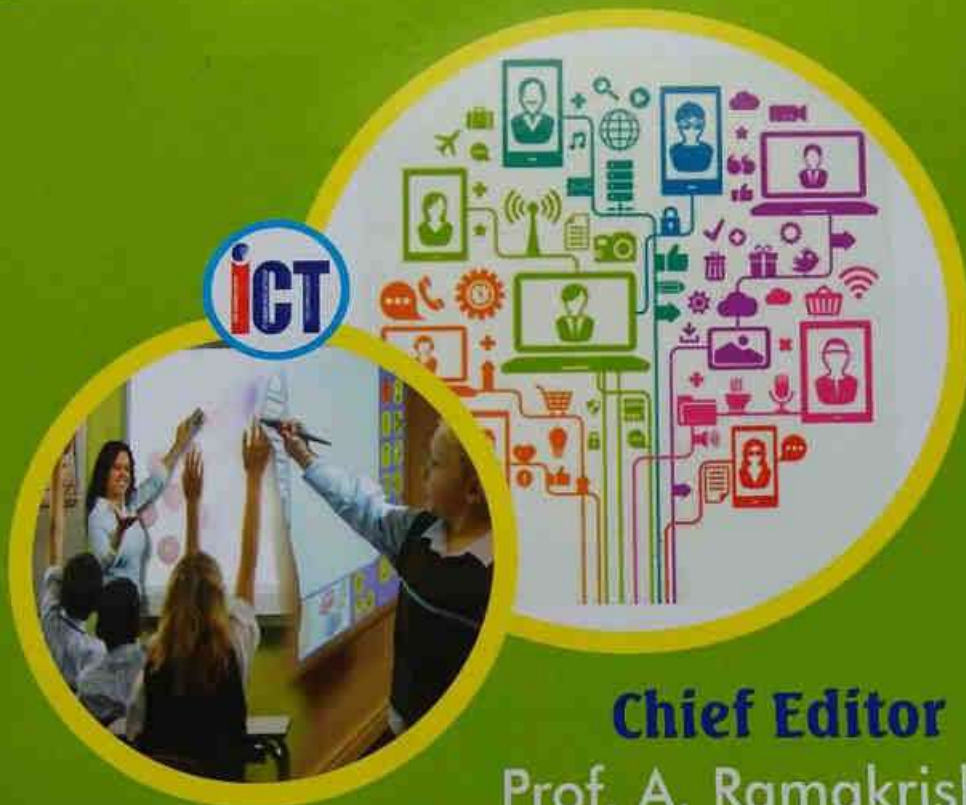
As per the conditions, each engineering branch faculty–student ratio is 1:15 for UG courses and 1:12 for PG courses. For each department, there should be one professor, four associate professors and six assistant professors. Hardly any college satisfies these norms. According to the Task Force Committee Report (2012; it was constituted by the government to assess the facilities available in the engineering colleges as per AICTE norms; GoA, 2012), the teacher–pupil ratio was 1:28 and many of the teachers are underqualified. Further, many colleges are engaging graduates, whereas postgraduation is required. In some colleges, the faculty exists only on record. Of the 163 colleges inspected by Expert Committee, as many as 143 do not satisfy the AICTE norms laid down by the AICTE (*Eenadu*, 2015).

FRS, instead of improving the quality, has added to its deterioration. First, the tuition fee fixed by the government is not sufficient to ensure quality unless all the seats are filled. Second, even this fee is not reimbursed on time and there is inordinate delay. Even last year dues are not paid. Needless to say, many colleges are depending on income from FRS. Though the FRS has increased access to engineering education but majority of them have access to low-quality education, thus indirectly, contributing to inequality, in the long run.

In engineering education, student attendance is necessary to learn the subject skills. A student has to put in minimum 75 percentage of attendance to be eligible under FRS. It is the responsibility of college management to ensure it. Since, more than 90 per cent of colleges are in private sector and their survival is linked to FRS, obviously many colleges have ensured attendance on paper whether a student actually attended or not. Lack of proper monitoring of attendance is an important reason for the low quality of the graduates.

FRS guidelines are silent on the performance of the students which helped managements. According to the Task Force Committee Report (2012), only in 3 per cent of the colleges, the pass rate is 80 to 90 per cent and in the remaining colleges covered by FRS, the pass rate is 20 to 30 per cent only.

ICT Trends in Education



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TECHNOLOGY (ICT) IN SOUTH CAROLINA STATE SCHOOLS OF USA"

Mr. Clement Parthugari

Research Scholar
Dept. of Social Work
Osmania University, Hyderabad
Email: clementabraham@gmail.com

Mr. Sanjeeva Reddy Kandula

Teacher
Department of School Education, Telangana, India
(Department of South Carolina Education, SC, USA)
Email: kandula.sanjeev@gmail.com

Dr. Maddileti Pasupula

Asst. Professor
Mahatma Gandhi University, Nalgonda
Email: madhu.june5@gmail.com

Abstract:

Information Communication Technology is a radical movement in 21st century. This study will explore about ICT in American Schools with their contemporary technology paraphernalia's. Almost all the schools of American states have accessed to smart board, interactive and innovative technologies, computers, Power point presentations and internet in voluminous ways. This study investigates teachers' attitude towards implementing/interacting ICT is the part of regular classroom teaching in South Carolina of USA. A descriptive survey design was adopted for this study. There is a twenty items questionnaire was applied for this study to know about teacher attitude towards ICT. The objectives of this study are (1) The influence of openness to change and attitudes towards ICT implementation on online communication and information by school teachers in South Carolina State of America and, (2) To know the fluency of ICT implementation between American citizen's and other global teachers working in South Carolina state schools. Findings of the study inferenced that the influence of ICT usage among the teachers was high and they are easily accessible to most of the ICT facilities needed for them in schools. American teachers in the schools showed higher level of awareness than other global citizen's teacher to the time invested in preparing digital learning materials. This emphasizes the importance of developing the digital content that is adapted to local and international context by providers of learning materials. These findings emphasize the importance of providing

teachers with personal devices with prior training for pedagogical use and online communication.

Keywords: teacher attitudes towards ICT implementation, American citizen & Global teachers, teaching learning material, smart boards, computers and internet.

Introduction:

Information & Communication Technology (ICTs) are making dynamic changes in society. They are influencing all aspects of life. The influences are felt more and more at schools. Because ICTs provide both students and teachers with more opportunities in adapting learning and teaching to individual needs, society is, forcing schools aptly respond to this technical innovation. In American scenario technology plays vital role in schools moreover with students. Timio (2002), states the potentials of ICTs in increasing access and improving relevance and quality of education in developing countries and also states that ICTs greatly facilitate the acquisition and absorption of knowledge, offering developing countries unprecedented opportunities to enhance educational systems, improve policy formulation and execution, and widen the range of opportunities for business and the poor. One of the greatest hardships endured by the poor, and by many others, who live in the poorest countries, in their sense of isolation, and ICTs can open access to knowledge in ways unimaginable not long ago.

In Watson's (2001) description, ICTs have revolutionized the way people work today and are now transforming education systems. As a result, if

schools train children in yesterday's skills and technologies they may not be effective and fit in tomorrow's world. This is a sufficient reason for ICTs to win global recognition and attention. For instance, ICTs are dependable tools in facilitating the attainment of one of the Millennium Development Goals (MDGs), which is achievement of universal primary education by the year 2015. Kofi Anan, the former United Nations Secretary General, points out that in order to attain the goal of Universal Primary Education by the year 2015; we must ensure that information and communication technologies (ICTs) unlock the door of education systems. This indicates the growing demand and increasingly important place that (ICTs) could receive in education. Since ICTs provide greater opportunity for students and teachers to adjust learning and teaching to individual needs, society is, forcing schools to give appropriate response to this technical innovation.

ICT input refers to the acquisition, assimilation or absorption of issues, knowledge, messages and skills relating to ICT which are capable of making teachers more competent and effective. The input enables the individual to be functional, to maintain and influence the behaviors of the learners. This process also involves collecting, gathering or seeking information from researches and sources of information. The new media (such as the telnet, the file transfer protocol (FTP), the electronic mail (E-mail)) are examples of the various means of achieving the input aspect of ICT (Adegbija, 2000). The conventional media such as the television, slides, filmstrips, videos, audio formats, visuals, are also good sources of receiving ICT input. At the local level, researches show that e-learning generally has its input through facilitation, print media, audio & video and rarely through other more sophisticated media in most developing countries (Karuna & Roy, 1991; Adegbija, 2011).

Approaches to ICT

The implementation of information and communication technology sources should be planned in such a way as to ensure that the input, processing and output are attainable for the general objectives of e-education as a whole. The following approaches should therefore, be considered when planning for ICT for e-learning:

Participatory-oriented approach: ICT is a multi-level process of communication involving a variety of senders and receivers of ideas, knowledge and materials. This will make them see it as not merely foreign ideas imposed on them, or a difficult venture but will be like partners in progress with all other

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stakeholders of ICT that are committed to moving e-education forward. (Adegbija, 2000).

Mobilization/Motivation-Orientated Approach: This approach involves propelling learners into participating in the use of ICT devices adequately for their studies, assignments, tests and examinations which are usually electronically delivered. Mobilization is a full blown functional education through the use of technological devices. Even though Clark (1983) claimed that media do not only fail to influence learning, one can count on Salomon (1984) who argued that the new cognitive theories attribute motivation to learners' beliefs and expectation about their reactions to external events. Motivating learners to use ICT materials in the teaching and learning processes will in turn help to motivate their learner.

Communication-Oriented Approach: The communication approach is concerned primarily with the use of ICT to improve the effectiveness of communication skills in education. This approach when taken to the negative extreme will be like the claims of Clark (1985) that media are mere vehicles that deliver instruction but do not influence students' achievement any more than the truck that delivers our groceries causes changes in our nutrition. Undoubtedly, communication-oriented approach nonetheless, brings more humanistic attitude to education because of the skills developed for improving human relationships through development and acquisition of communication skills. This approach can also be achieved through the use of m-learning.

The Benefits of ICT in Education

The uses of ICT is making major differences in the learning of students and teaching approaches. Schools in the Western World invested a lot for ICT infrastructures over the last 20 years, and students use computers more often and for a much larger range of applications (Volman, 2005). Several studies reveal that students using ICT facilities mostly show higher learning gains than those who do not use. For instance, Kulik's (1994) finding across 75 studies in the United States showed that students who used computer tutorials in mathematics, natural science, and social science score significantly higher on tests in these subjects. Students who used simulation software in science also scored higher. The findings also indicated that primary school students who used tutorial software in reading scored significantly higher on reading.

Therefore it is well known that the ICTs are influencing and effective in schools for imparting

education in a most tremendous way of change in the lives of young generation for further needs as per the technology clutch the world. In American scenario where technology is a place that grouted for social beings needs in globalization positioning. ICT effects the teaching process like facilitates self-pacing with increased capacities to deal with individual learning styles as students can work at the pace and intensity suitable to their needs. It increases information's reliability and accuracy adding to authenticity of learning tasks, with realistic and up-to-date information. The present study has taken to find out the teachers' attitude towards ICTs implementing in schools of South Carolina State in United States of America.

Objectives:

- (1) The influence of openness to change and attitudes towards ICT implementation on online communication and information by public school teachers in South Carolina State of America and.
- (2) To know the fluency of ICT implementation between American citizens and other global teachers working in South Carolina state public schools.

Methodology:

The present study is selected 50 teachers for the sample of the study. Teachers who are working in public schools of South Carolina State, United States of America. The sampling technique is adopted for this study is Purposive sampling. The researchers have developed the tool with 20 items to find the teachers' attitude towards Information & Communication Technology (ICT), and independent variables like gender, age, school, subject, teaching experience and citizenship of teachers working in state departments are taken for the study. The population of the study are teachers from different schools of South Carolina State Department of Education. The primary, middle, and high schools are taken for the study to analyze the teachers' attitude towards ICT implementation.

Results and Discussion:

This section contains independent variable and attitude of teachers towards information and communication technology. First the analysis of all participants' gender, teaching experience, age, school, subject, and citizenship in the survey is presented. Secondly the analysis of teacher's attitude towards information and communication technology. We conclude with a comparison between teachers' attitude towards ICTs with respect to the teacher's gender, age, school, subject, experience and citizenship.

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	18	36.0	36.0	36.0
Female	32	64.0	64.0	100.0
Total	50	100.0	100.0	

The above table indicates that there 36% are male and 64% are female teachers have participated in this study to find out the teacher's attitude towards

Information & Communication Technology. Therefore, female teachers are majority (64%) and male teachers are 36% in the study of teachers' attitudes towards Information & Communication Technology.

Teaching Experience

	Frequency	Percent	Valid Percent	Cumulative Percent
0-3 years	14	28.0	28.0	28.0
4-10 years	15	30.0	30.0	58.0
11-20 years	15	30.0	30.0	88.0
21-30 years	4	8.0	8.0	96.0
31-40 years	1	2.0	2.0	98.0
More than 40 years	1	2.0	2.0	100.0
Total	50	100.0	100.0	

The above table infers that the teaching experience in South Carolina State schools and it is indicated that majority of teachers are having 4-10 years (30%) and

11-20 years (30%). Out of that teachers participated having experience of 0-3 years 28%, 21-30 years are 8%, 31-40 years are 1% and more than 40 years are 1%.

School

	Frequency	Percent	Valid Percent	Cumulative Percent
Primary School	4	8.0	8.0	8.0
Middle School	13	26.0	26.0	34.0
High School	33	66.0	66.0	100.0
Total	50	100.0	100.0	

The above table infers that the school where teachers work have taken part in the study of attitude towards Information & Communication Technology (ICT) are the majority from high school 66% followed by middle school 26% and primary school 8% in the study.

Age

	Frequency	Percent	Valid Percent	Cumulative Percent
30 yrs or less	13	26.0	26.0	26.0
31 – 35 years	10	20.0	20.0	46.0
36 – 45 years	16	32.0	32.0	78.0
46 – 55 years	7	14.0	14.0	92.0
More than 55 years	4	8.0	8.0	100.0
Total	50	100.0	100.0	

The above table infers that the age of teachers have majority of 36-45 years (32%) and followed by 30 years or less age have 26%, 31-35 years of age have 20%, 46-55 years of age having 14% and more than 55 years are less 8%.

Subject

	Frequency	Percent	Valid Percent	Cumulative Percent
Mathematics	11	22.0	22.0	22.0
Biology	4	8.0	8.0	30.0
English	6	12.0	12.0	42.0
Special Education	10	20.0	20.0	62.0
Physics	1	2.0	2.0	64.0
Social Studies	5	10.0	10.0	74.0
Other Subject	13	26.0	26.0	100.0
Total	50	100.0	100.0	

The above table infers that the teachers' subject are highest from other subjects 26% and followed by mathematics 22%, special education 20%, English 12%, social studies 10%, biology 8%, and physics 2%.

Citizenship

	Frequency	Percent	Valid Percent	Cumulative Percent
American	36	72.0	72.0	72.0
Europe	2	4.0	4.0	76.0
Indian	7	14.0	14.0	90.0
Asian	2	4.0	4.0	94.0
Africa	3	6.0	6.0	100.0
Total	50	100.0	100.0	

The Above table infers that the citizenship of teachers having majority are American citizens' teachers 72%, followed by Indian citizens' teachers 14%, African citizens teachers 6%, and the least participants are Asian and Europe 4%.

Teachers' Attitude towards Information & Communication Technology (ICT)

	N		Mean	Mode	Std. Deviation	Minimum	Maximum
	Valid	Missing					
I feel comfortable communicating online with family and friends	50	0	4.62	6	1.640	1	6
I believe that using the Internet promotes my communication with family and friends	50	0	4.40	6	1.654	1	6
I feel comfortable searching online information for personal or family's needs	50	0	4.86	6	1.457	1	6
I believe that online I find updated information for personal or family's needs	50	0	4.46	6	1.501	1	6
I invest too much time in finding online information for personal or family's needs	50	0	3.28	2	1.552	1	6
I feel comfortable communicating online with colleagues	50	0	4.92	5	1.007	2	6
I believe that using the Internet promotes communication with colleagues	50	0	4.86	5 ^a	1.212	2	6
I feel comfortable searching online information for my lessons	50	0	5.16	6	1.184	2	6
I believe that searching online I find updated information for my lessons	50	0	5.10	6	1.129	2	6
I invest too much time in finding online information for my lessons	50	0	3.64	4	1.509	1	6
I feel comfortable to communicate online with my students	50	0	3.86	4	1.400	1	6
I believe that using the Internet promotes my communication with students	50	0	3.80	4	1.457	1	6
I feel comfortable to direct my students search for online information	50	0	4.74	5	1.103	2	6
I believe directing my students to search online help them find updated information	50	0	4.78	5	1.016	2	6

a. Multiple modes exist. The smallest value is shown

The above table infers that the majority of teachers completely agree (Std. Dev. 1.640) that they feeling comfortable in communicating online with family and friends, majority of teachers completely agree (Std. Dev. 1.654) that they believe that using the internet promotes their communication with family and friends, majority of teachers completely agree (Std. Dev. 1.457) that they feel comfortable searching online information for personal or family's needs, majority of teachers completely agree (Std. Dev. 1.501) that they believe that online they find updated information for personal or family's needs, majority of teachers disagree (Std. Dev. 1.552) that they invest too much time in finding online information for personal or family's needs, majority of teachers agree (Std. Dev. 1.007) that they feel comfortable communicating online with colleagues, majority of teachers completely agree (Std. Dev. 1.212) that they believe that using the internet promotes communication with colleagues, majority of teachers completely agree (Std. Dev. 1.184) that they feel comfortable searching online information for their lessons, majority of teachers completely agree (Std. Dev. 1.129) that they believe that searching online they find updated information for their lessons, majority of teachers somewhat agree (Std. Dev. 1.509) that they invest too much time in finding online information for their lessons, majority of teachers somewhat agree (Std. Dev. 1.400) that they feel comfortable to communicate online with their students, majority of teachers somewhat agree (Std. Dev. 1.457) that they believe that using the internet promotes their communication with students, majority of teachers agree (Std. Dev. 1.103) that they feel comfortable to direct their students search for online information, majority of teachers agree (Std. Dev. 1.016) that they believe directing their students to search online help them find updated information, majority of teachers somewhat agree (Std. Dev. 1.488) that their students invest too much time in finding relevant online information, majority of teachers agree (Std. Dev. 1.356) that their pupils can get distracted by all the technology, majority of teachers disagree (Std. Dev. 1.558) that the pace of technology is too fast for them, majority of teachers completely agree (Std. Dev. 0.788) that they feel confident that they can use power point in their class, majority of teachers disagree (Std. Dev. 1.659) that they don't use computers as much as other resources (Books, Overhead Projectors etc.) for instructional purposes, majority of teachers completely

agree (Std. Dev. 0.969) that they think using instructional technologies makes them more productive as a teacher.

Conclusion:

The present study compares teachers' attitude towards implementation of Information & Communication Technology in South Carolina State of United States of America. The influence of teachers' attitudes towards ICT on online communication and information search were investigated. ICT encourages independent learning and individual preferences for purpose, layout, style and format. Changes teacher practices, planning tools and assessment rubrics. It develops communication skills and awareness of different audiences. It equalizes individual differences and particularly has dramatic effects for students with special needs. The objective of the present study is that: (1) The influence of openness to change and attitudes towards ICT implementation on online communication and information by school teachers in South Carolina State of America; (2) To know the fluency of ICT implementation between American citizens and other global teachers working in South Carolina state schools. According to the first objective, teachers' attitudes towards Information & Communication Technology shape their use of the internet for personal and professional communication as well as for personal and pedagogical information search. The higher teacher's attitudes towards ICT implementation the more they use the technology for both personal and professional purposes. According to the second objective, teachers use online communication and information searching was more extensive among teacher. However, the results indicate that teachers in South Carolina State Educational Department prepare of digital learning materials for their lessons with the irrespective of citizenship. There is no difference between the American citizens and other citizens who are working in South Carolina State Department of education, United States of America. Majority of teachers expressed higher attitude towards ICT implementation in schools. The results of the study infers that there is no difference in implementing ICT for success of students and teachers with irrespective of their gender, age, subject, teaching experience, citizenship and school.

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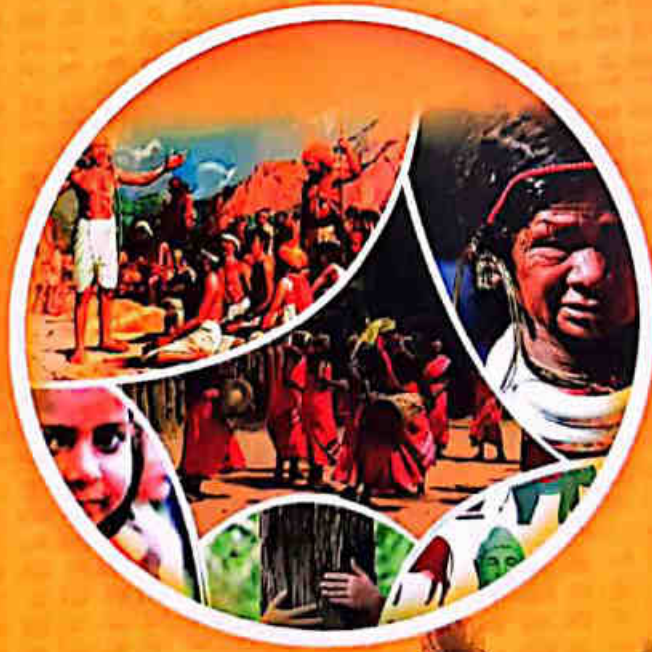
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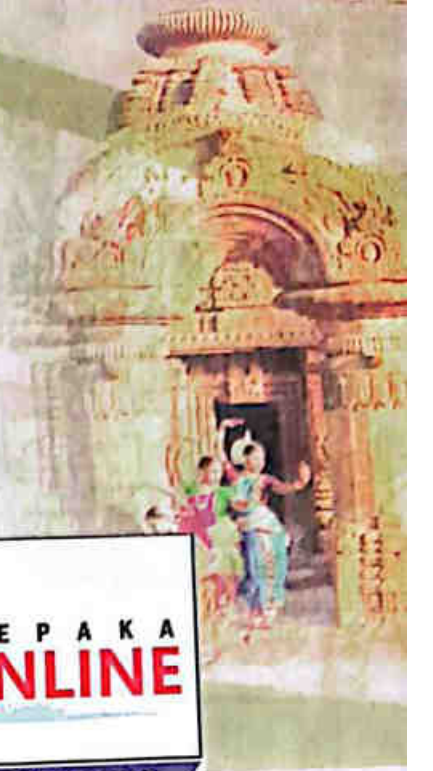
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రచయిత

డా. శ్రవణ్ శ్రీరామ్ MSW, MA, MRD, NET, Ph.D

ఆసిస్టెంట్ ప్రొఫెసర్, మహాత్మాగాంధీ యూనివర్సిటీ
నాగార్జున స్టడీ సర్కిల్, కనిమ్మ బవియస్ అకాడమి, అశోక ఆన్‌లైన్ అకాడమి
బి.సి. స్టడీ సర్కిల్



డా. శ్రవణ్ శ్రీరామ్ గారు మహాత్మాగాంధీ యూనివర్సిటీ యందు సహాయ అధ్యాపకులుగా గత 12 సంవత్సరాల నుండి సేవలందిస్తున్నారు. వీరు సమాజ శాస్త్రం, సంఘ సంక్షేమ శాస్త్రం మరియు గ్రామీణాభివృద్ధి నందు పట్టభద్రులు మరియు ఉస్మానియా యూనివర్సిటీ నుండి గ్రామీణ ఆలోచన రంగంలో పరిశోధనకు గాను డాక్టరేట్ను సాధించారు. వీరు యుజిసి నెట్ మరియు రాకెటియ యూనివర్సిటీలో మొదటి ర్యాంకు సాధించారు. జాతీయ మరియు అంతర్జాతీయ పరిశోధన పత్రికల యందు వివిధ సామాజిక సమస్యలపై 15కు పైగా పరిశోధనా వ్యాసాలను సమర్పించారు మరియు సోషల్ ఎక్స్ప్లొరేషన్ & రైట్స్ ఇమ్ప్యూన్, సిడిపిఓ & ఇ.వో, ఇండియన్ సొసైటీ ఫర్ సివిల్స్ అనే గ్రంథాలను రచించారు. పోటీపరీక్షల రంగంలో గల సుదీర్ఘ అనుభవంతో తెలుగు దినపత్రికలకు 300 లకు పైగా ఆర్టికల్స్ మరియు తెలంగాణ ప్రభుత్వం యొక్క మన డి.వి. సాఫ్ట్వేట్ మరియు అంధ్రప్రదేశ్ ప్రభుత్వం యొక్క ఛానల్ నందు సమాజ శాస్త్రం మరియు సామాజిక అంశాలపై వివిధ పోటీపరీక్షలకు నిర్దేశమవుతున్న విద్యార్థులకు బోధించారు. ప్రస్తుతం వీరు నాగార్జున స్టడీ సర్కిల్, తీరియస్ ఆన్లైన్ అకాడమీ, అశోకా ఆన్లైన్ అకాడమీ మరియు కనిష్ఠ అవివెస్ స్టడీ సర్కిల్ నందు గెస్ట్ ఫ్యాకల్టీగా సేవలందిస్తున్నారు. Sravan's Sociology అనే యూట్యూబ్ ఛానల్ ద్వారా మరియు Sravan's Sociology అనే యాక్ ఛానల్ ఆన్లైన్ విధానంలో సేవలందిస్తున్నారు.



డా. శ్రవణ్ శ్రీరామ్
సీనియర్ సోషియాలజి ఫ్యాకల్టీ
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4 హైదరాబాద్

ప్రయాణపు కిటికీ

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ఓ. మధురాసుభాషి
ఆ కిటికీ
గత జ్ఞాపకాల ధైరి.

ఆ కిటికీ తెరచినప్పుడల్లా
ఆలోచనలు

అప్పుడే విచ్చుకుంటున్న గులాబీలా
తెరుచుకుంటాయి.

ప్రతి రేకును నెమ్మదిగా
స్మరించినట్లు ఆవుతుంది.

ఆ కిటికీలో ఏం మృజిక్ ఉందోగాని
అమ్మను, అమ్మమ్మను, అందర్నీ
ఒకసారిలా పలకరించాస్తుంది.

ఆ కిటికీ కోసం బాల్కనంలో
ఎన్నిసార్లు ఎద్దానో

దాని దగర నిల్వొని

ఈ కిటికీకి

ఎన్ని కునిరాగాలు తీసానో
ఎన్ని పట్టకథల చెప్పానో.

ఒక్కోసారి

ఎప్పుడూలేని దుఃఖం, సంతోషం

అన్నీ అక్కడికి రాగానే

మదిలో మెదులుతుంటాయి

నాలో నేను అందరితో

మాట్లాడి వారింది బాధించినట్లు

అనిపిస్తుంది.

ఇంకాచెప్పాలంటే

బాల్కనం, యువస్వం, ప్రణయం

అంకా అక్కడే గడుస్తూనేఉన్నట్లు

అనిపిస్తుంది.

కొన్నిసార్లు ఆవేదనతో డిడికిపోయి

ఆ కిటికీ

తన్నులు తింటుంది.

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అదే కిటికీ కోసం

ఎన్నిసార్లు బతిమాలానో

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Dr. (Mrs.) PRASHANTA ATHMA is a Professor in Commerce and Principal, University College for Women, Koti, Hyderabad. She is a National Merit Scholarship holder and a JRF holder. She has published 65 Research Articles in various reputed National Journals and undertaken 3 Minor Research Projects. She has put in 29 years of teaching experience and has been teaching Cost Accounting, Financial Management, Investment Management and Accounting at Osmania University. She has turned out 8 Ph.Ds.

She has been conferred "Best Faculty Award" by the Institute of Practical Accountancy. She is the recipient of Gold Medal and a Silver Medal for the best paper presentation at the 61st and 67th All India Commerce Conference respectively. She received two Best Paper Awards at the International Conference on "Free Trade: Opportunities and Challenges" (foc 2014), organised by AMS College, Hyderabad. She is also the recipient of Best Paper Awards for the Presentation of papers at the 37th and 38th All India Accounting Conference. She received a Cash Award for the Best Paper presentation at National Seminar, ICBM - School of Business Excellence, Hyderabad. She has chaired several Technical Sessions, both at Seminars and Conferences.

She has written lessons and edited books on 'Financial Management' and 'Cost Accounting' for Centre for Distance Education, Osmania University, Hyderabad and Dr. B.R. Ambedkar Open University, Hyderabad; and 'Advanced Accountancy' and 'Cost & Management Accounting' for Mahatma Gandhi University, Nalgonda.

Her books published are 'Cost and Management Accounting'; 'Financial Accounting and Analysis'; 'Investment Management'; 'Corporate Accounting' (Common Core); 'Fundamentals of Accounting'; 'Financial Accounting'; 'Corporate Accounting'; 'Accounting for Service Organizations' and 'Cost Accounting' (Universities in AP); 'Accounting Standards and Reporting'; 'Auditing'; 'Financial Accounting - I and Financial Accounting - II'; 'Advanced Accounting' (Universities in Telangana State) and 'Accounting for Management'.

The author has delivered audio-video modules for B.A. (Hons.) for UGC sponsored TV Channel. She is the recipient of 'Telangana State Awards to Meritorious Teachers - 2017'.



Dr. K. SRIDEVI is an Assistant Professor and Head, Department of Commerce, Mahatma Gandhi University, Nalgonda. She received her M.Com. and Ph.D. degrees from Osmania University and MBA degree from Acharya Nagarjuna University, Guntur. She is a National Merit Scholarship holder and qualified in UGC-NET. She has put in 23 years of service in teaching profession and at present she is the Coordinator, Extramural Courses, Mahatma Gandhi University. She held the positions of Vice Principal, UCCBM; and Chairperson, Women Protection Cell, Mahatma Gandhi University.

She organized Workshops, Faculty Development Programme, and National and International Seminars at MGU. She has completed a Minor Research Project sponsored by ICSSR, SRC. She has written lessons on 'Management Accounting' for Centre for Distance Education, Osmania University, Hyderabad; 'Financial Accounting and Analysis' for Dr. B.R. Ambedkar Open University, Hyderabad; 'Financial Accounting' for Centre for Distance Education, MGU and 'Financial Accounting - I and Financial Accounting - II' (both English and Telugu Medium) for Telugu Academy.



Mrs. N. RAJYALAXMI is an Assistant Professor (C) in Commerce, University College for Women, Koti, Hyderabad. She is M.Com. and pursuing Ph.D. in Commerce and qualified in TS-SET. She has been teaching Financial Accounting, Business Statistics, Banking and Corporate Accounting since 16 years.

She has published 10 articles in various reputed national journals. She is the recipient of Best Paper Awards for the presentation of papers at the 37th and 38th All India Accounting Conference. She also received Best Paper Award at the International Conference on "Free Trade: Opportunities and Challenges" (foc 2014), organised by AMS College, Hyderabad.

She has written lessons on 'Advanced Accounting' and 'Cost and Management Accounting' (for both Telugu and English Medium) for Centre for Distance Education, MGU. Her books published are 'Corporate Accounting' (Common Core); 'Corporate Accounting' and 'Accounting for Service Organizations' (Universities in AP); and Business Organisation (Telugu Medium).

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కాచిగూడ, హైదరాబాదు

డా॥ జి. శశిధర్ రావు

అసోషియేట్ ప్రొఫెసర్, వాణిజ్యశాఖాధిపతి

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వాణిజ్యశాఖాధిపతి

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FINANCIAL ACCOUNTING - II

AUTHORS

Dr. S. Krishnaiah Goud, M.Com., M. Phil. Ph.D.
Principal, Annie Besant Womens College
Kothapet, Rangareddy, Hyderabad

Dr. P. Venkateswar Rao, M.Com., M. Phil. Ph.D.
Principal (Retd.), Badruka College of Commerce
Kachiguda, Hyderabad

Dr. G. Shashidhar Rao, M.Com., Ph.D.
Associate Professor & Head, Department of Commerce
C.K.M. Arts & Science College, Warangal

Dr. K. Sridevi, M.Com., NET, MBA, Ph.D.
Head, Department of Commerce
Mahatma Gandhi University, Nalgonda

EDITOR

Dr. K.V. Achalapathi, M.Com., M. Phil. Ph.D.
Professor (Retd.) From Osmania University (Presently)
Director, Dhanwantari Institute of Science & Technology
Hyderabad



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B.Com. (First Year - Second Semester), Financial Accounting -II : Authors : Dr. S. Krishnairah Goud, Dr. P. Venkateswar Rao, Dr. G. Shashidhar Rao, Dr. K. Sridevi ; **Editor :** Dr. K.V. Achalapathi ; **First Edition :** 2017; Pp. xii +260 + iv.

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Editor

Dr. RAVI AKULA

Principal

University College of Commerce & Business Management

Mahatma Gandhi University, Nalgonda.

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Course Writers:

1. Dr. Ravi Akula

Department of Commerce.

Mahatma Gandhi University, Nalgonda.

2.

Smt. K. Sridevi

Department of Commerce.

Mahatma Gandhi University, Nalgonda.

B.Com.

First Year - First Semester

FINANCIAL ACCOUNTING - I

AUTHORS

Dr. S. Krishnaiah Goud, M.Com., M. Phil. Ph.D.

Principal, Annie Besant Womens College

Kothapet, Rangareddy, Hyderabad

Dr. P. Venkateswar Rao, M.Com., M. Phil. Ph.D.

Principal (Retd.), Badruka College of Commerce

Kachiguda, Hyderabad

Dr. G. Shashidhar Rao, M.Com., Ph.D.

Associate Professor & Head, Department of Commerce

C.K.M. Arts & Science College, Warangal

Dr. K. Sridevi, M.Com., NET, MBA, Ph.D.

Head, Department of Commerce

Mahatma Gandhi University, Nalgonda

EDITOR

Dr. K.V. Achalapathi, M.Com., M. Phil. Ph.D.

Professor (Retd.) From Osmania University (Presently)

Director, Dhanwantari Institute of Science & Technology

Hyderabad



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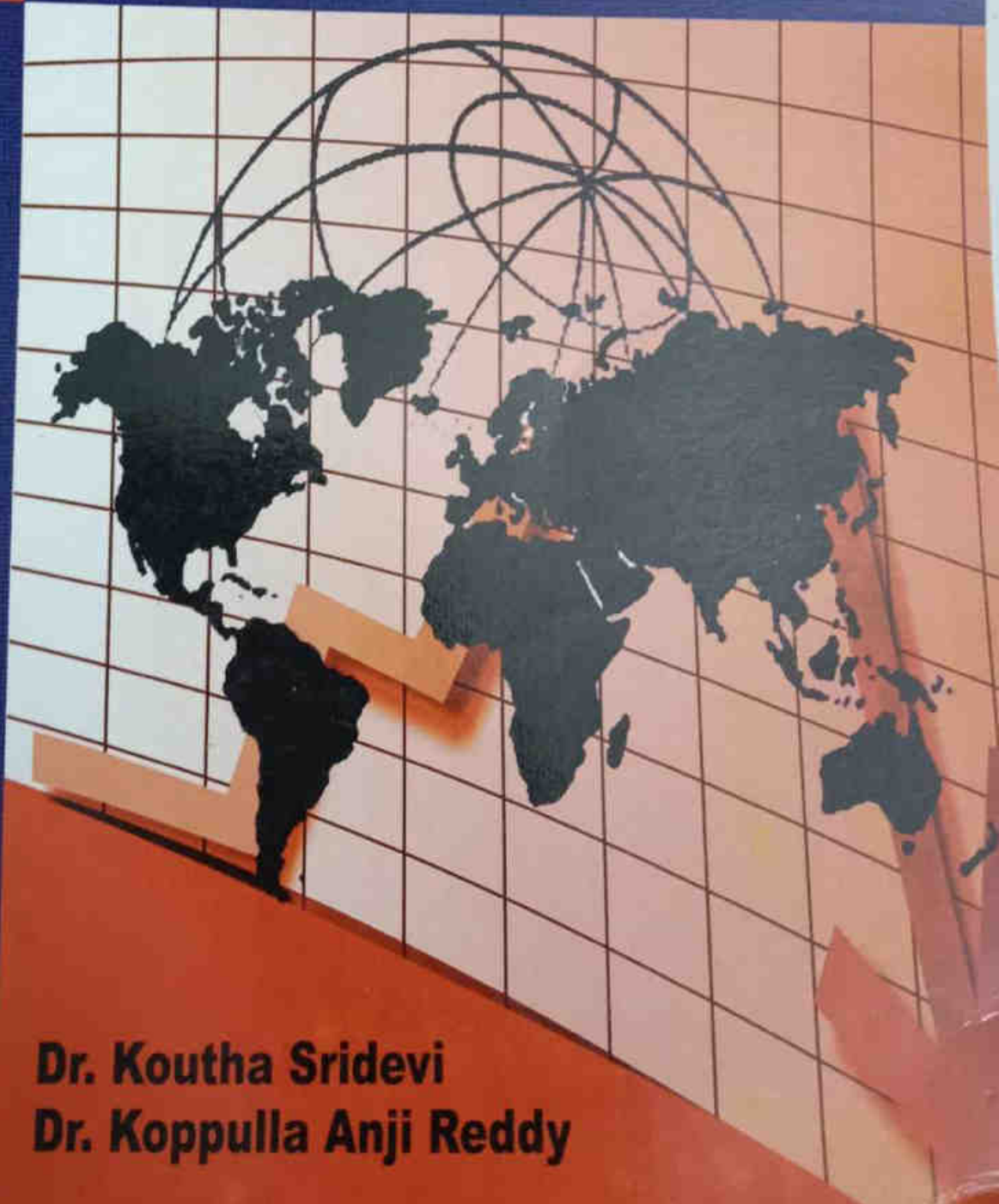
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GLOBAL FINANCIAL MELTDOWN

ISSUES & CHALLENGES



Dr. Koutha Sridevi
Dr. Koppulla Anji Reddy

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A Study on Customer Satisfaction at APGVB

Dr. K. Sridevi,

Head, Department of Commerce,
Mahatma Gandhi University, Nalgonda – 508254
Email: sridevikoutha@gmail.com

Mr. Kosanoju Ravichandra

Research Scholar,
Department of Commerce,
Mahatma Gandhi University, Nalgonda – 508254
Email: kosanojuravichandra@gmail.com

ABSTRACT:

Today, the rural economy in India and its subsequent productivity growth is predicted to a large extent upon the development of its 700-million strong rural population. The agricultural economy of India is drafted according to the needs of rural India since majority of the population lives in about 600,000 small villages. In India, agriculture accounts for almost 19% of Indian Gross Domestic Products (GDP). The rural section of Indian population is primarily engaged with agriculture, directly or indirectly. Providing appropriate finance to the Rural Economy, particularly the agricultural sector is quintessential. More so in the context of India, which is jam packed with small farmers, who have almost no resources and are in dire need of resources. The problem is big and long standing and unless solved on a sound basis the defective system will continue to obstruct the expansion and modernization of agriculture. Making available credit and ensuring its productive use should therefore form basic planks of any credit policy to foster progressive rural economy.

The **Objectives** of the present Study are to understand the performance of APGVB and to examine the customer satisfaction of APGVB with special reference to Bhiknoor branch.

The Study finds that the Customer Beneficiaries are dissatisfied about the Service quality that is offered at the APGVB bank. Hence RRBs, particularly, the APGVB have to understand the expectations of the Customers and deliver the services accordingly. This will contribute to Financial Empowerment of Rural India.

Key Words: Regional Rural Bank, SERVQUAL, Service, Tangibles, Reliability, Assurance

opportunities for rural people, improving rural welfare, extension of market for industrial output.
Keywords: Agricultural products, defects and problems of marketing system, middlemen in the market,
various problems of the farmers..

Assistant Professor in Economics, Post Graduate College for Women,
Kakatiya University, Warangal, Telangana, India. Mail Id: omkar.eco@gmail.com

Sustainable Agriculture - Perceptions of the Farmers

Dr. K. Sridevi¹, Kosanoju Ravichandra²

In India, agricultural risks are augmented by a variety of factors, ranging from climate variability and change, frequent natural disasters, uncertainties in yields and prices, weak rural infrastructure, imperfect markets, increasing investment costs and lack of financial services including limited span and design of risk mitigation instruments such as credit and insurance. These factors not only endanger the farmers' livelihood and incomes but also undermine the viability of the agriculture sector and its potential to become a part of the solution to the problem of endemic poverty of the farmers and the agricultural labour. The criticality of agriculture in the rural transformation and the national economy seen along with its structural characteristics require substantial governmental and financial sector interventions to ensure household food and nutritional security as also to generate savings and investments.

The methods / procedures of conducting the Agricultural Activity needs major reform. Sustainable Agriculture, the conventional agricultural methods / procedures of the ancient India, that is being popularised by Subhash Palekar, an Indian agriculturist who practiced and wrote many books about Subhash Palekar Natural Farming, possibly is the solution to the plight of the farmers.

The Perceptions of the Farmers towards the Sustainable Agriculture are examined in this paper and found lack of awareness about the same.

Key words: Sustainable Agriculture, Sustainable agricultural methods, Farmers awareness levels

¹Head, ² Ph.D. Scholar

^{1,2} Department of Commerce, Mahatma Gandhi University, Nalgonda

Dr. Anshu Gupta
Assistant Professor, Department of
Commerce, DDU Gorakhpur
University, Gorakhpur

CHALLENGES OF BANKS IN MODERN ERA

Author
Dr. Meena Singh
Assistant Prof. in Commerce, Arya
Mahila P.G. College, Chetganj, Varanasi.

UNDERSTANDING THE RISK PERCEPTIONS IN MOBILE BANKING ADOPTION

Author
Sandeep Kaur
University School of Applied
Management Punjabi University, Patiala

EFFICIENCY OF E-BANKS AND TRADITIONAL BANKS: AN EMPIRICAL STUDY OF EMPLOYEE'S PERCEPTIONS IN SHIVAMOGGA CITY

Author
Dr. Ravi C.S
Assistant Professor, Department of
Commerce, H.O.D. of Commerce, Shri
Annadaneshwar Arts, Science and
Commerce College, Naregal -
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Authors
Ms. Sahitya Yarlagadda,
BMS, St. Francis College for Women,
Begumpet, Hyderabad
Gabriella Angelina
Faculty, BMS, St. Francis College for
Women, Begumpet, Hyderabad

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Author
Sudhir Mahendra Tale
M.Com, M.Phil, Ph.D K.R. M. Mahila
Mahavidhyalaya, Vazirabad, Nanded

STUDY OF E-BANKING IN INDIA

Authors
Chetanbhai Davabhai Bhutka
Assistant Professor, Commerce college,
Vadgam Gujarat
**Nileshkumar Jayantibhai
Gambhava**
Assistant Professor, Commerce college
Vadgam Gujarat

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Authors
Ranjeeta Nayak
Lecturer, Govt. College, Odisha
Prof. Madhumathi R
Professor, Department of Management
Studies, Indian Institute of
Technology, Madras

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Authors
Saksham Kumar Srivastava
Research Scholar, Department of
Applied Economics, University of
Lucknow
Prof. (Dr.) Bimal Jaiswal
Faculty of Commerce, University of
Lucknow
Dr. Bhuvana Venkatraman
St. Thomas College, Bhilai,
Chhattisgarh
Dr. Anupam Vidyarthi
Vice- Principal, Jaipuria College,
Lucknow

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Authors
Dr. A.P. Hosmani
Professor, Department of Commerce,
Gulbarga University, Kalaburagi.
Suneelkumar
Research Scholar Department of
Commerce Gulbarga University
Kalaburagi

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Authors
Gunda Srinivas
Department of Commerce,
Rayalaseema University, Kurnool.
Dr. Chanda Srinivas
Principal & Professor, Vivekananda
Degree & PG College, Karimnagar.

INSURANCE SECTOR: CONTEMPORARY ISSUES AND CHALLENGES

Author
Dr. Binod Pratap Singh
Associate Professor in Commerce,
L.B.S.P.G. College, Gonda, U.P.

WORKING OF BUSINESS CORRESPONDENT / BUSINESS FACILITATOR MODEL - A STUDY WITH SPECIAL REFERENCE TO MAHABOBNAGAR AND NALGONDA DISTRICTS IN TELANGANA STATE

Author
Dr. K. Sridevi
Head, Department of Commerce,
Mahatma Gandhi University, Nalgonda,
Telangana State, India.

A STUDY OF SOCIAL INSURANCE SERVICES SCHEMES AND ITS FEATURES IN INDIA WITH SPECIAL REFERENCE TO LIFE INSURANCE BUSINESS

Authors
Dr. Pankaj Palekar
(Asst. Professor), N. C. Law College,
Nanded & Visiting Faculty, School of
Commerce & Management, SRTMUL
Nanded.
Dr. R. B. Rampure
Associate Professor, Madhavrao Patil
College, Palam, Dist. Parbhani.



Mobile Banking: An Enabler towards Less Cash Economy

K. Sridevi

Head, Department of Commerce, Mahatma Gandhi University, Nalgonda

Money is a concept which can be defined as anything that can facilitate exchange of Goods and Services. Bank is a Financial Institution that deals in Money and Credit. The concept of Money is still evolving. The very functions, for which it has been invented / discovered are not discharged properly. To overcome, atleast, some of the limitations of the Physical Money, the concept of Digital Money is introduced. The concept of Digital Money is receiving a push, from the Governments and Regulators. Thus Mobile Banking is acquiring importance. The Mobile Phones, as means of telecommunication, have penetrated deep into the corners of India within a decades period. Hence, it is believed that India is prepared to transform into a digital economy. However, the actual figures portray a conflicting picture. Objective of the Study: The Objective of the Study is to examine the Perceptions of the Students, pursuing Undergraduate and Postgraduate Courses, towards Mobile Banking. Methodology: PRIMARY DATA is collected by administering a questionnaire to the Students pursuing their Undergraduate and Postgraduate Courses in the Nalgonda Region. SECONDARY DATA for the study is obtained from relevant publications. Hypothesis: H₀: There is no significant difference between the Students Perceptions towards Mobile Banking, with regard to demographic features; geographic location and gender. The Kruskal-wallis test is applied and the results show that there is no significant difference in the distribution of Perception Levels about Mobile Banking across the categories of Residential areas and Gender. Conclusion: The Student Respondents have a positive opinion about the ease of use and convenience of Mobile Banking but have the apprehensions about the Security, Privacy and Reliability issues. The Stakeholders have to address these apprehensions for the successful penetration of the Mobile Banking.

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About the Editor



Dr. Moorthygari Sree Lakshmi is working as Associate Professor in the Department of Management Studies (DMS), University College of Commerce and Business Management (UCCBM), Mahatma Gandhi University, Nalgonda, Telangana, India since 2013.

Presently she is Chairperson, Board of Studies for Management Studies at MGU. Her Qualifications are B.Com, MBA with HR and Finance. She has received Doctor of Philosophy From Sri Krishnadevaraya University, Anantapur for her contributions in the area of finance particularly Lease Financing in the year 2005. She has Cleared State Level Eligibility Test for Lecturership (SLET) in the year 1998.

She has started her career in Teaching profession at PG level from the year 1994. She has more than 23 years of teaching experience at MBA level. She has started her career as lecturer at KIMS, Karimnagar then worked at Warangal Institute of Management studies (ITM Group) and Alluri Institute of Management Studies at Warangal. She has worked as Assistant and Associate Professor, served for 12 years at Sarojini Naidu Vanita Mahavidyalaya, Hyderabad. She has moved to Acharya group of Institutes (AIT) as Professor in Department of Business Management located in Bangalore served for 2 years. She also has international experience as visiting professor in abroad Canada for short duration.

To her credit she has published three books, 20 articles in various national, international journals and book chapters. 20 papers were presented in national and international conferences. As a Resource person, she chaired for many conferences at national and international level. She is a good trainer, resource person for many training programmes at Nalgonda and Hyderabad. She has organized many FDP programmes as former Director, IQAC, Head of the Department, DMS and Chairperson - Women Protection Cell at Mahatma Gandhi University. She is active as external examiner, paper setter and Ph.D adjudicator for more than 10 universities in India.

She has visited more than 10 countries worldwide. She has life membership in many Management Associations in India.

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AUTHORS

Dr. Nalam Vijay Kumar
Professor (Retd.)
Department of Zoology
Kakatiya University, Warangal

Dr. M. Thirumala
Assistant Professor in Biochemistry
Department of Applied Bioscience
Mahatma Gandhi University
Nalgonda

EDITOR

Dr. Nalam Vijay Kumar
Professor (Retd.)
Department of Zoology
Kakatiya University, Warangal



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Pelagirhabdus

Sultanpuram, Mothe, Chinthalapati and Chinthalapati 2016, 89^{VP}Vishnuvardhan Reddy Sultanpuram and Thirumala Mothe, *Department of Applied Biosciences, Mahatma Gandhi University, Nalgonda, Telangana, India*

Pel.a.gi.rhab'dus. L. n. *pelagus*, the sea; Gr. fem. n. *rhabdos*, rod; N.L. fem. n. *Pelagirhabdus* rod-shaped bacterium isolated from the sea.

On the basis of the comparative 16S rRNA gene sequence analysis, the genus *Pelagirhabdus* belongs to the family *Bacillaceae* in a distinct lineage, which is closely related to the genera *Amphibacillus*, *Streptohalobacillus*, *Paraliobacillus*, *Gracilibacillus*, and *Halolactibacillus*. It currently comprises two species—*Pelagirhabdus alkalitolerans* and *Pelagirhabdus fermentum*. Cells are motile or nonmotile, rod shaped, Gram-stain-positive, and nonendospore formers. Facultative anaerobe. Positive for catalase activity and negative for oxidase activity. The isoprenoid quinones are absent. The peptidoglycan is based on *meso*-diaminopimelic acid as the diagnostic diamino acid. The major polar lipids present are diphosphatidylglycerol, phosphatidylglycerol, and two unidentified phospholipids. The major cellular fatty acids are C_{14:0}, anteiso-C_{15:0}, C_{16:0}, anteiso-C_{13:0}, iso-C_{15:0}, and iso-C_{13:0}.

DNA G + C content (mol%): 37.1–41.5 (WGS, HPLC, and *T_m*).

Type species: *Pelagirhabdus alkalitolerans* Sultanpuram, Mothe, Chinthalapati and Chinthalapati 2016, 89^{VP}.

Cells are motile or nonmotile, rod shaped, Gram-stain-positive, and nonendospore formers, but are considerably resistant to heat. Facultatively anaerobic. Mesophilic,

chemoorganotrophic. Alkaliphilic, sometimes halophilic or halotolerant. Positive for catalase activity and negative for oxidase activity. The isoprenoid quinones are absent. The peptidoglycan is based on *meso*-diaminopimelic acid as the diagnostic diamino acid. The major polar lipids present are diphosphatidylglycerol, phosphatidylglycerol, and two unidentified phospholipids. The major cellular fatty acids are C_{14:0}, anteiso-C_{15:0}, C_{16:0}, anteiso-C_{13:0}, iso-C_{15:0}, and iso-C_{13:0}. The species of the genus have been isolated from marine and lagoon sediments. The genus belongs to the family *Bacillaceae* comprising a phylogenetically distinct lineage, which is related to the genera *Amphibacillus*, *Streptohalobacillus*, *Paraliobacillus*, *Gracilibacillus*, and *Halolactibacillus*. The genus is distantly related to the genera *Ornithinibacillus*, *Aquibacillus*, *Sediminibacillus*, *Natronobacillus*, and *Virgibacillus*.

DNA G + C content (mol%): 37.1–41.5 (WGS, HPLC, and *T_m*).

Type species: *Pelagirhabdus alkalitolerans* Sultanpuram, Mothe, Chinthalapati and Chinthalapati 2016, 89^{VP}.

Number of species with validated names: 2.

Further descriptive information

Cell morphology and fine structure

The cells of *P. alkalitolerans* are nonmotile rods with 0.3–0.4 μm in diameter and 1.0–1.2 μm in length, while *P. fermentum* cells are short motile rods with somewhat sharpened ends, occurring usually singly or in pairs or sometimes in short chains of up to six cells. In the exponential growth phase, which lasts 13 h on average, the cells measured 0.5–0.75 μm in diameter and 1.5–4 μm in length (Zhilina

TABLE 1. Characteristics that differentiate the described species of the genus *Pelagirhabdus*

Characteristics	<i>P. alkalitolerans</i> S5 [†]	<i>P. fermentum</i> DSM 13869 [†]
Colony pigmentation	Cream	Yellow
Motility	–	+
H ₂ S production	–	+
NaCl range (% w/v)	0–16	0–20
NaCl optimal (% w/v)	10	9.5–10.5
pH range	6.5–11.0	8.0–10.5
pH optimal	8.5–9.0	9.0
<i>Utilization of:</i>		
Trehalose	–	+
Raffinose	+	–
Sucrose	–	+
D-ribose	–	+
D-mannitol	+	–
Inositol	–	+
Lactate	–	+
<i>Hydrolysis of:</i>		
Casein hydrolysate	–	+
Gelatin	+	–
Starch	–	+
Urea	+	–
Major fatty acids (%)	Anteiso-C _{15:0} (27.9), C _{16:0} (21.5), iso-C _{15:0} (13.1), and C _{14:0} (9.6)	C _{14:0} (28.9), anteiso-C _{13:0} (16.7), anteiso-C _{15:0} (11.8), iso-C _{13:0} (11.5), C _{16:0} (8.0), iso-C _{15:0} (6.4), and C _{12:0} (6.3%)
G + C content (mol%)	37.1 ^a	41.5 ^b
	40.8 ^c	

^aData based on whole-genome sequence.

^bData based on *T_m* values.

^cData based on HPLC analysis.

et al., 2001). Endospore formation is not observed within the two Gram-stain-positive species of the genus *Pelagirhabdus* that have been described till date, but both are resistant to heat (55°C) (Sultanpuram et al., 2016; Zhilina et al., 2001).

Cultural characteristics

Colonies of *P. alkalitolerans* when grown on alkaline medium for 2 days are cream colored, circular (0.8–1.0 mm in diameter), convex, and translucent with entire margin (Sultanpuram et al., 2016). The colonies of *P. fermentum* are yellowish and circular, with a transparent center and raised denser margins. The colony diameter is 0.5–1.5 mm after 3 days of cultivation (Zhilina et al., 2001).

Nutrition and growth conditions

Both the members of the genus *Pelagirhabdus* are facultative anaerobes, which are unable to perform nitrate reduction, indole production, and hydrolysis of starch, cellulose, and citrate. Ethanol, L-rhamnose, L-sorbose, and D-sorbitol were not utilized by these two members of the genus *Pelagirhabdus*. Glucose, D-fructose, lactose, D-mannose, maltose, cellobiose, D-xylose, and D-arabinose could be utilized by both the members. The temperature range for growth of *Pelagirhabdus* spp. is 20–56°C with similar optima at 37°C. They grow at pH values between 6.5 and 11.0, with different optimal pH values (Table 1). They are alkaliphilic, halotolerant

mesophiles requiring around 10–10.5% (w/v) NaCl for optimal growth.

Chemotaxonomic characteristics

The whole-cell fatty acid composition of both the members of the genus *Pelagirhabdus* is similar to the other related genera of the family *Bacillaceae*. *P. alalkitolerans* S5^T contains anteiso-C_{15:0} (27.9%), C_{16:0} (21.5%), iso-C_{15:0} (13.1%), and C_{14:0} (9.6%). Similarly, *P. fermentum* Z-7984^T contains C_{14:0} (28.9%), anteiso-C_{13:0} (16.7%), anteiso-C_{15:0} (11.8%), iso-C_{13:0} (11.5%), C_{16:0} (8.0%), iso-C_{15:0} (6.4%), and C_{12:0} (6.3%) as the major fatty acids. The major polar lipids of the genus *Pelagirhabdus* include diphosphatidylglycerol, phosphatidylglycerol, and two unidentified phospholipids. The members of the genus *Pelagirhabdus* lack the isoprenoid quinone, and their peptidoglycan cell-wall contains *meso*-diaminopimelic acid (*meso*-DAP) as the diagnostic diamino acid.

Antibiotic sensitivity

One of the members of the genus, *P. alalkitolerans* S5^T, was sensitive to erythromycin (15 mg), amikacin (30 mg), ampicillin (10 mg), tetracycline (30 mg), ciprofloxacin (5 mg), gentamicin (120 mg), and vancomycin (30 mg). However, it was resistant to streptomycin (10 mg), penicillin (10 mg), kanamycin (30 mg), and nalidixic acid (30 mg) (Sultanpuram et al., 2016). The antibiotic sensitivity details of the other member of the genus, *P. fermentum* Z-7984^T, are unknown.

Ecology

The two currently described species of the genus *Pelagirhabdus*, that is, *P. alalkitolerans* and *P. fermentum*, were isolated from marine sediment and coastal lagoon sediment, respectively (Sultanpuram et al., 2016; Zhilina et al., 2001).

Taxonomic comments

The closest neighbors of *Pelagirhabdus* based on 16S rRNA gene sequence phylogeny are alkaliphilic, halotolerant, or halophilic members of the genus *Amphibacillus*, moderately halophilic and facultative anaerobic *Streptohalobacillus salinus* (Wang et al., 2011), slightly halophilic or highly halotolerant alkaliphiles of the genus *Halolactibacillus*, slightly halophilic or extremely halotolerant facultative anaerobes of the genera

Paraliobacillus, and the halotolerant members of the genus *Gracilibacillus*. All these bacteria, which have distinct abilities to salt and pH tolerance, can be distinguished from each other using 16S rRNA gene sequences (Figure 1).

Differentiation of the genus *Pelagirhabdus* from other genera

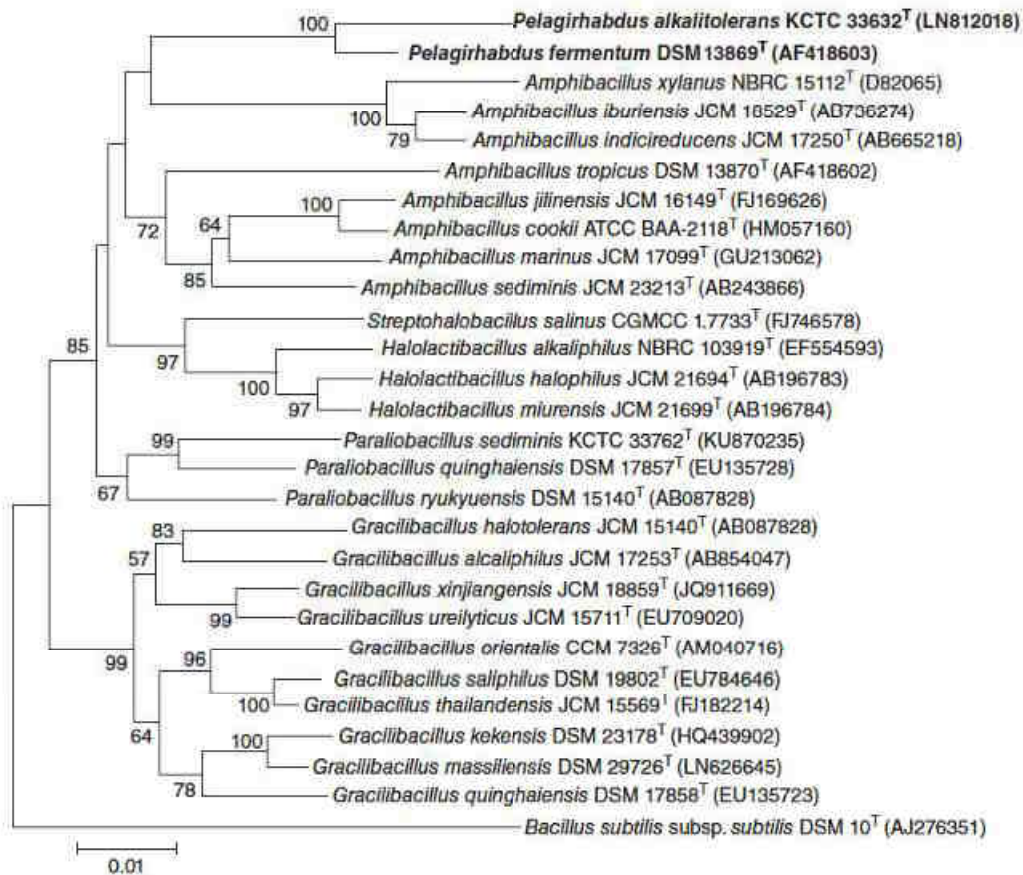
The characteristics that distinguish the genus *Pelagirhabdus* from the other related members of the *Bacillaceae* family are listed in Table 2. The inability to produce endospores clearly differentiates *Pelagirhabdus* from the closely related genus *Amphibacillus*. However, some other closely related genera of the family *Bacillaceae*, such as *Streptohalobacillus* (Wang et al., 2011) and *Halolactibacillus*, are also nonendospore formers. The presence of the major fatty acids C_{14:0} and iso-C_{13:0} also clearly differentiates the genus from all the species of the closely related genera of the family *Bacillaceae*. The absence of isoprenoid quinone is only similar to the genus *Amphibacillus* (see *Dolosicoccus*), but this chemotaxonomic trait is clearly different from all the other related genera. The DNA G + C content of the genus *Pelagirhabdus* is similar to the closely related genera of the family *Bacillaceae*.

Genome features

Among the two described species of *Pelagirhabdus*, a genome sequence has to date been determined only for *P. alalkitolerans*, the type species of the genus (Sultanpuram and Mothe, 2017). The genome of *P. alalkitolerans* contained 2,527,601 bp with 88.99% DNA coding bases and 37.1% G + C content. The genome revealed 2,378 protein coding sequences, which were about 81.61% of the total genome. Around 15.01% CDS present were not assigned to any of the known functions. Further, it revealed 56 tRNA and 13 rRNA genes.

The genome of *P. alalkitolerans* harbored a cluster of genes coding for compatible solute production, thus explaining its osmotolerance. *P. alalkitolerans* contains ectoine synthase, glycerol-3-phosphate dehydrogenase (NAD(P)⁺), and 1-acyl-sn-glycerol-3-phosphate acyltransferase, which are essential for its halotolerance. The genome of *P. alalkitolerans* lacks the *men* genes, which encode the enzymes helpful in the menaquinone biosynthesis pathway (which is the isoprenoid present in the family *Bacillaceae*), thus explaining its inability to produce isoprenoid quinone. The genome harbors enzymes, such as catalase and oxidase; however,

FIGURE 1. Phylogenetic analysis of the genus *Pelagirhabdus* with the other closely related members based on 16S rRNA gene sequences (accession numbers are given in parentheses). Distance calculations according to the Kimura 2-parameter model and clustering with the neighbor-joining method were performed. Bootstrap values based on 1,000 replications are listed as percentages at the branching points. Bar, 0.01 nucleotide substitutions per nucleotide position.



the original description of *P. alkaliolerans* indicated that it is oxidase-negative (Sultanpuram et al., 2016). Further, the *P. alkaliolerans* genome lacks the important genes for sporulation except *CotE*, hence, supporting the laboratory observation of its inability to produce endospores (Sultanpuram et al., 2016). However, owing to the presence of some spore coat proteins it may exhibit considerable resistance to heat.

List of species of the genus *Pelagirhabdus*

Pelagirhabdus alkaliolerans
Sultanpuram, Mothe, Chinthalapati and Chinthalapati
2016, 89^{VP}

al.ka.li.to'le.rans. N.L. n. *alkali*, alkali; L. part. adj. *tolerans*, tolerating; N.L. part. adj., *alkaliolerans* alkali-tolerating.

Cells are Gram-stain-positive, nonmotile, and non-endospore-forming rods, which are 0.3–0.4 μm in diameter and 1.0–1.2 μm in length. When grown on alkaline medium forms colonies that are cream colored, circular (0.8–1.0 mm in diameter), convex, and translucent with entire margin. The optimal conditions for growth (observed after 48 h) are at 37°C (range 20–55°C) and pH 8.5–9.0 (range 6.5–11.0). Though NaCl is not essential for growth, it can be tolerated up to 16%, with an optimal growth at 10%. Anaerobic fermentation capabilities are present. Nitrate reduction, indole production from tryptophan, methyl red test, VP test, H₂S production citrate utilization, and lipase activity are absent, but urease activity and gelatin liquefaction are present. The capability to hydrolyze casein, tyrosine, cellulose, starch, esculin, hippurate, xanthine, hypoxanthine, Tween 20, Tween 40, Tween 80, and DNA was absent.

TABLE 2. Differential characteristics between the members of the genus *Pelagirhabdus* and the closely related members of the family *Bacillaceae*

Characteristics	1	2	3	4	5	6
Spore formation	–	+	–	+	+	–
Motility	–/+	+/-	+	+	+	+/-
Anaerobic fermentation	+	+	+	v	–	+
Catalase	+	–	–	+	+	+
H ₂ S production	–	–/+	–	–	–	ND
NaCl range (% w/v)	0–20	0–17	0–20	0–22	0.5–20	0–30
pH range	6.5–11.0	7.0–12.0	6.5–9.0	5.5–10.0	5–10	6–13
Temperature range (°C)	20–56	7–56	20–40	4–50	4–50	5–45
Oxidase	–	–	+	v	v	–
Nitrate reduction	–	–	+	v	v	–
Starch hydrolysis	–	v	+	+	v	w
Major cellular fatty acids	C _{14:0} , ai-C _{15:0} , C _{16:0} , i-C _{15:0} , ai-C _{13:0} , and i-C _{13:0}	ai-C _{15:0} , C _{16:0} , and i-C _{10:0}	C _{16:0} , ai-C _{13:0} , and ai-C _{15:0}	ai-C _{15:0} , C _{16:0} , i-C _{16:0} , and ai-C _{17:0}	ai-C _{15:0} , i-C _{15:0} , and ai-C _{17:0}	ai-C _{13:0} and C _{16:0}
Major isoprenoid quinone	None	None	MK-6	MK-7	MK-7	MK-9
DNA G + C content (mol%) ^a	37.1–41.5	36.0–42.3	36.2	35.6–39.6	38.0–39.0	38.3–40.7

Taxa: 1, *Pelagirhabdus* (Sultanpuram et al., 2016; Zhilina et al., 2001); 2, *Amphibacillus* (Nimura et al., 1990; An et al., 2007; Ren et al., 2013; Hirota et al., 2013); 3, *Streptohalobacillus* (Wang et al., 2011); 4, *Parahalobacillus* (Ishikawa et al., 2002; Chen et al., 2009; Cao et al., 2017); 5, *Gracilibacillus* (Wainø et al., 1999; Hirota et al., 2014); 6, *Halolactibacillus* (Ishikawa et al., 2005; Cao et al., 2008). v, variable; w, weakly positive; ND, no data; ai, anteiso-branched; i, iso-branched.

^aData based on WGS, *T_m*, and HPLC analysis.

D-Maltose, D-raffinose, fructose, D-arabinose, melibiose, mannose, D-glucose, D-cellobiose, lactose, D-xylose, D-galactose, and D-mannitol supported the growth of the strain, but did not yield either gas or acid, neither in an aerobic nor in an anaerobic condition. Inulin, inositol, rhamnose, D-trehalose, D-sorbitol, and salicin were not the preferred sole carbon sources of the strain. However, sucrose could not be utilized under aerobic conditions but readily supported growth under anaerobic conditions. Nitrite and urea are the acceptable nitrogen sources, but nitrate, ammonium chloride, glutamate, and aspartate did not support the growth of the strain. The isoprenoid quinones are absent in the strain. The peptidoglycan of the strain is based on *meso*-diaminopimelic acid. Diphosphatidylglycerol, phosphatidylglycerol, and two unidentified phospholipids are the major polar lipids, and anteiso-C_{15:0}, C_{16:0}, iso-C_{15:0}, and C_{14:0} are the major fatty acids reported in the strain.

The type strain was isolated from a sediment sample at Pingleshwar Beach, India.

DNA G + C content (mol%): 40.8 (HPLC)/37.1 (WGS).

Type strain: S5, KCTC 33632, CGMCC 1.15177.

EMBL/GenBank accession (16S rRNA gene): LN812018.

EMBL/GenBank accession number (genome): FMY101000000.

Pelagirhabdus fermentum

Sultanpuram, Mothe, Chinthalapati and Chinthalapati 2016, 84^{VP}

fer.men.tum. L. n. *fermentum* that which causes fermentation.

Cells are rod shaped, nonendospore formers, but heat resistant and occur singly or in pairs, or sometimes in short chains. Motility is observed by means of one subterminal flagellum. Cells are 1.5–4 μm in length with 0.5–0.75 μm in diameter. Good growth is observed both in aerobic and anaerobic conditions. The growth of the strain is strictly alkaliphilic and obligately depends on the CO₃²⁻ ion, but Cl⁻ ion is not required. Growth is observed with a range of pH 8.0–10.5 (optimum growth at pH 9.0). Growth is observed at a total mineralization of 0.17–3.3 M Na⁺ with an optimum of 1.87 M Na⁺ (in the form of sodium carbonates). The growth of the strain is mesophilic and is observed between 18 and 56°C (optimal growth at 36–38°C). The

growth of the strain is in chemoorganotrophic mode, and yeast extract is required for anabolic growth (the obligate requirement is methionine). The strain exhibits the ability to use sulfur as an electron acceptor and is tolerant to sulfide, though sulfur reduction is not coupled to energy generation. In anaerobic conditions, D-glucose, maltose, mannose, xylose, fructose, sucrose, maltose, cellobiose, and trehalose are utilized. However, ribose, arabinose, galactose, lactose and N-acetylglucosamine are utilized aerobically. In anaerobic mode of growth, the strain converts glucose to ethanol, acetic acid, formic acid, and lactic acid, but, acetic acid and pyruvic acid, along with small amounts of lactic and formic acids, are produced by the strain from glucose under aerobic conditions. The isoprenoid quinones are absent, and the peptidoglycan is based on *meso*-diaminopimelic acid as the diagnostic diamino acid. The polar lipids present are diphosphatidylglycerol, phosphatidylglycerol, and three phospholipids. The major cellular fatty acids are C_{14:0}, anteiso-C_{13:0}, anteiso-C_{15:0}, iso-C_{13:0}, C_{16:0}, iso-C_{15:0}, and C_{12:0}.

The type strain was isolated from a coastal lagoon of Lake Magadi, Kenya.

DNA G + C content (mol%): 41.5 (T_m).

Type strain: Z-7984, DSM 13869, UNIQEM 210.

GenBank accession number (16S rRNA gene): AF418603.

Basonym: *Amphibacillus fermentum* (Zhilina, Garnova, Tourova, Kostrikina and Zavarzin 2002, 685^{VP}; Zhilina, Garnova, Tourova, Kostrikina and Zavarzin 2001, 720).


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Salipaludibacillus

Sultanpuram and Mothe 2016, 2751^{VP}

Vishnuvardhan Reddy Sultanpuram and Thirumala Mothe, *Department of Applied Biosciences, Mahatma Gandhi University, Nalgonda, Telangana, India*

Sa.li.pa.lu.di.ba.cil'lus. L. n. *sal salis*, salt; L. n. *palus paludis*, a swamp; L. masc. n. *bacillus*, a rod; N.L. masc. n. *Salipaludibacillus*, a rod from a salt marsh.

Gram-stain-positive, variable-motile rods producing ellipsoidal endospores at subterminal or central position. Aerobic or facultatively anaerobic mode of growth. Positive for catalase, but nitrate reduction and oxidase activities are variable. The major isoprenoid quinone is MK-7, sometimes with minor traces of MK-6. The peptidoglycan is based on *meso*-diaminopimelic acid as the diagnostic diamino acid. The major polar lipids present are diphosphatidylglycerol, phosphatidylglycerol, and phosphatidylethanolamine. The major fatty acids are anteiso-C_{15:0}, C_{16:0}, and iso-C_{15:0}. Mesophilic halophiles with a requirement of 2–5% NaCl for optimal growth. Phylogenetically, belongs to the order *Bacillales*, family *Bacillaceae*. Habitats include seasonal wetland, soil, bay, and marine wetland samples.

DNA G + C content (mol%): 37.4–42.4 (HPLC and genome analysis).

Type species: *Salipaludibacillus aurantiacus* Sultanpuram and Mothe 2016, 2751^{VP}.

Gram-stain-positive rods, which are **variable-motile** and produce **ellipsoidal endospores** at **subterminal or central position**. **Aerobic or facultative anaerobes**. Positive for catalase, but **nitrate reduction and oxidase activities are variable**. **Mesophilic halophiles** with nominal requirement of NaCl for optimal growth. **The major isoprenoid quinone is**

MK-7. The peptidoglycan is based on *meso*-diaminopimelic acid (*m*-DAP). The major polar lipids present are **diphosphatidylglycerol (DPG)**, **phosphatidylglycerol (PG)**, and **phosphatidylethanolamine (PE)**. The major fatty acids are anteiso-C_{15:0}, C_{16:0}, and iso-C_{15:0}. Phylogenetically, belongs to the order *Bacillales*, family *Bacillaceae*. Known habitats are seasonal wetland, soil, bay, and marine wetland samples.

DNA G + C content (mol%): 37.4–42.4 (HPLC and genome analysis).

Type species: *Salipaludibacillus aurantiacus* Sultanpuram and Mothe 2016, 2751^{VP}.

Number of species with validated names: 4.

Family classification: The genus *Salipaludibacillus* is classified within the family *Bacillaceae*.

Further descriptive information

Cell morphology and fine structure

Cells of *Salipaludibacillus aurantiacus* are with 0.3–0.9- μ m diameter and 1.7–2.2- μ m length (Sultanpuram and Mothe, 2016); *Salipaludibacillus agaradhaerens* cells are 0.5–0.6- μ m wide and 2–5- μ m long (Nielsen et al., 1995a); *Salipaludibacillus neizhouensis* cells are 0.5–0.6 \times 3–5 μ m (Chen et al., 2009) and *Salipaludibacillus halalkaliphilus* cells are 1.2–1.9 μ m in length and 0.3–0.4 μ m in width (Amoozegar et al., 2018). Ellipsoidal endospore formation at the central or subterminal positions is observed within these rod-shaped Gram-stain-positive species (Sultanpuram and Mothe, 2016; Nielsen et al., 1995a; Chen et al., 2009; Amoozegar et al., 2018). The genus members exhibited variable motility; the

type species *S. aurantiacus*, *S. neizhouensis*, and *S. halalkaliphilus* are nonmotile (Sultanpuram and Mothe, 2016; Chen et al., 2009; Amoozegar et al., 2018), whereas, *S. agaradhaerens* is motile (Nielsen et al., 1995a).

Cultural characteristics

Colonies of *S. aurantiacus* grown on alkaline nutrient agar are orange colored, circular (1.2–2.0 mm in diameter), convex, and opaque with entire margin (Sultanpuram and Mothe, 2016). *S. agaradhaerens* colonies are white and rhizoid with filamentous margin (Nielsen et al., 1995a). Colonies of *S. neizhouensis* are pale-yellow pigmented, low convex and translucent with circular/slightly irregular margins, and 1–2 mm in diameter after incubation for 3–5 days at 25°C on marine agar 2216 (Chen et al., 2009). *S. halalkaliphilus* colonies are small, circular with entire margins, convex and smooth, translucent, and cream pigmented (Amoozegar et al., 2018).

Nutrition and growth conditions

Though the type species of the genus *S. aurantiacus* is a strict aerobe, the other three described species of the genus are facultative anaerobes. They grow between pH 6.5 and 11 with a different optimal pH (Table 1). All the members of the genus *Salipaludibacillus* are alkalophiles (Sultanpuram and Mothe, 2016; Nielsen et al., 1995a; Chen et al., 2009; Amoozegar et al., 2018). The temperature range for growth of *Salipaludibacillus* spp. is 4–45°C with different optima between 25 and 37°C. They are mesophilic halophiles requiring around 2–5% (w/v) NaCl for optimal growth.

Chemotaxonomic characteristics

The saturated branched-chain fatty acids anteiso-C_{15:0}, C_{16:0}, and iso-C_{15:0} are the predominant fatty acids in the members of the genus *Salipaludibacillus*. The type species of the genus, *S. aurantiacus*, contains anteiso-C_{15:0} (37.9%), C_{16:0} (14.9%), iso-C_{15:0} (9.0%), anteiso-C_{17:0} (6.8%), iso-C_{16:0} (6.7%), and summed feature 3 (C_{16:1} ω6c and/or C_{16:1} ω7c) (5.9%) (Sultanpuram and Mothe, 2016). The strain *S. agaradhaerens* contains anteiso-C_{15:0} (40.2%), iso-C_{15:0} (23.2%), anteiso-C_{17:0} (11.5%), iso-C_{17:0} (6.8%), and C_{16:0} (6.3%) (Sultanpuram and Mothe, 2016). *S. neizhouensis* contains anteiso-C_{15:0} (51.9%), iso-C_{15:0} (14.4%), C_{16:1} ω11c (6.8%), C_{16:0} (6.1%), and iso-C_{16:0} (5.5%) (Chen et al., 2009). The major fatty acids of *S. halalkaliphilus* are anteiso-C_{15:0} (51.0%), C_{16:0} (14.2%), iso-C_{15:0} (12.6%), anteiso-C_{17:0} (6.1%), and iso-C_{17:0} (4.7%) (Amoozegar et al., 2018). The major isoprenoid quinone

TABLE 1. Phenotypic characteristics that differentiate the described species of the genus *Salipaludibacillus*

Characteristics	1	2	3	4
Colony pigmentation	Orange	White	Pale-yellow	Cream
Motility	–	+	–	–
NaCl range (% w/v)	0.5–22	0–16	0.5–10	0.5–15
NaCl optimal (% w/v)	3–5	2–3	2–4	5
pH range	8.0–11.0	7.5–9.7	6.5–10.0	7.5–10.0
pH optimal	9.0	10.0	8.5	8.5–9.0
Temp range (°C)	20–45	10–45	4–30	4–40
Temp optimal (°C)	37	37	25	30
Anaerobic growth	–	+	+	+
Oxidase	+	+	+	–
H ₂ S production	+	–	–	–
Urease	+	–	–	–
Citrate utilization	–	–	–	–
Nitrate reduction	–	+	+	–
Voges–Proskauer test	+	–	–	–
Hydrolysis of				
DNA	–	–	–	–
Esculin	–	+	–	+
Tween 20	–	–	+	–
DNA G + C content (mol%)	42.4 ^a	38.9 ^a	37.4 ^a	38.8 ^b

Strains: 1. *S. aurantiacus* (Sultanpuram and Mothe, 2016); 2. *S. agaradhaerens* (Nielsen et al., 1995a); 3. *S. neizhouensis* (Chen et al., 2009); 4. *S. halalkaliphilus* (Amoozegar et al., 2018). +, positive; –, negative.

^aBased on genome analysis.

^bBased on HPLC analysis.

among *Salipaludibacillus* members is MK-7. The peptidoglycan of members of the genus *Salipaludibacillus* is based on *m*-DAP as the diagnostic diamino acid. The major polar lipids present among the species of the genus *Salipaludibacillus* are DPG, PG, and PE (Sultanpuram and Mothe, 2016; Nielsen et al., 1995a; Chen et al., 2009; Amoozegar et al., 2018).

Ecology

The four currently described species of the genus *Salipaludibacillus*, that is, *S. aurantiacus*, *S. agaradhaerens*, *S. neizhouensis*, and *S. halalkaliphilus*, were isolated from seasonal wetland, soil, bay, and marine wetland samples, respectively (Sultanpuram and Mothe, 2016; Nielsen et al., 1995a; Chen et al., 2009; Amoozegar et al., 2018).

Taxonomic comments

On the basis of 16S rRNA gene sequence phylogeny, the members of the genus *Salipaludibacillus* are closely related to alkaliphilic, haloalkaliphilic, or moderate halophilic members of the genus *Bacillus*. Of late, most of these strains have been reclassified as members of novel genera within the family *Bacillaceae*, some of which include *Alkalibacillus*, *Virgibacillus*, *Gracilibacillus*, *Pullulanibacillus* (Hatayama et al., 2006), *Anaerobacillus* (Zavarzina et al., 2009), *Alkalicoccus* (Zhao et al., 2017), and *Alteribacillus* (Didari et al., 2012). All the above related bacteria have different abilities to salt and pH tolerance, and can be differentiated from each other using 16S rRNA gene sequences (Figure 1).

Differentiation of the genus *Salipaludibacillus* from other genera

The phenotypic characteristics that distinguish the genus *Salipaludibacillus* from the other related members of the *Bacillaceae* family are listed in Table 2. The members of the genus *Salipaludibacillus* share common *Bacillus* and related *Bacillaceae* genera traits such as Gram-positive characteristic; endospore formation ability; MK-7 as predominant quinone; *m*-DAP as the diagnostic amino acid; anteiso-C_{15:0}, C_{16:0}, and iso-C_{15:0} as major fatty acids; and DNA G + C content of 37.4–42.4 mol%. However, there is a clear consensus that the genus *Bacillus sensu stricto* should be restricted to species that share a high 16S rRNA gene sequence similarities with the type strain, *Bacillus subtilis* (Didari et al., 2012); this does not fit in the case of the genus *Salipaludibacillus*, which can be clearly differentiated from the members of the genus *Bacillus* and other related *Bacillaceae* genera based on 16S rRNA gene sequence analysis. The type species of the genus *Salipaludibacillus* (*S. aurantiacus*) shares only 90.3% 16S rRNA gene sequence similarity with *Bacillus subtilis* subsp. *subtilis* DSM 10^T (type species of genus *Bacillus*). However, this value is lower than those obtained with respective species of the related *Bacillaceae* genera, such as *Salisediminibacterium* (93.4%), *Alteribacillus* (93.1%), *Virgibacillus* (92.2%), *Scopulibacillus* (92.0%), *Anaerobacillus* (91.7%), *Alkalibacillus* (91.7%), *Piscibacillus* (91.6%), *Pullulanibacillus* (91.5%), *Gracilibacillus* (91.4%), *Filobacillus* (91.1%), and *Lentibacillus* (90.8%).

Genome features

For the four described species of the genus *Salipaludibacillus*, genomes have been determined for *S. aurantiacus*, the

type species of the genus (Sultanpuram and Mothe, 2017), *S. agaradhaerens*, and *S. neizhouensis*. The *S. aurantiacus* draft genome revealed 44,35,185 bp genome size with 42.4 G + C mol%. The protein functions of 3,349 CDS were known, whereas 883 CDS protein functions were unknown. Further, it revealed 73 tRNA and 16 rRNA genes (Sultanpuram and Mothe, 2017). The *S. agaradhaerens* genome is 4.32 Mb in size with 38.9 G + C mol%. Around 3,816 predicted functional proteins were found in the *S. agaradhaerens* genome, which contained a total of 3,970 genes, along with 53 pseudo-gene sequences. In addition, 74 tRNA and 22 rRNA genes were revealed in the analysis of its genome. The genome of *S. neizhouensis* was 5.41 Mb in size with 37.4 G + C mol% content. The *S. neizhouensis* genome revealed 5,020 protein coding sequences of which 4,712 were of known or related functions and contained 63 tRNA and 26 rRNA genes.

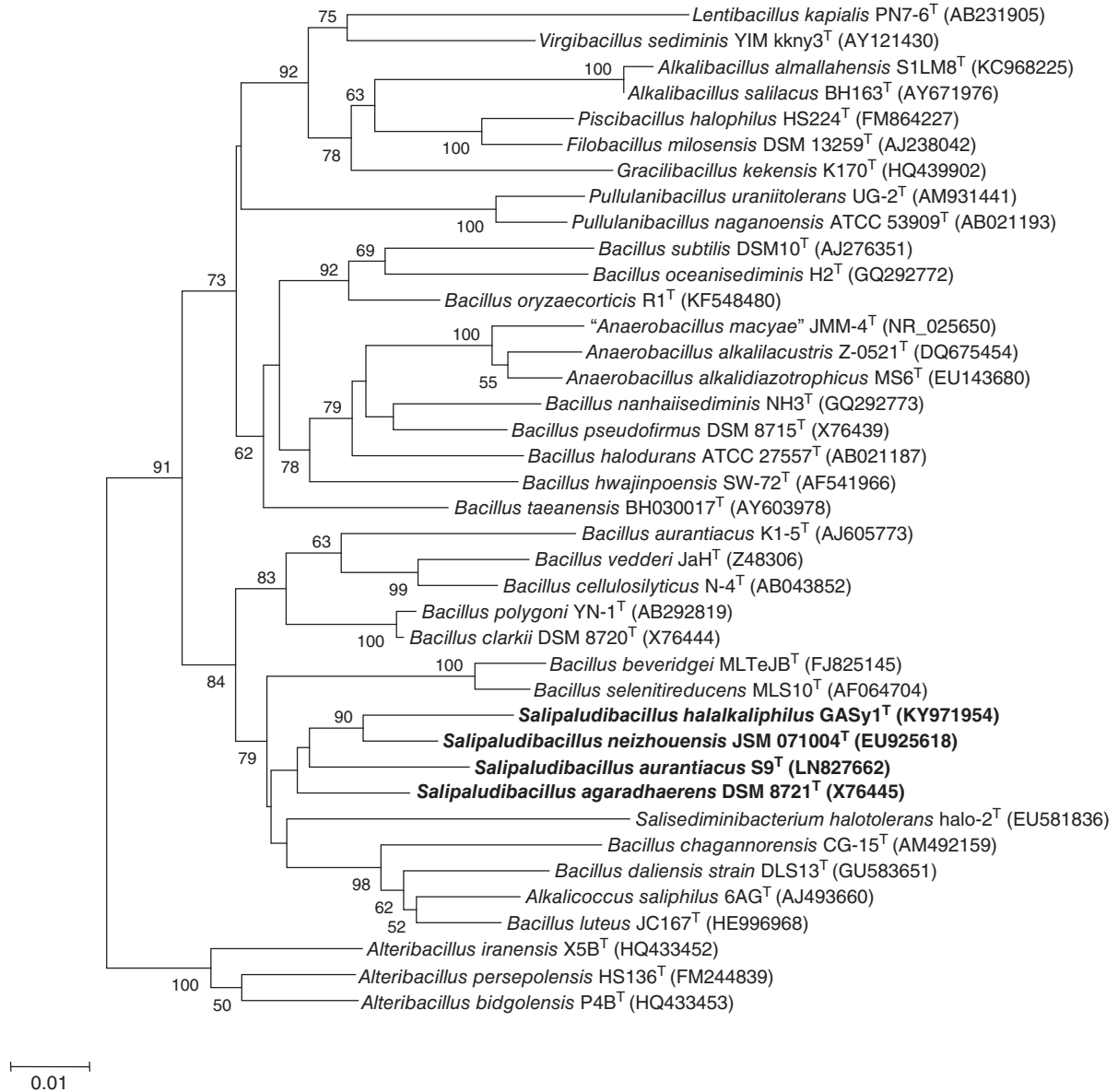
List of species of the genus *Salipaludibacillus*

Salipaludibacillus aurantiacus Sultanpuram and Mothe 2016, 2751^{VP}

.....
au.ran.ti.a'cus. N.L. masc. adj. *aurantiacus* orange colored, referring to the orange color of the colonies.

The cells are nonmotile, Gram-stain-positive rods, with 0.3–0.9- μ m diameter and 1.7–2.2- μ m length. They form subterminal endospores, which are ellipsoidal in shape in nonswollen sporangia. Mode of growth is strictly aerobic. Positive for catalase and oxidase activities. Fermentative growth is absent. Nitrate and nitrite reduction and gelatin liquefaction activities are absent. Good growth occurs after 48 h of incubation on alkaline nutrient agar at 37°C (range 20–45°C) and pH 9.0 (range 8.0–11.0). NaCl (0.5%) is essential for growth, with optimal growth at 3–5%. NaCl can be tolerated up to 22%. Hydrolysis of casein, tyrosine, cellulose, starch, esculin, hippurate, Tween 20, and DNA is negative, but, xanthine and hypoxanthine are hydrolyzed. Lipase activity is absent, but urease activity is reported. The production of indole from tryptophan, methyl red test, and citrate utilization test were negative, but production of H₂S and Voges–Proskauer test showed positive result. D-Maltose, D-raffinose, fructose, D-arabinose, melibiose, mannose, D-glucose, D-cellobiose, D-xylose, D-galactose, D-mannitol, and sucrose supported growth as sole carbon and energy sources, but they did not yield either gas or acid. Growth was not supported by inulin, inositol, D-trehalose, D-sorbitol, and salicin when used as a sole carbon source. Growth was variable when lactose and rhamnose were tested as sole carbon and energy source. The most suitable nitrogen sources were ammonium chloride and

FIGURE 1. Phylogenetic analysis of the genus *Salipaludibacillus* with other closely related members based on 16S rRNA gene sequences (accession numbers are given in parentheses). Distance calculations according to the Kimura two-parameter model and clustering with the neighbor-joining method were performed. Bootstrap values based on 1,000 replications are listed as percentages at the branching points. The outgroup is *Marinococcus halophilus* DSM 20408^T (X90835). Bar, 0.01 nucleotide substitutions per nucleotide position.



urea, but nitrate, nitrite, glutamate, and aspartate were not suitable as nitrogen sources for the strain. MK-7 with minor traces of MK-6 is the major isoprenoid quinone. *m*-DAP is the diagnostic diamino acid in the peptidoglycan. The major polar lipids present are DPG, PG, and PE. The major fatty acids are anteiso-C_{15:0}, C_{16:0}, and iso-C_{15:0}.

The type strain was isolated from Narayan Sarovar Lake, India.

DNA G + C content (mol%): 42.4 (genome analysis).

Type strain: S9, KCTC 33633, LMG 28644.

EMBL/GenBank accession number (16S rRNA gene): LN827662.

TABLE 2. Phenotypic characteristics differentiating the members of the genus *Salipaludibacillus* from the related genera belonging to the family *Bacillaceae*^a

	<i>Salipaludibacillus</i>	<i>Alkalicoccus</i>	<i>Bacillus</i>	<i>Salisediminibacterium</i>	<i>Ornithinibacillus</i>
Gram reaction	+	+	+/v/-	+	+
Cell shape	Rod	Coccus	Rod	Rod	Rod
Motility	-	-	+/-	+/-	+
Endospore formation	+	-	+	+/-	+
Endospore shape	E	NA	E/C/S	O/S	O
Oxygen requirement	A/FA	A	A/FA/SA	FA	SA
NaCl concentration for growth (% w/v)					
Range	0–22	1–24	0–20	1–30	0–17
Optimum	2–5	8–15	2–5	8–10	0.5–15
pH for growth					
Range	6.5–11.0	6.0–10.5	5.0–10.0	5.0–12.0	6.5–9.0
Optimum	8.5–10.0	7.5–9.0	7.0–9.5	8–10	7–8
Temperature for growth (°C)					
Range	4–45	5–50	10–60	10–50	10–55
Optimum	25–37	33–37	28–37	30–37	25–42
Catalase	+	+	+/-	+/-	+
Oxidase	+/-	+/-	+/-	-	+/-
Hydrolysis of:					
Esculin	+/-	-	+/-	-	+/-
Starch	-	+/-	+/-	+/-	+/-

NA, not applicable; ND, no data; A, aerobic; FA, facultative anaerobic; SA, strict anaerobic; E, ellipsoidal; C, cylindrical; S, spherical; O, oval; v, variable; +, positive; -, negative; +/- reaction is either positive or negative in the different species from the genera.

^aData from *Salipaludibacillus* (Sultanpuram and Mothe, 2016; Amoozegar et al., 2018); *Alkalicoccus* (Zhao et al., 2017); *Bacillus* (Logan and Vos, 2015); *Salisediminibacterium* (Jiang et al., 2012; Sultanpuram et al., 2015); and *Ornithinibacillus* (Mayr et al., 2006; Kämpfer et al., 2010; Bagheri et al., 2013; Wu et al., 2014; Gan et al., 2018).

EMBL/GenBank accession number (genome): FOGT0000 0000.1.

Salipaludibacillus agaradhaerens
Sultanpuram and Mothe 2016, 2752^{VP} (*Bacillus*
agaradhaerens Nielsen, Fritze and Priest 1995b, 879^{VP};
Effective publication: Nielsen, Fritze and Priest 1995a,
1758)

a.gar.ad.hae'rens. Malayan n. agar gelling polysaccharide from brown algae; L. part. adj. adhaerens adherent; N.L part. adj. *agaradhaerens* adhering to agar.

Colonies are white and rhizoid with a filamentous margin. Cells are rod shaped (0.5–0.6 × 2–5 μm) and produce ellipsoidal spores (0.6–1.0 × 1.0–1.6 μm) subterminally positioned within a sporangium, which is clearly swollen. Facultatively anaerobic mode of growth. Strains of this species are characterized by hydrolysis of Tweens 40 and 60, casein, gelatin, starch, cellulose, and xylan. Hippurate, 4-methylumbelliferyl-β-D-glucuronide (MUG), and Tween

20 are not hydrolyzed, and phenylalanine is not deaminated. Nitrate is reduced to nitrite. Strains of this species are strictly alkaliphilic: no growth is observed at pH 7.0, and optimal growth is observed at pH 10.0. Growth occurs within a temperature range of 10–45°C. Tolerance to 16% NaCl is observed. Carbohydrate utilization profiles show growth on L-arabinose, galactose, mannose, N-acetylglucosamine, and 2-ketogluconate and rich growth on tagatose, but no growth on methyl β-D-xyloside, inositol, or xylitol is observed. The major fatty acids (>5%) include anteiso-C_{15:0}, iso-C_{15:0}, anteiso-C_{17:0}, iso-C_{17:0}, and C_{16:0}. The major polar lipids include DPG, PG, PE, and a phospholipid (PL1). The major quinone is MK-7. The peptidoglycan cell wall contains *m*-DAP.

The type strain was isolated from soil sample.

DNA G + C content (mol %): 38.9 (genome analysis).

Type strain: PN-105, DSM 8721, ATCC 700163, CIP 105302, LMG 17948.

GenBank accession number (16S rRNA gene): X76445.

EMBL/GenBank accession number (genome): MTIU0000 0000.1.

Salipaludibacillus halalkatiphilus

Amoozegar, Shahinpei, Makzum, Rafieyan, Moshtaghi Nikou, Spröer and Ventosa 2018, 2218^{VP}

hal.al.ka.li'phi.lus. Gr. n. hals salt; N.L. n. alkali alkali; Gr. adj. philos loving; N.L. masc. adj. *halalkatiphilus* loving salty and alkaline environments.

Cells are Gram-stain-positive, endospore forming, non-motile, and single or short-chain rods, with $0.3\text{--}0.4 \times 1.2\text{--}1.9\ \mu\text{m}$ in size. The endospores are ellipsoidal in shape and located at central or subterminal positions in swollen sporangia. The colonies are cream pigmented, circular with entire margins, convex, smooth, and translucent. Facultatively anaerobic. Moderately halophilic and alkaliphilic. Growth occurs over a wide range of NaCl concentrations (0.5–15% w/v NaCl), temperature (4–40°C), and pH (7.5–10.0). Optimal growth is observed at 5% (w/v) NaCl, 30°C, and pH 8.5–9.0. Catalase activity is positive, but oxidase activity is negative. Nitrate, nitrite reduction, and H₂S production are absent. Indole is not produced from tryptophan. Methyl red and Voges–Proskauer tests are negative. Esculin hydrolysis is positive, whereas casein, DNA, gelatin, urea, starch, Tweens 20, 40, 60, and 80, and tyrosine hydrolysis are negative. Growth is not supported by D-glucose, D-fructose, D-arabinose, D-galactose, maltose, D-mannitol, D-sorbitol, sucrose, D-xylose, lactose, ribose, acetate, citrate, L-alanine, L-arginine, L-glycine, L-histidine, L-proline, L-methionine, and L-serine as sole sources of carbon and energy. Acid production is observed from D-glucose, D-fructose, D-mannose, maltose, and sucrose, but acid is not produced from D-galactose, D-mannitol, lactose, myo-inositol, cellobiose, D-ribose, raffinose, D-rhamnose, or D-sorbitol. The major polar lipids are DPG, PG, PE, and two unidentified phospholipids. The major fatty acids include anteiso-C_{15:0}, C_{16:0}, and iso-C_{15:0}.

The type strain was isolated from Gomishan wetland, Iran.

DNA G + C content (mol%): 38.8 (HPLC).

Type strain: GASy1, IBRCM 10902, LMG 28385.

GenBank accession number (16S rRNA gene): KY971954.

Salipaludibacillus neizhouensis

Sultanpuram and Mothe 2016, 2752^{VP} (*Bacillus neizhouensis* Chen, Zhang, Wang, Liu, Klenk, Xiao, Tang, Cui and Li 2009, 3037^{VP})

nei.zhou.en'sis. N.L. masc. adj. *neizhouensis* pertaining to Neizhou Bay, from which the sample that yielded the type strain was collected.

Cells are Gram-stain-positive, nonmotile, catalase- and oxidase-positive, facultatively anaerobic, straight rods, approximately 0.5–0.6- μm wide and 3.0–5.0- μm long,

occurring singly, as pairs, or as short chains, producing ellipsoidal endospores that lie in subterminal swollen sporangia. Colonies are pale-yellow pigmented, low convex and translucent with circular/slightly irregular margins, and 1–2 mm in diameter after incubation for 3–5 days at 25°C on marine agar 2216 (Difco). Slightly halophilic and facultatively alkaliphilic; growth occurs with 0.5–10% (w/v) total salts (optimum 2–4%) and at pH 6.5–10.0 (optimum pH 8.5). Growth occurs at 4–30°C, with an optimum of 25°C. Nitrate is reduced, but nitrite is not. Negative for tests of methyl red, Voges–Proskauer, H₂S, and indole production. Tween 20 and gelatin are hydrolyzed, but casein, esculin, cellulose, DNA, starch, Tweens 40, 60, and 80, and urea are not. Acids are produced from D-fructose, D-glucose, maltose, sucrose, and trehalose, but not from adonitol, L-arabinose, cellobiose, dulcitol, D-galactose, glycerol, myo-inositol, lactose, D-mannitol, D-mannose, melezitose, melibiose, raffinose, L-rhamnose, D-ribose, D-salicin, starch, D-sorbitol, or D-xylose. The following compounds are utilized as sole sources of carbon and energy or sole sources of carbon, nitrogen, and energy: D-glucose, maltose, trehalose, and L-leucine; the following substances are not utilized: L-arabinose, cellobiose, dextrin, D-fructose, D-galactose, D-lactose, D-mannose, melezitose, melibiose, raffinose, L-rhamnose, D-ribose, D-salicin, sucrose, D-xylose, adonitol, D-arabitol, glycerol, myo-inositol, D-mannitol, D-sorbitol, acetate, butyrate, citrate, gluconate, propionate, succinate, L-alanine, L-arginine, L-asparagine, L-glutamic acid, glycine, L-histidine, hydroxy-L-proline, L-isoleucine, L-methionine, L-proline, L-serine, and L-valine. Constitutive enzymes expressed are alkaline phosphatase, β -glucosidase, β -glucuronidase, leucine arylamidase, and naphthol-AS-BI-phosphohydrolase; acid phosphatase, α -chymotrypsin, cystine arylamidase, α -fucosidase, α -galactosidase, β -galactosidase, N-acetyl- β -glucosaminidase, α -glucosidase, esterase (C4), esterase lipase (C8), lipase (C14), α -mannosidase, trypsin, and valine arylamidase are not observed. m-DAP is present in the cell-wall peptidoglycan as the diagnostic diamino acid. Possesses MK-7 as the predominant menaquinone and DPG, PG, and PE as polar lipids. The major fatty acids are anteiso-C_{15:0} and iso-C_{15:0}.

Isolated from homogenates of a sea anemone collected from Neizhou Bay in the South China Sea.

DNA G + C content (mol%): 37.4 (genome analysis).

Type strain: JSM 071004, CCTCC AB 207161, DSM 19794, KCTC 13187.


GenBank accession number (16S rRNA gene): EU925618.
EMBL/GenBank accession number (genome): NJAW0000
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Editor

Dr. Ravi Aluvala



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Dr. Srinivas Reddy Lokasani

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TOURISM PRODUCTS AND OPERATIONS IN INDIA

EDITOR

Dr. Maram Venkat Ramana Reddy

M.B.A., M.Phil. Ph.D.

Assistant Professor

Dept. of Management Studies

University College of Commerce & Business Management

MAHATMA GANDHI UNIVERSITY

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ABSTRACT:

The qualitative and quantitative characteristics of the supply of accommodation have a direct influence on the overall success and development of tourist destinations. Therefore, in order to ensure that the supply of accommodation contributes effectively to tourism development plans and objectives, it is logical that the development of the accommodation sector should be a fundamental element of the overall destination planning process. However, such an integrated approach to resort planning and management has rarely been adopted throughout the Mediterranean region. Based upon the experience of Cyprus, it is demonstrated that the failure to plan and control the accommodation sector has meant that the official policies for tourism development have not been achieved. In particular, the quality, quantity and coastal concentration of accommodation on the island have resulted in the transformation of Cyprus into a mass-market, summer sun destination. Moreover, the island is highly dependent on certain markets and, in particular, upon overseas tour operators. The paper concludes, therefore, that not only should the development of accommodation be integrated into the overall tourism planning process, but also that effective mechanisms for the implementation of accommodation development policies should exist in order to avoid or redress the challenges currently facing the Cypriot tourism industry.

KEYWORDS

- **Accommodation sector; Tourism planning; Tourism development; Tourism in Cyprus**

INTRODUCTION

Tourism is one of the most dynamically developing sectors in the world economy and the largest global industry. The growth of Tourism causes important impacts worldwide and locally which are both positive and negative.

Accommodation is one of the basic needs for any tourism activity. Travelers and tourists need lodging for rest, while they are on a tour. Accommodation in the form of low budget lodges/hotels to world class luxury hotels is available at all the major tourist destinations to provide the tourist a home away from home. These are establishments that provide a place for the tourist to stay i.e. lodging facilities which are paid for the duration of the stay by the tourist. There are various types of accommodation which are being used by tourists regularly. Travel agents and tour operators generally include one of the following types of accommodation in the itinerary

There are many direct and indirect Tourism service providers such as accommodation companies, Transportation operations/operators. Tour operators, Travel agents, entertainment company's eateries and caterers, they are described as major suppliers Tourism services. There are "5" A's which represents the core of the Tourist facilities, amenities, and services at the Destination.

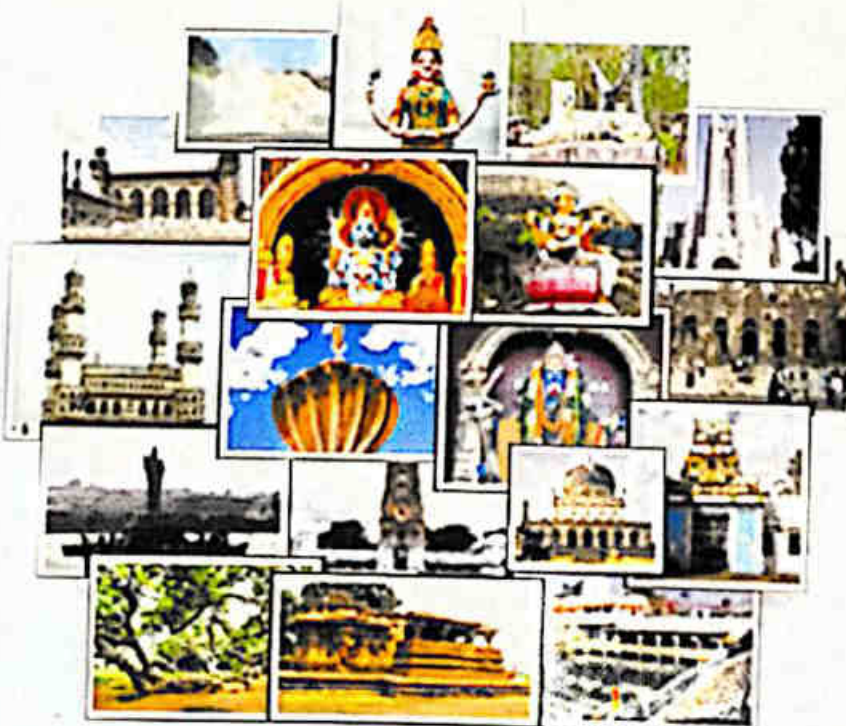
ABOUT THE EDITOR

Dr. Maram Venkat Ramana Reddy

Dr. Maram Venkat Ramana Reddy is presently working as an Assistant Professor, Department of Management Studies, Mahatma Gandhi University, Nalgonda, Telangana State, teaching Post-Graduates Courses. He has 20 years of teaching and 4 years of Industrial experience. He worked as an Assistant Centre Manager, ICSS Pvt. Ltd., Hyderabad for 2 years and as Marketing Executive in Origin Electronics and Communications, a Chennai based Company for 2 years. He joined as a Lecturer at O.U. P.G. Colleges, Mahaboob Nagar, Nalgonda.



Osmania University. Later he Continued since it's inception with Mahatma Gandhi University in the year 2007-08. He Completed his MBA(Marketing) from Sambalpur University, Orissa; M. Phil., from Alagappa University, Tamil Nadu; and Ph.D. from Department of Business Management, Osmania University. He has participated and presented in 5 International Conferences and 20 National Conferences. He is also a Resource Person at District Training Centre (DTC). Nalgonda District, Telangana State. He Worked as a Public Relations Officer, MGU and Co-Ordinator, MBA(Tourism and Travel Management), Mahatma Gandhi University, Nalgonda. At Present he is Holding the Positions of Vice-Principal, University College of Commerce & Business Management and Director, Hostels & Messes Mahatma Gandhi University. He is specialized in the areas of Marketing, Tourism and Quantitatives.



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Multicast Symmetric Secret Key Management Scheme in Mobile Ad-hoc Networks

M. Sandhya Rani¹(✉), R. Rekha², and K. V. N. Sunitha³

¹ Bhoj Reddy Engineering College for Women, Hyderabad, Telangana, India
sandhya_medi@yahoo.com

² University College of Engineering and Technology,
MGU, Nalgonda, Telangana, India
rrekhareddy@yahoo.com

³ BVRIT Engineering College, JNTU, Hyderabad, Telangana, India
k.v.n.sunitha@gmail.com

Abstract. Security is very important in Mobile Ad hoc Networks due to its characteristics like dynamic topology, limited battery power, open wireless medium etc. The security of MANETs in multicast transmission is yet more interesting area of research because many users form a group for transmission and reception of data in the exposed networks. There are many factors that affect the security in MANETS like battery power, storage, key dynamics, kind of traffic, routing algorithm, security protocol etc. Existing security solutions doesn't leverage the key management issues in group communication. In our work, we developed a symmetric shared multicast key agreement protocol-“Multicast Symmetric Secret Key Management Scheme” (MC-SSKMS) for group oriented communication in MANETs. We compared the results of our proposed protocol with the two contemporary protocols using Key Delivery Ratio (KDR), Delay in key Broadcast, Energy consumption metrics.

Keywords: MANET · Secret group key · Encryption · Decryption · Symmetric key

1 Introduction

Mobile Ad hoc Networks are one type of wireless networks that operate multi-hop radio transmission without any permanent infrastructure. Because of the unique characteristics of MANETS, like dynamic topology, radio links, scarcity of resources, without any central coordination etc., they are extremely susceptible to security attacks than wired and cellular wireless networks [1]. Secrecy is the most important issues of MANETS to thwart against attacks. Multicast communication plays an important role in MANETS to provide group oriented communication like military applications, search-and-rescue, and war fare situations. Secure Group Key in multicasting is required to leverage the group communication issues in MANETS. Creation of shared and secure cluster key means many users need to calculate a shared key to exchange information in a secure manner.

There are several group key management protocols for wired networks, infrastructure networks and as well as for MANETS. All these protocols are grouped into three types: (i) Centralized Group Key Management Schemes (ii) Decentralized Group Key Management Schemes (iii) Distributed Group Key Management Schemes. Distributed key Management protocols have no single point of failure, low message overhead and less computational complexity in rekeying than Centralized and Decentralized group key management protocols [2]. Rekeying means, when a user enters or leaves the cluster, a new Shared Secret Group Key is to be produced. Distributed Group Key Agreement protocols for multicast communication are classified in two categories: (1) Symmetric GKA (2) Asymmetric GKA. We proposed a symmetric GKA protocol-“Multicast Symmetric Secret Key Management Scheme” (MC-SSKMS) in MANETS and discussed the performance analysis using Key Delivery Ratio (KDR), Delay in key Transmission, Energy consumption metrics.

The remaining part of the paper is organized as follows: Sect. 2 describes related work, Sect. 3 presents Methodology of proposed protocol, Sect. 4 presents Simulation Environment and Parameters, Sect. 5 shows the Results and Sect. 6 shows the conclusion.

2 Related Work

Multicasting is an effective group communication method to transport multicast data from one source to a group of users. This communication mechanism uses IGMP (Internet Group Management Protocol) [3] which allows a group of people to join and access the data freely. This open group participation of user communication by IGMP leads to snooping of data. Group key management has been introduced to overcome this kind of threats. Secret Group key is a shared key that is distributed to every multicast user to transmit the data. This key is used by sender for encrypting data and group members to decrypt the data. The requirement for secure group communication is forward and backward security, 1 affects n solution etc. [4]. Forward security guarantees that the current content is not accessible when a user leaves the group. Backward security guarantees that new user cannot access data which is communicated before his join process.

Chang and Kuo [5] developed a trust model based on Markov Chain to thwart against attacks. A Hierarchical security model through a decentralized multicast key management scheme in wireless ad hoc networks is described in Huang and Medhi [6]. In this approach, message overhead in key transmission is reduced and solves 1 affects n problem. In Bouassida and Bouali [7], authors demonstrated the performance assessment metrics for multicast-Group key management protocols (GKMP). They focused on four basic group key protocols – “Group Key Management Protocol for Ad hoc Networks (GKMPAN)”, “Distributed Multicast Group Security Architecture (DMGSA)”, “BALADE”, and “Hierarchical group key management protocol (Hi-GDH)”. GKMPAN is a centralized approach which enhances scalability and security of ad hoc networks. DMGSA protocol belongs to Distributed key management schemes, in which rekeying process is performed periodically. BALADE protocol and Hi-GDH

are the Decentralized schemes. The authors have assessed the Key delivery ratio, Delay and Energy consumption, and Packet loss for the above mentioned protocols with varying group size.

In SEGK model [8], authors developed a mechanism to guarantee the forward and backward secrecy in which recalculating of secret gathered key is done very often. In this model, Tree Links and Periodic flooding of control messages are the two techniques used to find the malicious nodes. The first one is used when the node mobility is not important and the latter used in frequent changes in topology. B. Madhusudhan et al. [9] developed a method called “Mobility Based Key Management (MBKM)” for multicast communication in MANETS. In this method authors proposed that Group/cluster head periodically performs the rekeying process. By that the multicast group ensures Forward Secrecy and Backward Secrecy.

3 Methodology of Multicast Symmetric Secret Key Management Scheme (MC-SSKMS)

In Multicast Symmetric Secret Key Management Scheme, Symmetric Secret Group Key is used for encrypting the data in multicast communication. And the same Secret Group Key is used for decrypting the coded data by the group members. This Scheme involves of eight major steps:

- (1) Mobile node deployment
- (2) Grouping of ad hoc network
- (3) Cluster head selection based on node id
- (4) Symmetric-key based Secret-Group-key Agreement
- (5) Multi-cast route estimation using AODV
- (6) Encryption by AES
- (7) Successfully receiving the data and decryption process.

After deploying the Mobile nodes, the members who wish to communicate form a multicast group. Cluster/Group head is selected based on node id. (The node with small id). Then the heart of our proposed protocol, Symmetric-key based Secret-Group-key Agreement, is implemented. In this step, each user runs two methods-Pseudorandom number generator and Symmetric Group Key Calculation. As our proposed protocol is implemented in distributed environment, each user contributes its share to prepare a Secret Group Key.

- (i) Pseudorandom number generator: This method produces output as a sequence of random numbers for each node by taking input as a seed.
- (ii) Symmetric Group Key Calculation: All the cluster nodes first apply the hash on this random number using SHA, and then the resulting message digest is sent to all other nodes of the group along with their id. Each node concatenates the message digest values of all users in increasing order of the user-ids and applies a hash function on the resultant string [10] using Eq. (1).

$$SGK = F(MD1, MD2, MD3 \dots MDn) \tag{1}$$

where MD_i is the Message Digest value, F is a Secure Hash function.

During group communication, Multicast version of AODV routing protocol is used to construct a route between sender and all other members. In this routing protocol, similar to traditional AODV, the path is determined based on route request and route reply messages. Source uses Advanced Encryption Standard (AES) as the encryption algorithm to encode the multicast data with 128 bit key size. All the members in the group decrypt the encoded data with AES decryption algorithm. The Overall block diagram of the “Multicast Symmetric Secret Key Management Scheme” through step by step procedure is shown in Fig. 1.

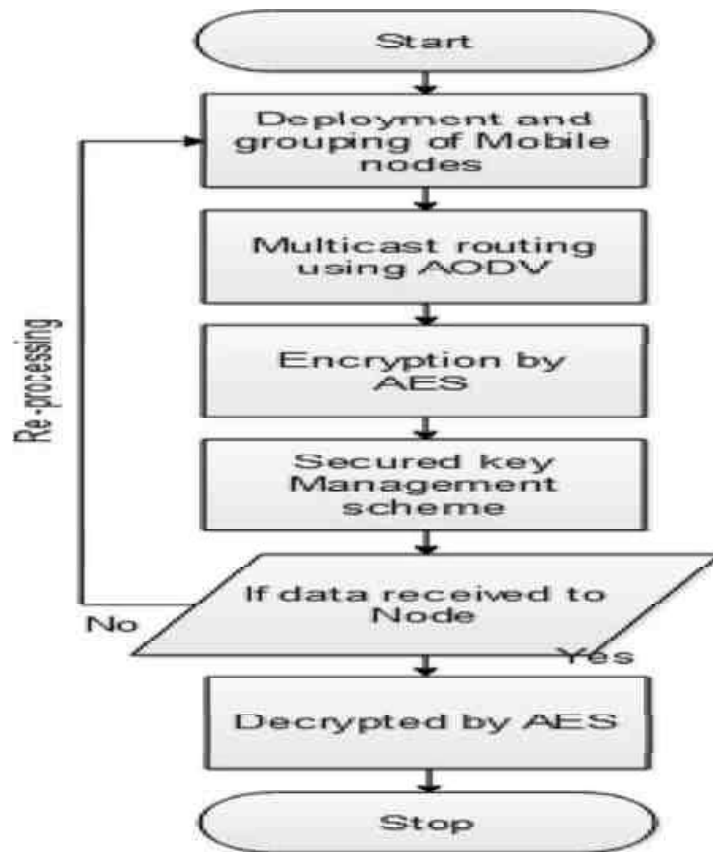


Fig. 1. Flow graph of Multicast Symmetric Secret Key Management System (MC-SSKMS)

4 Simulation Environment

We have done the experiments through NS2 Simulator. NS2 is an open source event driven network simulator to model and analyze the wired and wireless network traffic. We have chosen a Linux operating System i.e. UBUNTU 12.10, as Linux provides a numerous text processing scripts that can be used to analyze the packet transmission in NS2. We used Tcl (Tool Command Language) code which is as part of NS2 for implementing our work. We used CBR as traffic type for packet transmission and 1000×1000 transmission ranges for simulation. Tcl code generates two files namely NAM (Network Animator) and Trace files with different parameters as input. NS2 is used to model different kind of mobility models like Random Way Point model, Grid model etc. Our proposed protocol traffic is visually shown in NAM trace file. Awk programming is used to record the data values by taking trace file (.tr) as input. We have taken these recorded values and generated the graphs for our proposed method.

4.1 Simulation Parameters

We have considered the parameters (from Table 1), in our simulations to record values for the required performance metrics.

Table 1. Simulation parameters for implementing MC-SSKMS

Parameters	Value
Operating System	UBUNTU 12.10
Simulator Tool	NS-2(Version 2.35)
Mobility Model	Random Way Point Model
Routing protocol	Multicast AODV
Traffic type	CBR
Simulation Duration	50 ms
Max. Speed	20 ms
Transmission Range	1000×1000 m
Packet Size	512 bytes
Number of Nodes	20, 40, 60, 80, 100

4.2 Performance Metrics

We have taken three simulation metrics to assess the performance of symmetric group key agreement protocols.

- (1) **KDR (Key Delivery Ratio):** It is defined as Number of received keys divided by the product of the Number of transmitted keys and the number of Receivers using Eq. (2). It allows evaluating the consistency rate of the proposed protocol in terms of keys broadcast to the cluster members.

$$\text{KDR} = [\text{Received keys Number} / (\text{Sent keys Number} * \text{Receivers Number})] * 100 \quad (2)$$

- (2) **Delay in Key transmission:** The average delay of keys transmission (D) from the sender to the receivers is the time taken to transmit the group key to all the group members. To guarantee an effective harmonization between the encryption and decryption of data in group communication, this delay should be reduced.
- (3) **Energy consumption:** The Energy consumption (E) is described as the number of energy units required for delivering the keys to group members in multicast communication during the simulation.

5 Results

We have done the performance assessment of our proposed protocol with two existing protocols. First, we had shown the comparison of Key Delivery Ratio of MC-SSKMS with “Distributed Multicast Group Security Architecture (DMGSA)” and “Mobility based Key Management (MBKM)” protocols. The recorded values through NS2 simulations are shown in Table 2 and corresponding graphs are depicted in Fig. 2. It graphically visualized that our protocol has better Key Delivery ratio than other two specified protocols. Then we compared Delay of our proposed protocol with “Distributed Multicast Group Security Architecture (DMGSA)” and “Mobility based Key Management (MBKM)” protocols. The recorded values through simulations are shown in Table 3 and corresponding graphs are depicted in Fig. 3. It graphically showed that our protocol has less Delay than other two specified protocols.

Table 2. Results obtained for key delivery ratio with varying number of nodes observed from MC-SSKMS and other two contemporary methods

QoS	Key delivery ratio				
Nodes	20	40	60	80	100
DMGSA	80.9	89.87	84.9	83.34	83.9
MBKM	89.78	91.67	94.43	87.98	85.34
MC-SSKMS	92.85	94.61	96.74	92.7	89.91

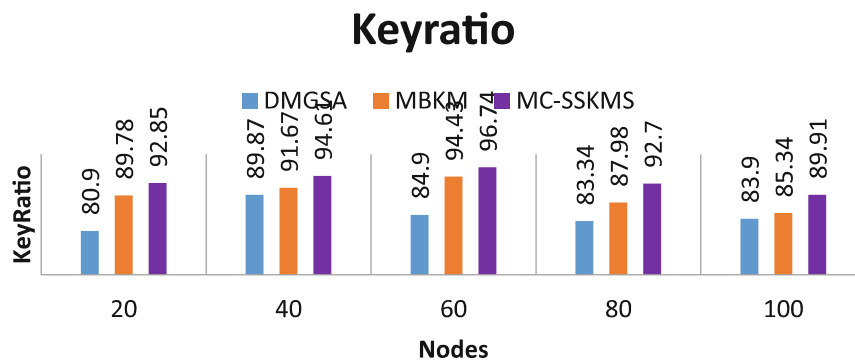


Fig. 2. Graphical representation of key delivery ratio for DMGSA, MBKM and MC-SSKMS

Table 3. Results obtained for delay with varying number of nodes observed from MC-SSKMS and other two contemporary methods

QoS	Delay				
Nodes	20	40	60	80	100
DMGSA	1.76545	3.34976	3.65748	4.56768	4.76896
MBKM	1.656479	3.106972	3.532987	4.324796	4.523796
MC-SSKMS	1.312789	2.245609	2.689076	3.107033	3.888776

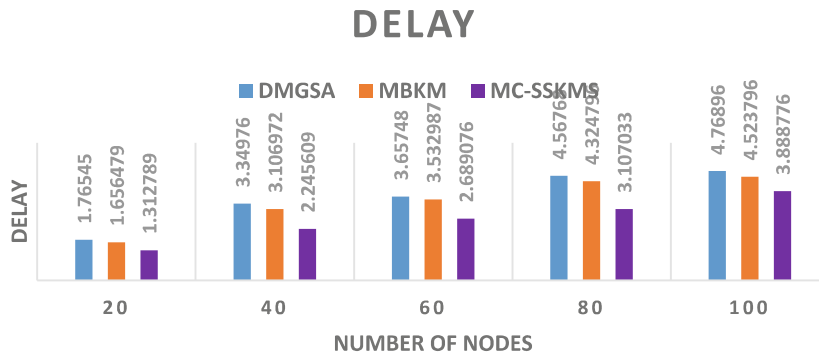


Fig. 3. Graphical representation of delay for DMGSA, MBKM and MC-SSKMS

Table 4. Results obtained for energy consumption with varying number of nodes observed from MC-SSKMS and other two contemporary methods

QoS	Energy consumption				
Nodes	20	40	60	80	100
DMGSA	23.7654	21.3245	21.1233	21.1034	21.3456
MBKM	24.24113	22.43122	22.21732	22.17674	22.56745
MC-SSKMS	24.17114	22.16345	21.94356	22.06782	22.34789

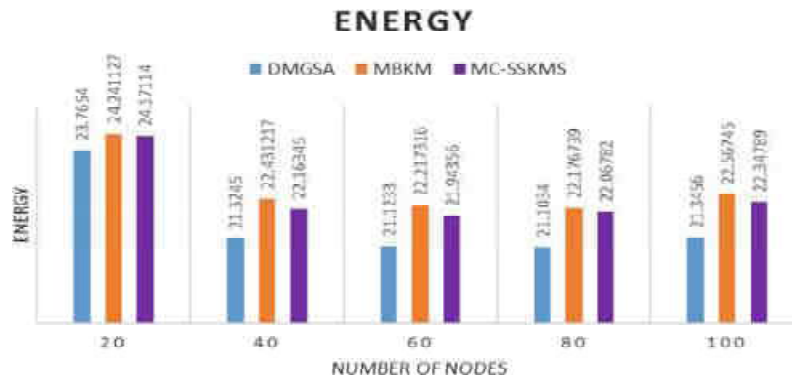


Fig. 4. Graphical representation of energy consumption for DMGSA, MBKM and MC-SSKMS

We compared Energy Consumption of our proposed protocol with “Distributed Multicast Group Security Architecture (DMGSA)” and “Mobility based Key Management (MBKM) protocols”. The recorded values through simulations are shown in Table 4 and corresponding graphs are depicted in Fig. 4. It graphically showed that our protocol optimized Energy Consumption than other two specified protocols.

6 Conclusions

We proposed a Symmetric Secret Key Management Protocol for multicast communication in MANETS. Compare to asymmetric key management schemes, symmetric key management schemes involves less computation. We used distributive environment, in which each user involves and gives its secret to calculate the shared Secret Group Key. AES-128 is used for Encryption and Decryption. Our proposed protocol provides security requirements like rekeying, forward secrecy and backward secrecy. Our MC-SSKMS protocol obtains better Key Delivery Ratio, less Delay and less Energy Consumption than DMGSA and MBKM methods with varying number of nodes. Due to dynamic rekeying process and efficient encryption algorithm, our approach gives less overhead and more security. We can extend our work to provide results for AES-192 and AES-256. And we can also compare the results with other dimensions like varying speed and traffic type.

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Secure Group Key Exchange and Encryption Mechanism in MANETs



M. Sandhya Rani, R. Rekha and K. V. N. Sunitha

Abstract Security in wireless ad hoc networks is one of the most important areas of research. Mobile ad hoc networks (MANETs) are more susceptible to attacks due to the dynamic topology, shared wireless medium, and no centralized authority. Key management is a basic issue in MANETs to provide security against attacks. Our paper proposed a secure key management and a secure encryption mechanism for group communication. Each node in the group needs to maintain public/private key pair and group key for communication. In this paper, B-Tree structure is used for rekeying operations to prepare a new group key during the network dynamics. This approach reduces the communication overhead in the distribution of group key. The proposed Symmetric Key Encryption is simple and effective in terms of computation cost. Simulation results are shown using NS2.

Keywords MANET • Group key • Encryption • Symmetric key

1 Introduction

A mobile ad hoc network (MANET) is a set of self-organizing nodes that communicate with each other using a multi-hop wireless network. In an ad hoc wireless network, each node is capable of transmitting and receiving packets and acting as a router. These are infrastructure-less networks and mostly used in battlefields,

M. Sandhya Rani (✉)

Bhoj Reddy Engineering College for Women, Hyderabad, Telangana, India
e-mail: sandhya_medi@yahoo.com

R. Rekha

University College of Engineering & Technology, MGU, Nalgonda, Telangana, India
e-mail: rrekhareddy@yahoo.com

K. V. N. Sunitha

BVRIT Engineering College, JNTU, Hyderabad, Telangana, India
e-mail: k.v.n.sunitha@gmail.com

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disaster areas, and unplanned meetings. As the wireless channels are openly available and propagate through the air, security in ad hoc networks is of primary concern [1].

The security of MANETs in group communication is even more demanding area of research because multiple parties communicate with each other in open networks. And the factors affecting security are group size, member (node) characteristics (power, storage, availability), membership dynamics, membership control, a number and type of senders, volume and type of traffic, routing algorithm and security algorithm used [2]. Group key establishment means that the multiple parties want to create a common key to be used to exchange information securely. When compared to centralized group key management protocols, distributed key agreement protocols have no single point of failure and are less expensive in terms of communication and computational cost during the rekeying process [3].

In this paper, we propose a distributed key agreement protocol in which each member contributes their share to generate a group key. Whenever a node joins or leaves from the group, a new group key is calculated and it is distributed only to the affected nodes in the tree structure. We used B-Tree structure for generation, distribution, and rekeying of group key. The remaining part of the paper is organized as follows: Sect. 2 presents Secure Group key Generation and Rekeying. Section 3 presents Secure Group Communication, and Sect. 4 presents Simulation Results followed by the conclusion section.

2 Secure Group Key Generation and Rekeying

2.1 Group Key Generation and Distribution Algorithm

This Group Key Generation and Distribution Algorithm run by each user in the group. It consists of two phases:

- (a) **Initialization:** In this phase, the nodes whoever wish to participate in group communication broadcast their id along with “hello” message. The node which sends the smallest id becomes the group leader. The Group Head broadcasts the message “I am Group leader” to know its members. The members reply with the message “I am a member” and in this way the group is formed in the network.
- (b) **Group Key Agreement:** In this phase, each user implements three steps:
 - Step1: Each group member M_i , $i \in [1, n]$, $i \neq GL$, generates a random number using pseudorandom function. This function takes input as a seed and generates a sequence of random numbers for each user.
 - Step2: All the group members send the hash of this random number along with their id to all other members of the group.

Step3: The members of the group generate the group key in a distributive manner. Each member concatenates the hash values of the received members in the ascending order of the ids and implements a one-way hash function on the concatenated string. This is used as the group key for group communication.

$GK = f(HR_1, HR_2, HR_3, \dots, HR_n)$ where HR_i is the hash of random value, f is the one-way function, and hash is the secure hash function such as MD5 [4].

2.2 Structure of Nodes for Implementation of Rekeying

Whenever a new member joins the group or leaves the group, a new group key has to be calculated. This process is called rekeying. Due to dynamic behavior of MANET nodes, rekeying requires more number of calculations and messages for preparing group key by all nodes. To reduce the number of rekeying messages, we used B-Tree structure for deploying MANET nodes.

In this structure, each leaf node maintains Key Encryption key (KEK) for rekeying and group key for communication. The root node consists of Tree Encryption key (TEK), and all other intermediate nodes have KEK. The key server needs to store $2n - 1$ keys, and each member needs to store $\log_2 n + 1$ keys. The key server shares the keys with each member on the path from its leaf to the root [5, 6]. Using this structure, when a node joins or leaves the group, key updating has to be done only in that path from the leaf to its root. Later, a new group key is calculated by key server and distributed to all the members within the group by encrypting it with each member's public key.

3 Secure Group Communication

There are two scenarios for group communication:

3.1 Communication Among All Nodes

When a group member needs to communicate with all other nodes in the group, it simply encrypts the data with the group key using Symmetric Key Encryption algorithm. This algorithm takes data and the group key as inputs and produces ciphertext as output. This ciphertext is decrypted by all other nodes using the group key. Symmetric Key Decryption algorithm takes ciphertext and the group key as inputs and produces the original data as output. The flow diagram of this process is shown in Fig. 1. And block diagram for Symmetric Key Encryption algorithm is shown in Fig. 3.

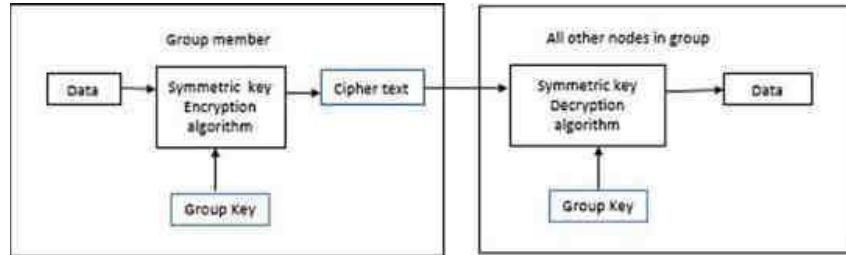


Fig. 1 Flow diagram of communication among all nodes

$$S \rightarrow E[\text{Data}, \text{GK}], \quad M_i, i \in (1, n) \rightarrow D[\text{Cipher}, \text{GK}]$$

where S is sender, GK is the group key, E is symmetric encryption, D is symmetric decryption, and M_i is a group member.

3.2 Communication Between Nodes

When a member wishes to communicate with another member within the group, it encrypts the data with the shared key using Symmetric Key Encryption algorithm. This algorithm produces ciphertext as output. For providing more security, the shared key should be encrypted with the public key of the recipient. The receiver decrypts the shared key with the private key of its own. That is, we used RSA Asymmetric Key Encryption/Decryption algorithm for key exchange [7–9]. Then using Symmetric Key Decryption algorithm, ciphertext is converted into original data. The flow diagram of this process is shown in Fig. 2. And block diagram for Symmetric Key Encryption algorithm is shown in Fig. 3.

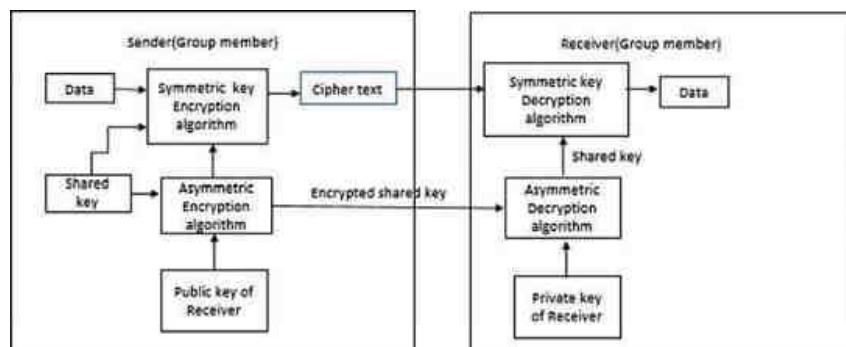


Fig. 2 Flow diagram of communication between nodes

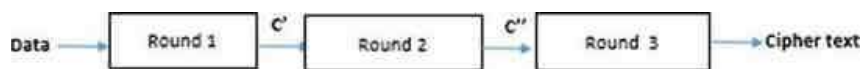


Fig. 3 Block diagram of Symmetric Key Encryption algorithm

$$S \rightarrow E [SK, PU_R], E [Data, SK], R \rightarrow D [SK, PR_R], D [Cipher, SK]$$

3.3 Secure Symmetric Key Encryption Algorithm

For the above two scenarios, Symmetric Key Encryption algorithm is required. We proposed an effective and simple Symmetric Key Encryption algorithm which uses simple and inexpensive operations. The block diagram of this algorithm is shown in Fig. 3. Our Secure Symmetric Key Encryption algorithm implemented with 3 rounds.

Round 1: Input is plaintext and output is C' . It is implemented by substitution function followed by transposition of bits.

Round 2: Input is C' and output is C'' . This functionality includes XOR bits with symmetric key.

Round 3: Input is C'' and output is ciphertext. It consists of the same functionality as Round 1 to reuse the substitution and transposition data. The receivers can decrypt the ciphertext using Symmetric Key Decryption algorithm which consists of the reverse operations of Fig. 3.

4 Simulation Results

In order to show the simulations of our proposed protocol, we used Network Simulator version 2 (NS-2.35) tool. The simulation environment settings used in the experiment are as follows: The transmission range is taken as $500 \text{ m} \times 500 \text{ m}$ with a maximum of 50 nodes. The routing protocol is AODV and the traffic type is CBR. The following diagrams show the NAM simulations by executing NS2 code [10].

Figure 4 gives the deployment of nodes after the key server calculates the new group key and distributed in the network.

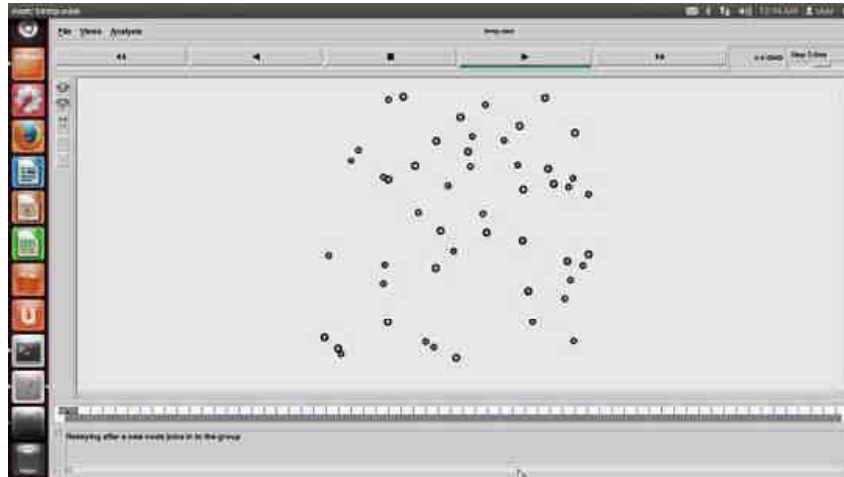


Fig. 4 Rekeying after a new node joins the group

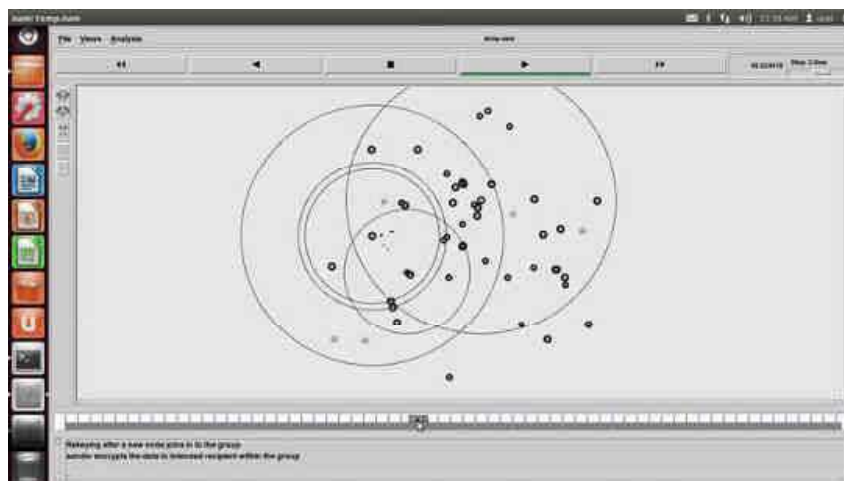


Fig. 5 One node to another node secure communication within the same group

Figure 5 shows the sender encrypting the data and reaching the intended recipient. The receiver then decrypts the ciphertext to obtain the original data.

Figure 6 indicates that if the number of nodes increases, the number of encryptions/decryptions of group key will be increased; i.e., secure communication operations will be increased.



Fig. 6 Secure communication operations graph

5 Conclusion

The proposed group key generation and distribution technique allows each user to contribute individually their share to prepare the group key. We proposed a simple Symmetric Encryption algorithm that provides less computational cost. Finally, we say that even though there is less communication and computation overhead in our approach, it is effective only when a group size is small. As the number of nodes increases in the group, more number of encryptions are required, and thus communication cost will be increased. Further work is to concentrate on decreasing the cost even in the case of large group size.

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ABOUT THE AUTHOR



DR. REDAMALA ROOPA IS AN ASSISTANT PROFESSOR IN ORGANIC CHEMISTRY IN MAHATMA GANDHI UNIVERSITY, NALGONDA, TELANGANA. SHE COMPLETED HER M.Sc. IN ORGANIC CHEMISTRY AND PH.D. IN CHEMISTRY FROM DEPARTMENT OF CHEMISTRY, OSMANIA UNIVERSITY, HYDERABAD. SHE HAS 28 YEARS OF EXPERIENCE IN TEACHING DEGREE AND P.G. COLLEGES. SHE HAS 20 YEARS OF RESEARCH EXPERIENCE. SHE HAS GOOD PUBLICATIONS IN VARIOUS PEER REVIEWED NATIONAL AND INTERNATIONAL JOURNALS.

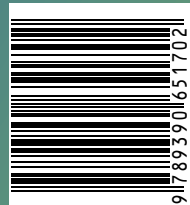
HETEROCYCLIC CHEMISTRY (A HANDBOOK FOR M.Sc STUDENTS)

DR. REDAMALA ROOPA


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Publication

Office No.1, Krishnasagar Society,
Nr. Shriyagar sharda Mandir Road,
Ahmedabad-380007

✉ mahibookpublication@gmail.com
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PREFACE

Heterocyclics have wide applications in day to day life and so heterocyclic chemistry dominates the daily life. It provides the majority of pharmaceuticals, cosmetics, agrochemicals, dyes, agents for all forms of reproductivity, as well as additives of many kinds. Some of the heterocyclic compounds occur naturally and most of the heterocyclic compounds were made synthetically. Some of the heterocyclic compounds are the basic units of the living systems. Today, the Heterocyclic chemistry has extended its domain to every discipline of organic chemistry. The importance and extent of the subject matter of heterocyclic chemistry continues to grow such that it is a clearly the largest subdivision of organic chemistry. It plays a crucial role in biochemistry-increasingly so in medicinal and manifest other areas of chemistry as applied to subjects as diverse as construction and agriculture. Recently, rapid growth of particularly the new reaction chemistry is brought by the utilization of characteristic properties of various hetero atoms that are involved in heterocycles. An enormous amount of research work is being carried out and reported continuously in the literature regarding the synthesis of heterocyclic compounds. Heterocycles play an important vital role in the most bioactive molecules due to their bioactivity. The introduction of biosynthetic and combinatorial synthetic protocols, particularly in agrochemical and pharmaceutical industry, is bound to give rise to a further explosive increase in the number of biologically and theoretically exciting heterocyclic molecules.

Heterocycles generally find useful applications essentially in medicines, pharmacy, agriculture and related fields. Number of known heterocyclic compounds, with heteroatoms well beyond nitrogen, sulphur and oxygen, are exploding exponentially with the advent of combinatorial chemistry. Heterocycles are demonstrating extraordinary versatility and utility in the field of organic synthesis as chiral auxiliaries, latent functionalities, chelating agents, protecting groups and synthetic scaffolds. The importance of heterocyclic rings forming a part of the biological systems has been demonstrated by specific examples.

The book is designed as a complete and comprehensive textbook for graduate and postgraduate level students. This book is expected to be useful for students of all streams, organic chemistry, inorganic chemistry, physical chemistry, pharmaceutical chemistry, bio-organic chemistry, bio-inorganic chemistry, environmental chemistry and medicinal chemistry. All the chapters of the book have been extensively studied for the clarity and accuracy.

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I wish to render our grateful thanks to the Shri. Arvind Kumar, I.A.S., Hon'ble Vice-Chancellor, Mahatma Gandhi University, Nalgonda for constant encouragement, kind blessings in taking up the book work.

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I wish to express my immense sense of gratitude to Prof. K.C. Rajanna, O.U. and Prof. D. Ashok, O.U., Hyderabad for their encouragement, support and blessings.

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I wish to thank the Dr. P.Prashanthi, HOD, Dept. of Chemistry & Pharma.Sciences and Dr. M.Vasantha, Chairperson, BOS, Dept. of Chemistry & Pharma.Sciences for their encouragement and support.

I wish to thank my colleagues and friends for their encouragement, cooperation and support.

It is not appropriate if I do not mention the whole hearted cooperation rendered by my family members to complete this book.

I express our sincere thanks to our publisher for bringing out this book promptly.

I would be indebted to the readers of this book for sending their suggestions, comments and criticism towards further improvement. I highly appreciate their efforts.

Dr. R. Roopa
Dept. of Chemistry & Pharma. Sciences
Mahatma Gandhi University
Nalgonda

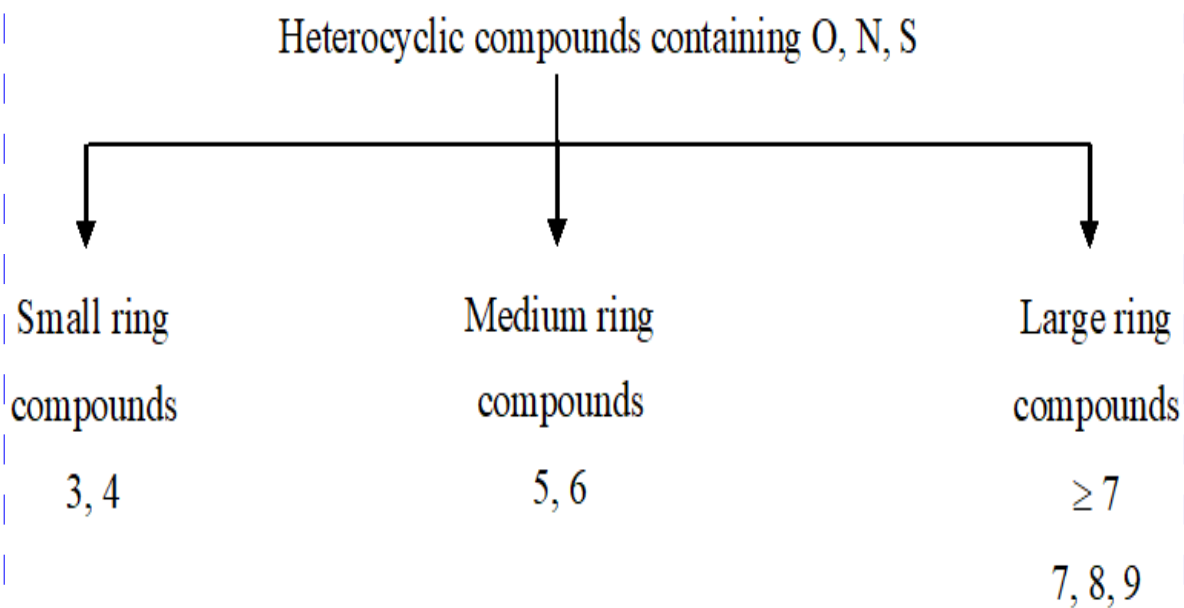
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1

INTRODUCTION

Cyclic compounds in which the ring is made up of only carbon atoms only are called as carbocyclic ring. Carbocyclic ring containing at least one or more than one different atom are called as heterocyclic compounds. The ring itself called as heterocycle. Heterocyclic compounds are classified as follows.

**NOMENCLATURE**

The type of heteroatom is indicated by a prefix according to indicates the preferred order of prefixes (principle of decreasing priority).

Prefixes to indicate the hetero atoms:

Element	Prefix	Element	Prefix
O	Oxa	Bi	Bisma
S	Thia	Si	Sila
Se	Selena	Ge	Germa
Te	Tellura	Sn	Stanna
P	Phospha	B	Bora
As	Arsa	Hg	Mercura

Ring Size:

The ring size is indicated by a suffix according to latin numerals, namely ir from tri, et from tetra, ep from hepta, oc from octa, on from nona, ec from deca.

Stems to indicate the ring size of heterocycles:

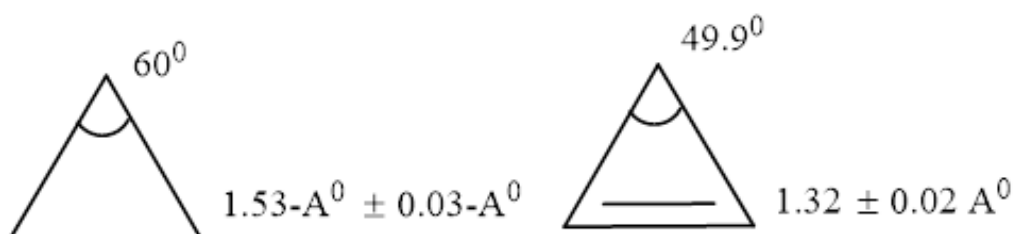
Ring Size	Unsaturated	Saturated
3	irine	irane
4	etidine	etidane
5	olepine	olane
6	inane	ane
7	epine	epane
8	ocine	ocane
9	onine	onane
10	ecine	ecane

The stem irine may be used for rings containing only N. The traditional stems 'irine', 'etidine' are preferred for N-containing rings and are used for saturated heteromonocycles having three, four or five members, respectively.

2

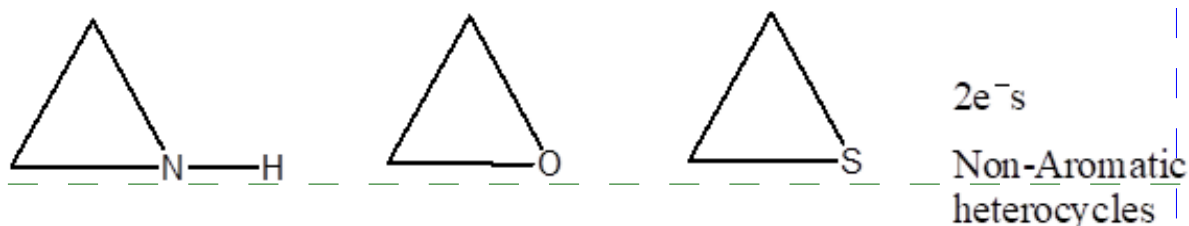
THREE MEMBER NONAROMATIC HETEROCYCLES

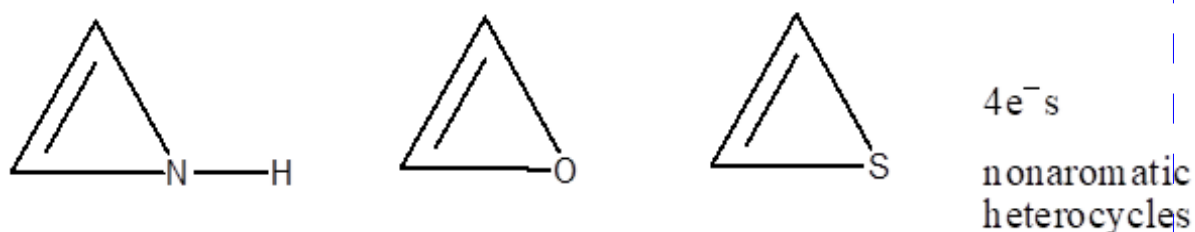
All the three member rings have one major property in common—a strained ring that confers great strain on compounds in comparison with their open chain analogues. This strain is reflected in the compression of the normal bond angles & by shortening of bond lengths from normal. The presence of a double bond in the ring increases the strain & the molecular dimensions from cyclopropane and cyclopropene are as follows.



The three member rings containing a N, O or S atom as the hetero atom are called as aziridine, oxirane and thirane respectively. While the bonds between the three hetero atoms & the carbon atoms are longer than the corresponding bonds in an unstrained molecule, the C-C bonds are all very similar in length but are substantially shorter than cyclopropane. The lone pair of the heteroatom causes the electron-electron repulsions which affect the bond angle severely & strain increases.

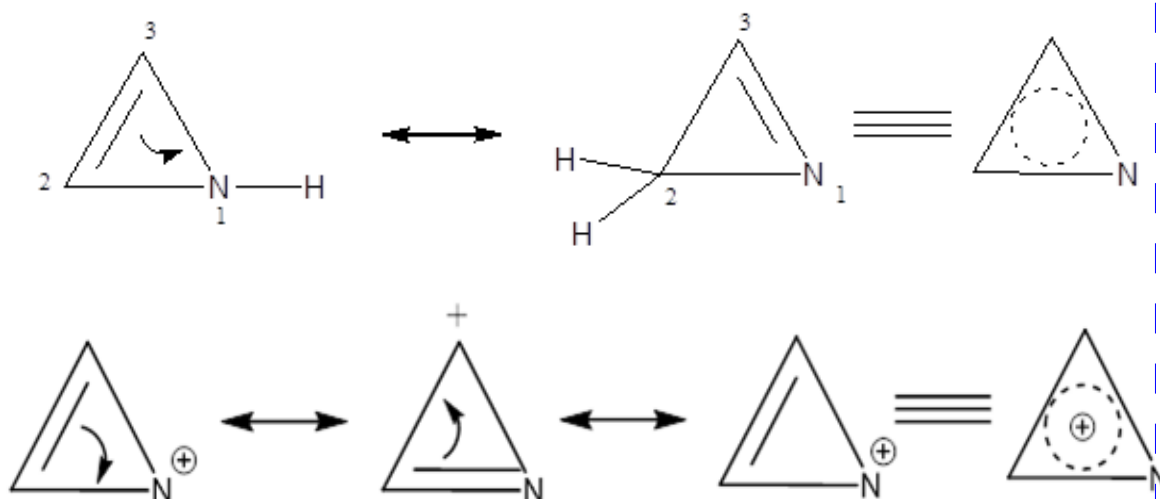
The reactivity of these molecules is more due to strained ring system & easily attackable by normal reagents. The synthesis of this highly strained heterocycles can be easily achieved by applying the strain energy.





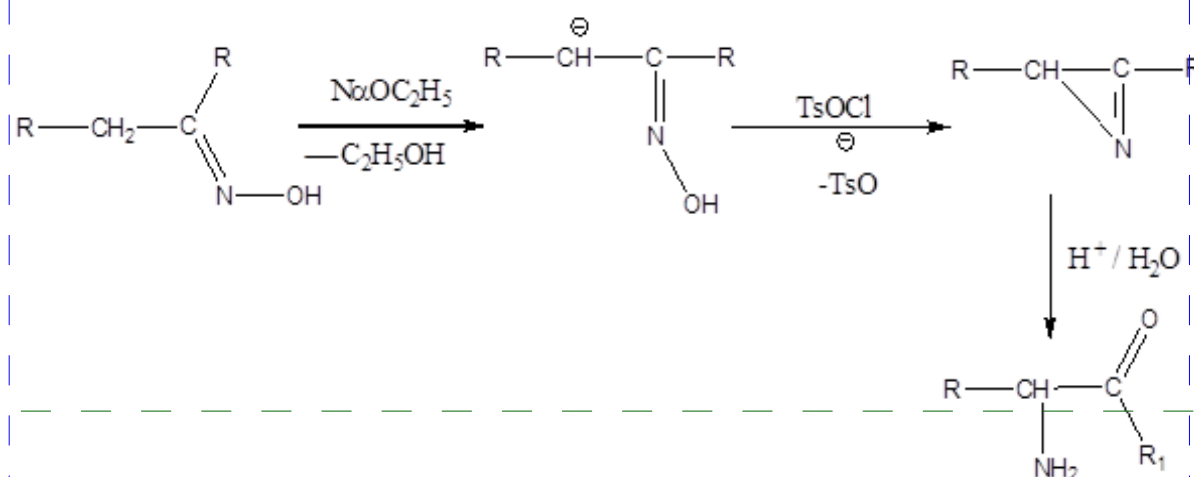
Azirine:

Azirines are generally smelling compounds and highly irritant to skin. The instability of azirines is not only due to the larger bond angle strain inherent in an unsaturated three member ring but also due to the overlap of the Nitrogen lone-pair electrons with the C-C double bond, a situation which gives rise to a destabilizing anti aromatic $4n\pi$ electron system. So, 1-azirine is more stable than 2-azirine.

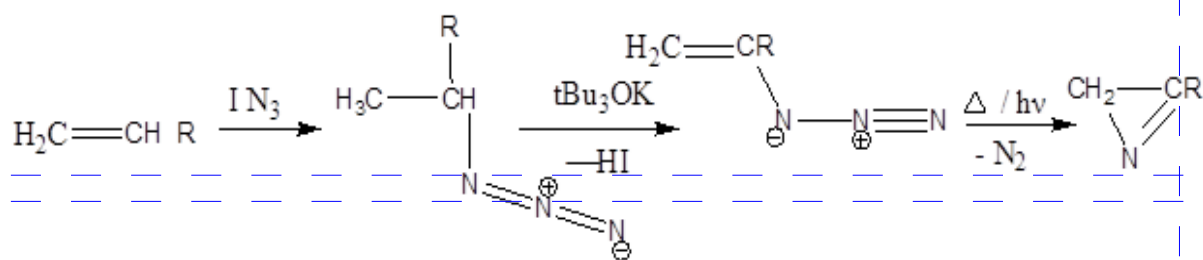


Azirine synthesis:

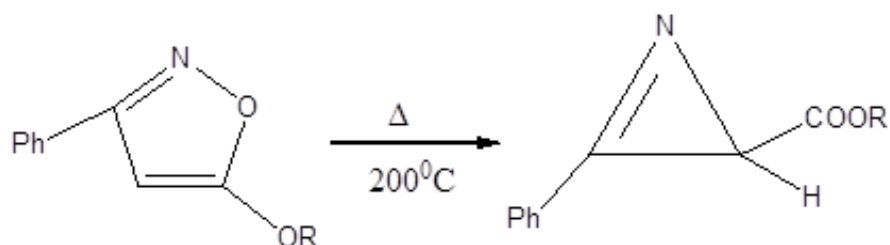
1. Neber Rearrangement: Neber proposed 1-azirine as an intermediate in the base catalysed rearrangement of oxime using paratoluenesulfonyl derivative to α -amino ketone.



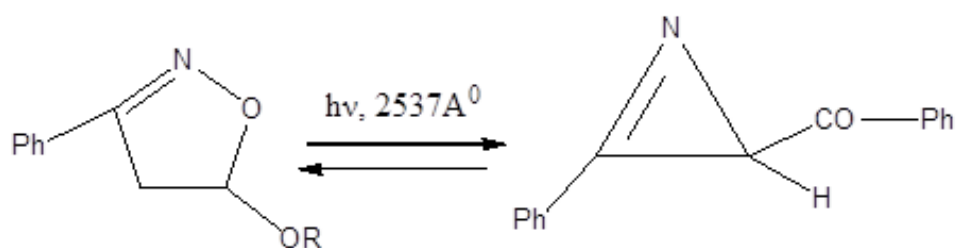
2. From vinyl Azides: The first general synthesis of 1-azirine was developed by Sonollinsky, the vapour phase pyrolysis of vinyl azide. Vinylazides prepared by the addition of a iodine azide to an alkene.



3. From photolysis or pyrolysis of isoxazoles: Nishiwaki observed that pyrolysis of 5-alkoxy substituted isoxazoles resulted in the formation of isoable 1-azirines.

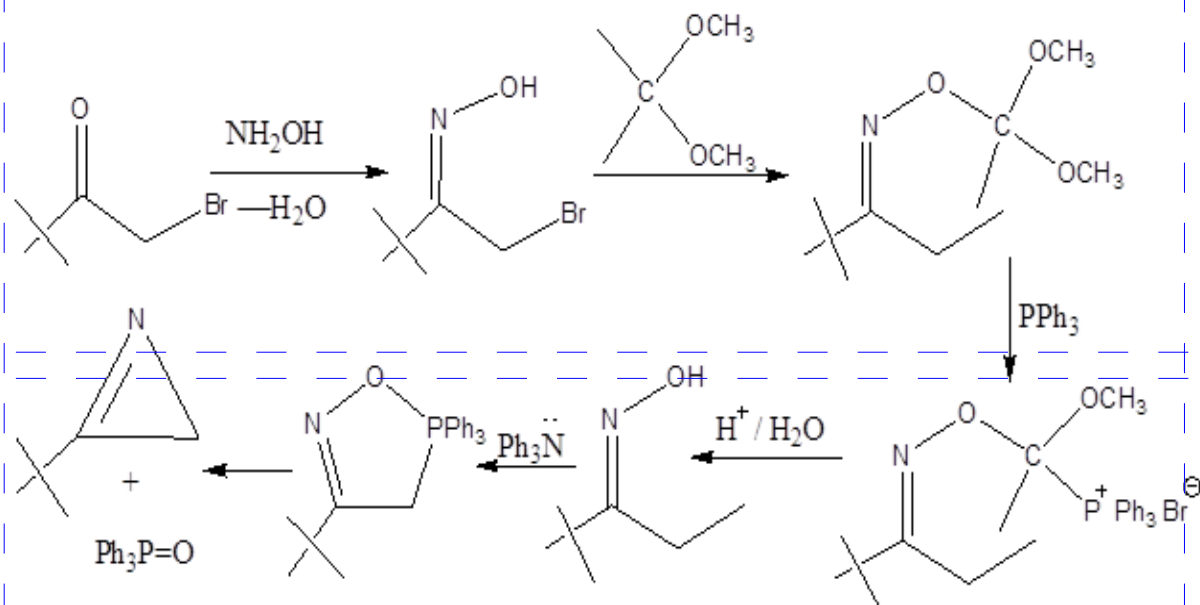


The photolysis of 3,5-diphenylisoxazole produces 2-phenyl-3-benzoylazirine.



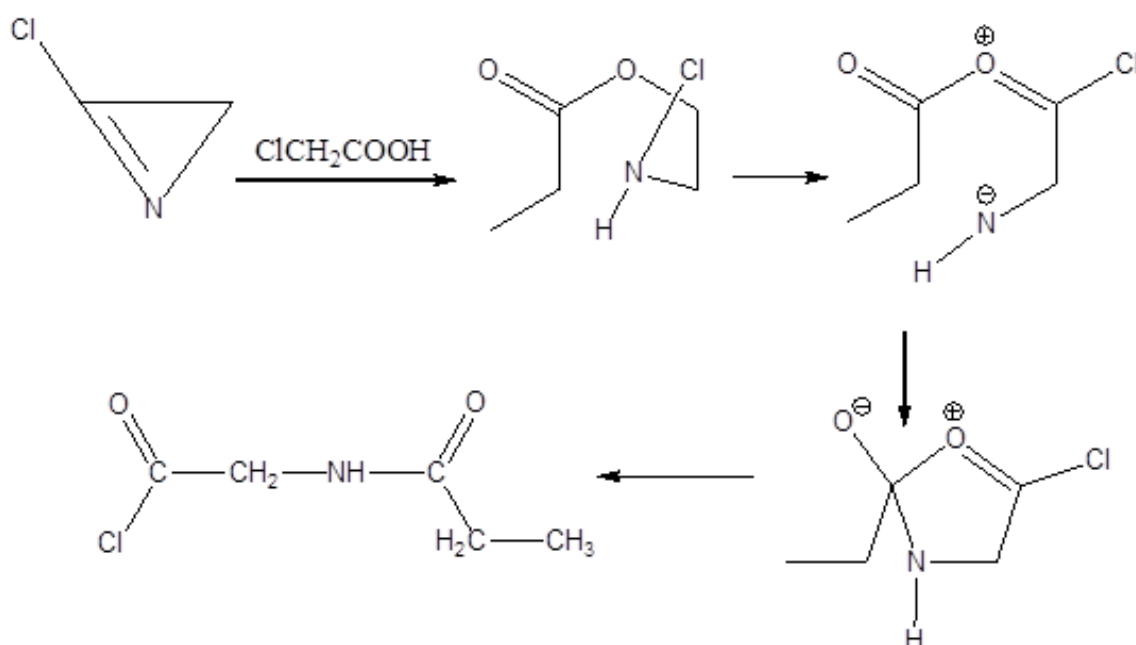
4. From α -bromoketoximes: Hassner reported the preparation of 1-azirine using α -bromoketoximes, The reaction sequence is shown using α -bromo picoline, the hydroxyl group of the α -bromoketoxime is first protected with a ketal followed by treatment with triphenylphosphine to form ylide.

This is then deprotected to regenerate the phosphonide salt. The salt is converted to oxazo phospholine, which is thermolysed to α -tertiary butyl azirine.

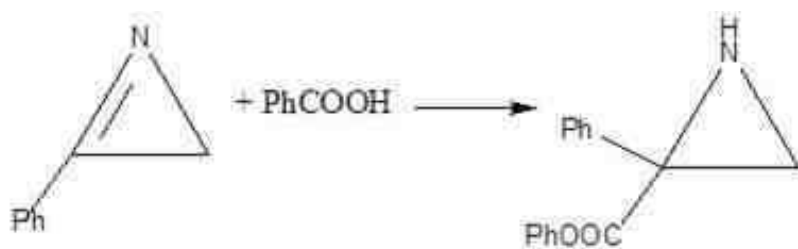


Chemical properties:

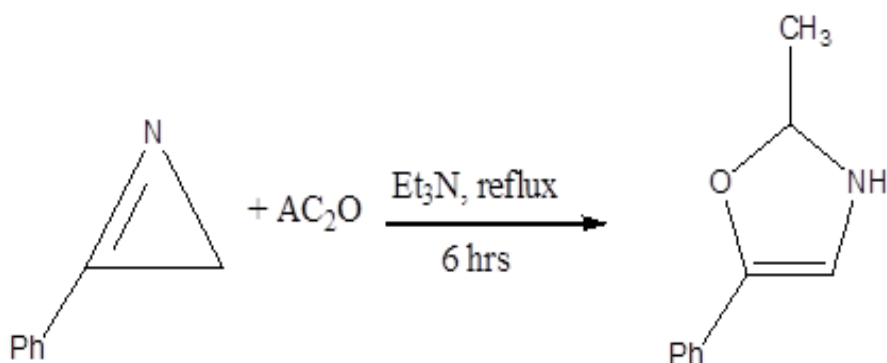
1. Reaction with acids: As nitrogen atom is located in the most strained system, therefore azirine is very mild basic in nature. Azirines are non basic. Protonation of 1-azirine followed by ring opening takes place in strong acid solutions. The reaction with chloroacetic acid opens the ring which subsequently undergoes rearrangement to give the product.



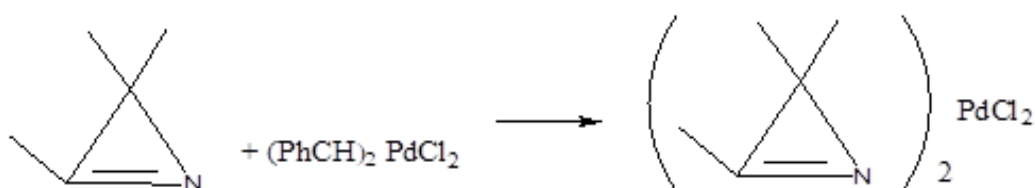
Reaction of 2-phenyl-1-azirine with benzoic acid gives product.



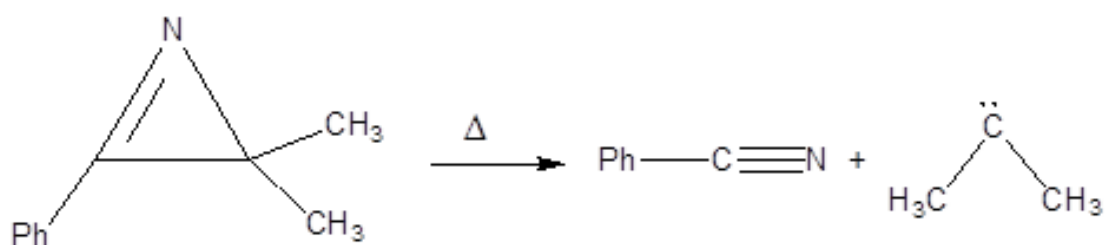
The reaction of 2-phenyl-1-azirine with acid chloride or acid anhydrides in the presence of trimethylamine gives the oxazole.



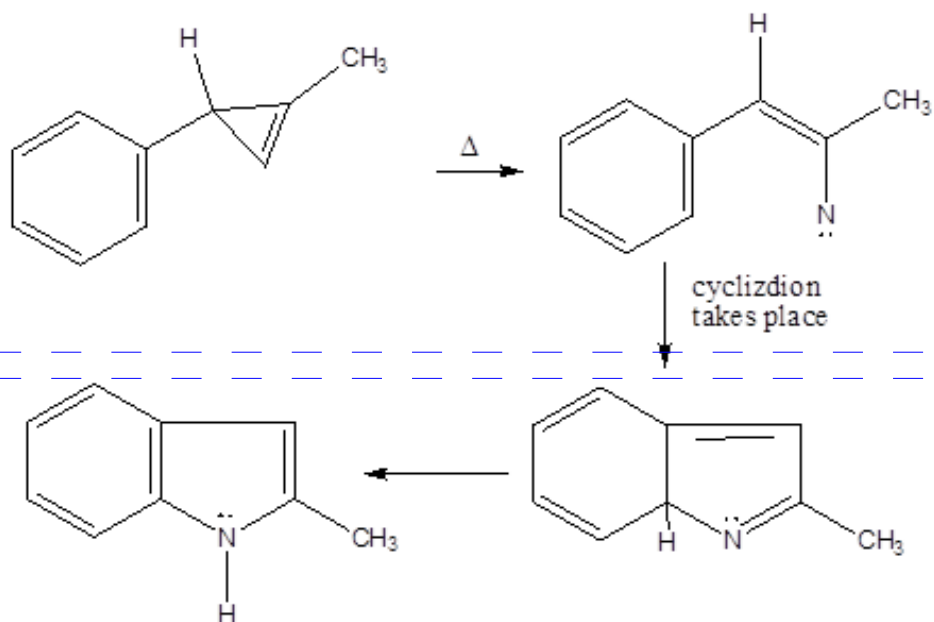
2. Formation of complexes: 1-azirines forms stable complexes with dichlorobis(benzonitrile) Palladium(II).



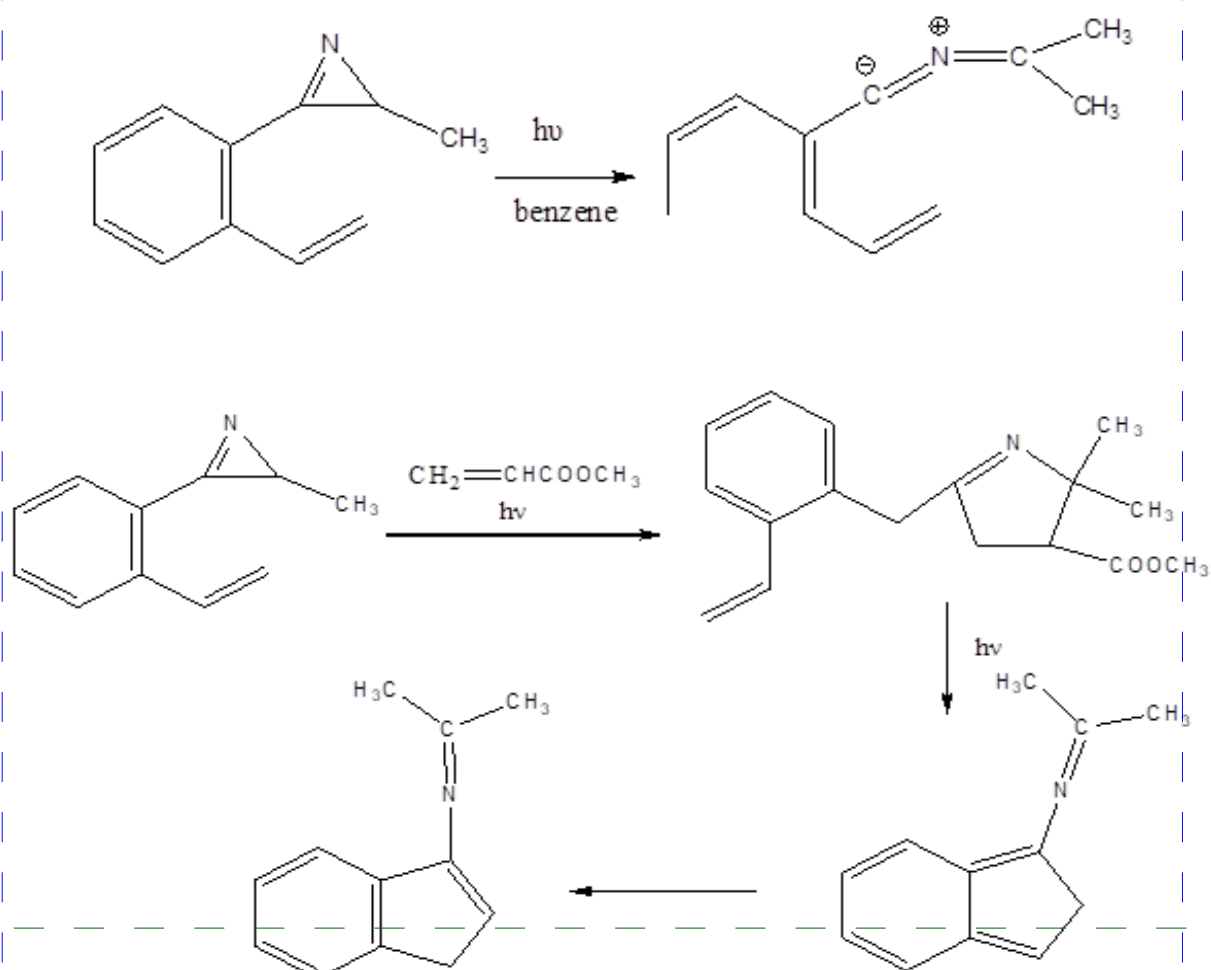
3. Ring opening Reactions:
a. Thermolysis:



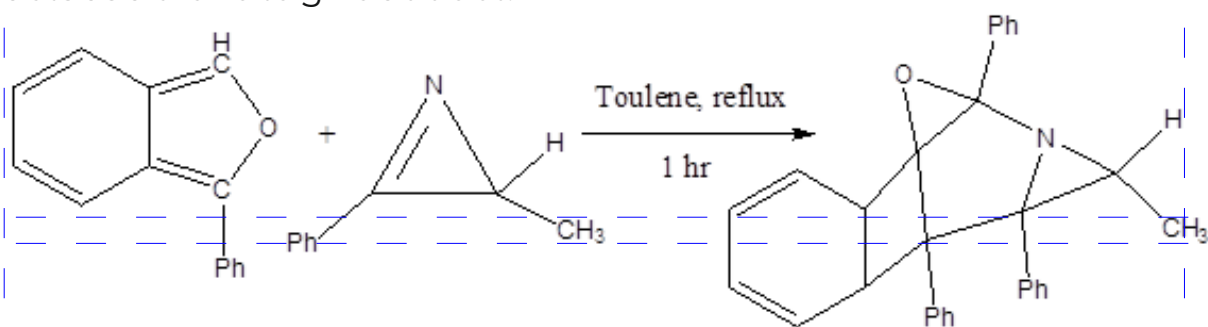
Conversion of azirines to indole:



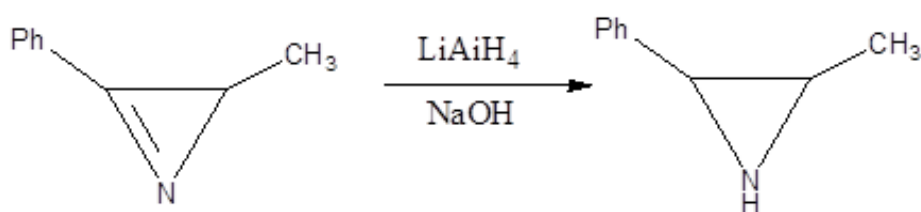
b. Photolysis: The photochemical mode of ring opening involves a carbon-carbon bond cleavage in which intermediate molecule gives the three products undergoing a cyclization, cycloaddition and intramolecular ring closure reactions to give products.



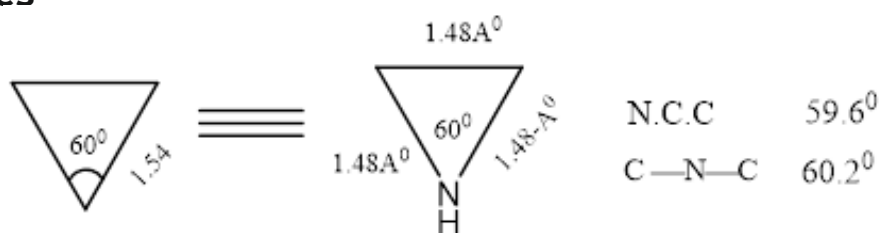
4. The Diels-Alder Reaction: In the diels alder cycloaddition reaction azirine acts as a dienophile where as the 1,3 diphenyl isobenzofuron acts as a diene to give adduct.



5. Reduction: A number of azirines have been reduced by lithium aluminium hydride to aziridines.

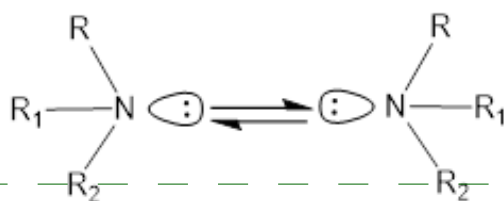


Aziridines

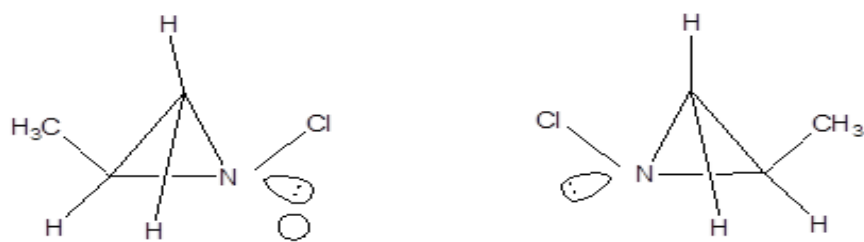


The bond angles & bond lengths of aziridine are deviated from the normal cyclopropane molecule, hence the stability of the aziridine is less stable than the cyclopropane molecule.

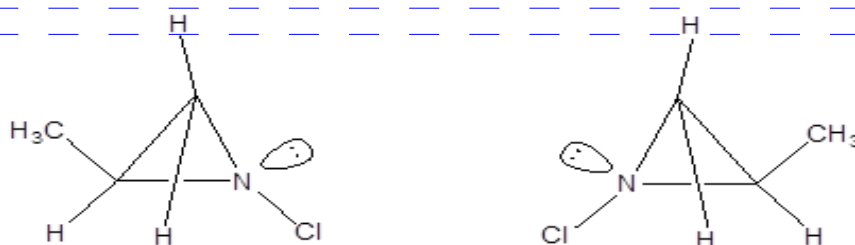
→ Inversion in Aziridines: Cis and trans-aziridine are known. The two carbon atoms of aziridine are potentially chiral when unsymmetrically substituted ring should exist in four different enantiomeric forms, that is two-cis & two-trans isomers. If the carbon atom bears the same substituents then the cis isomer is meso and optically inactive due to internal compensation of optical rotation which takes place in the molecule.



walden inversion



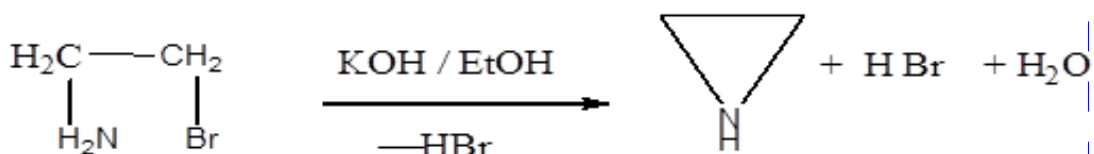
cis



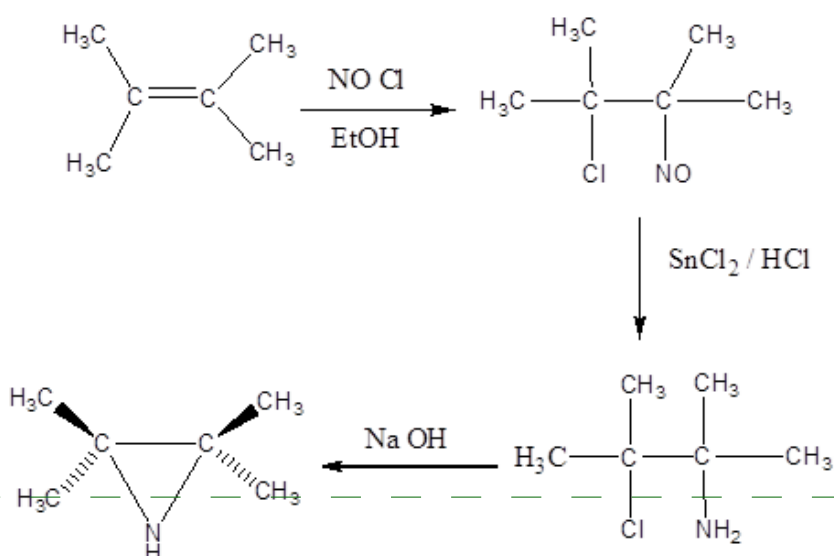
trans

Synthesis:

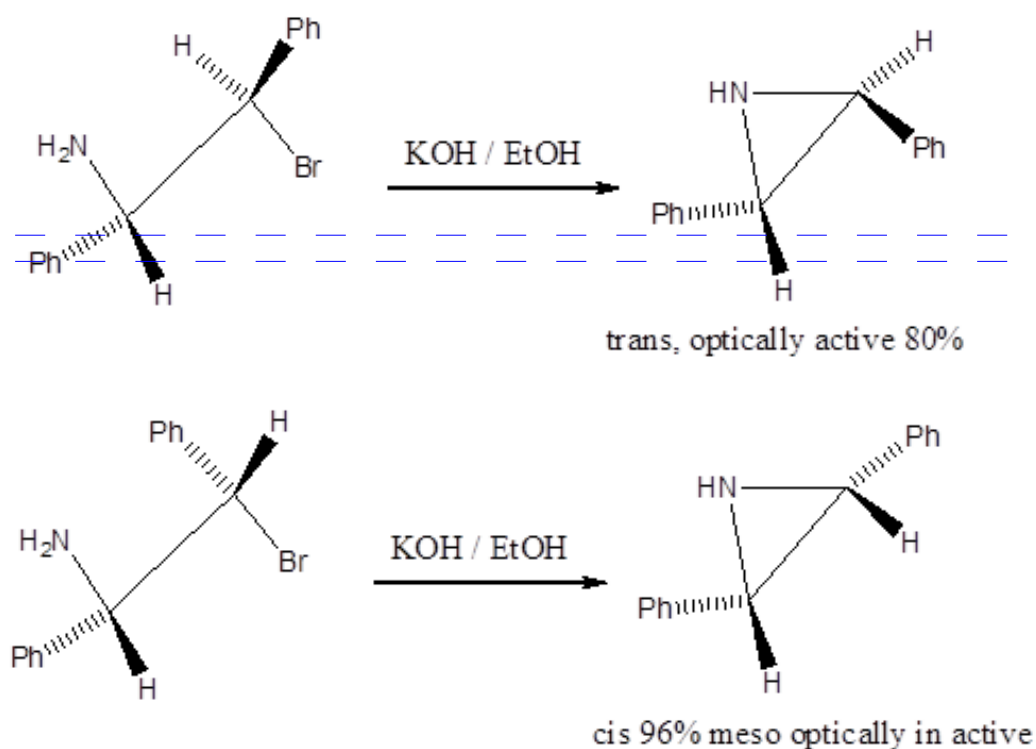
1. The Gabriel ring closure method: Aziridine was first obtained by heating β -bromoethylamine in presence of potassium hydroxide in 1988.



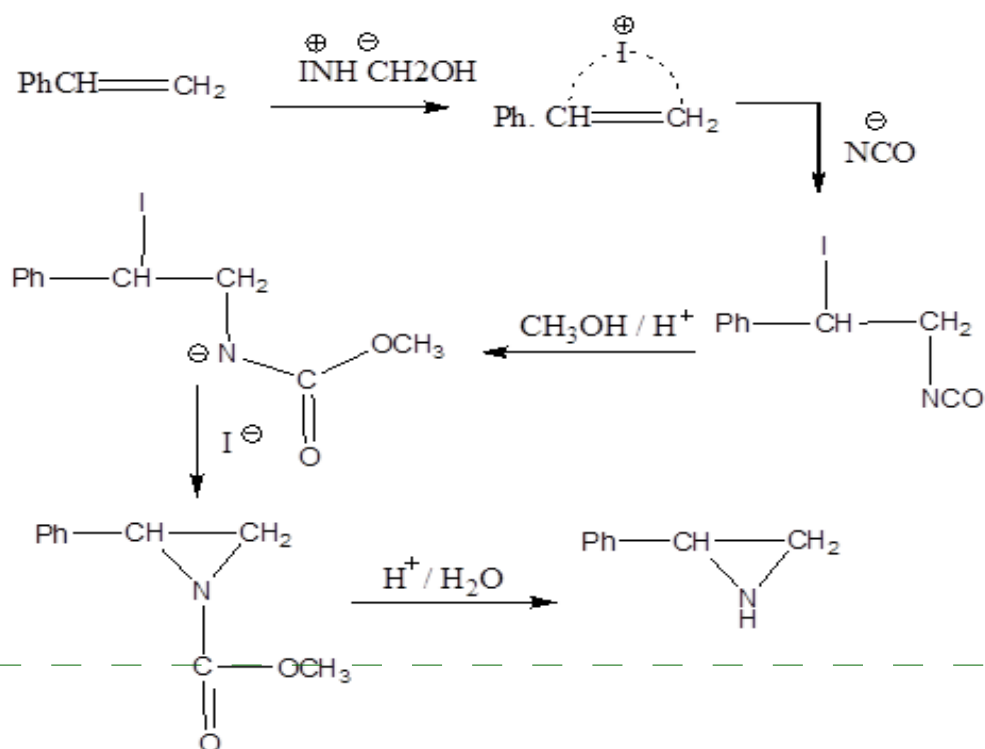
The cyclisation of aziridine ring is stereospecific that is stereochemistry of the reactants is preserved in the products and that the ring closure involves a Walden inversion.



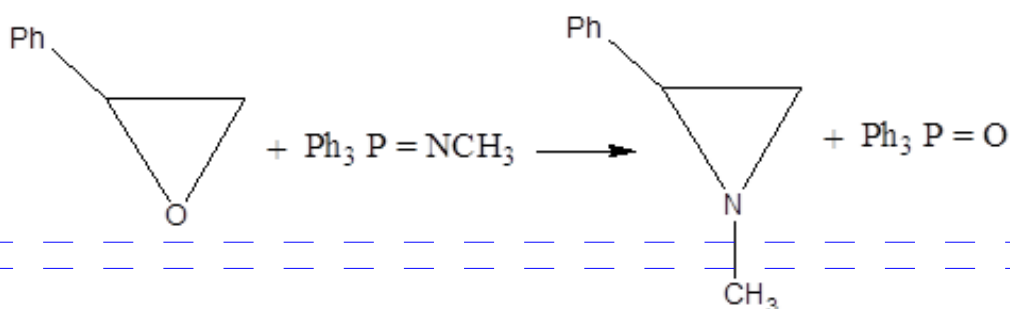
Lone pair of nitrogen atom attack the adjacent carbon from same side. Hence there is no change in the orientation of the substitute



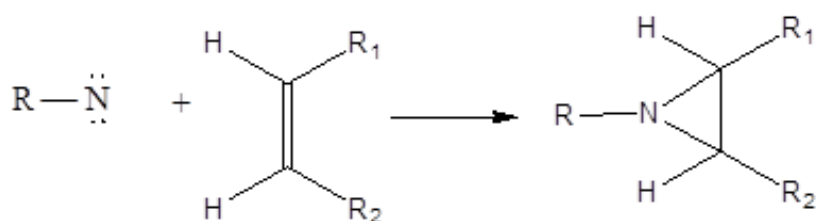
2. The Hassner synthesis: This method involves a stereospecific addition of iodine isocyanate to alkenes through trans addition with the resultant formation of Iodo isocyanate of the alkene. This is then treated with methanol to form carbonate which cyclises to give the aziridine skeleton.



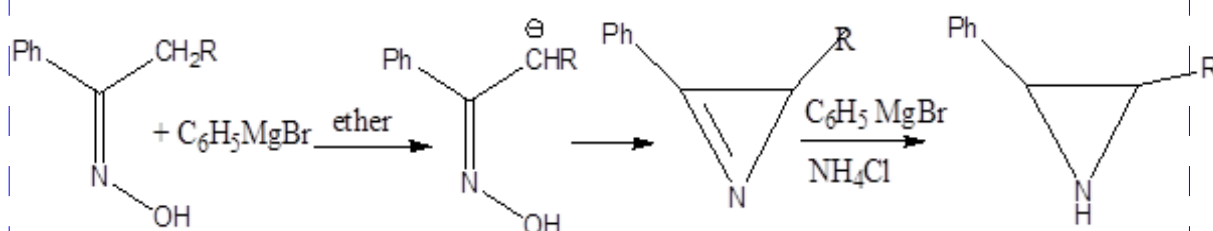
4. From oxiranes: Oxiranes are treated with triphenylphosphine ylide to give the aziridine molecule.



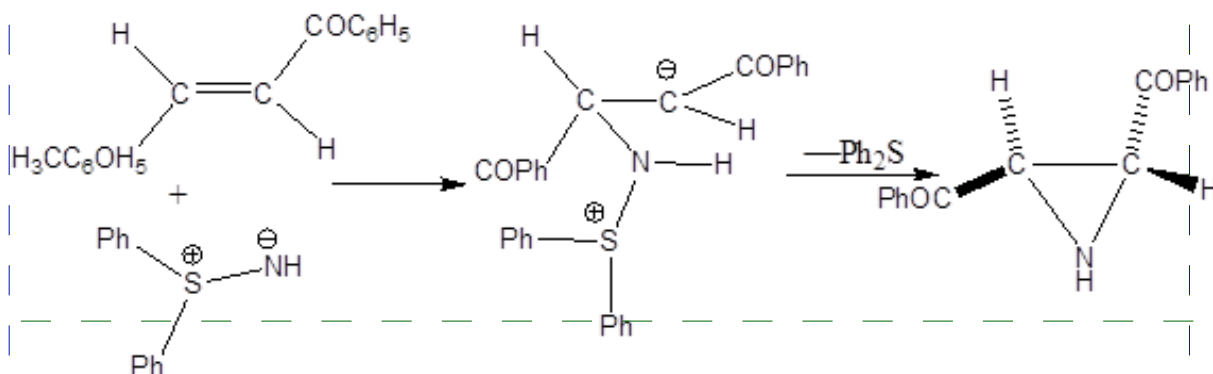
5. Nitrene insertion: Aziridines may be prepared by the direct addition of Nitrene into alkenes and the reaction proceeds non stereospecific in nature.



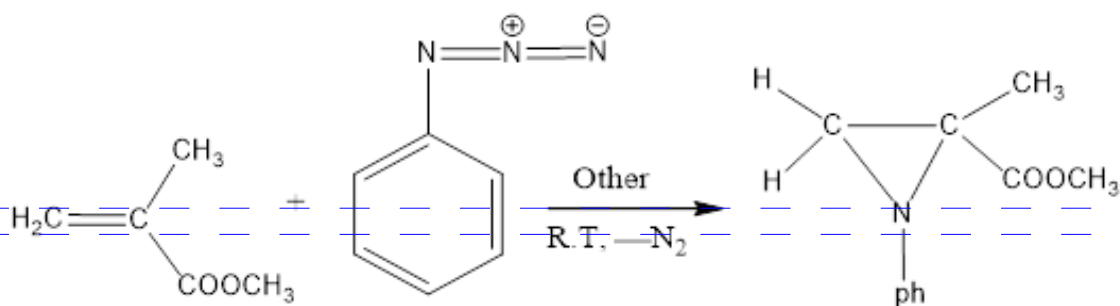
6. The Hoch-Compbell method: This method involves the use of the ketoxime with an excess of Grignard reagent. The reaction is stereospecific and regiospecific.



7. From sulphur ylides: The ylide diphenyl sulphonamide adds stereospecifically to E and Z alkenes which are electrophilic in nature.

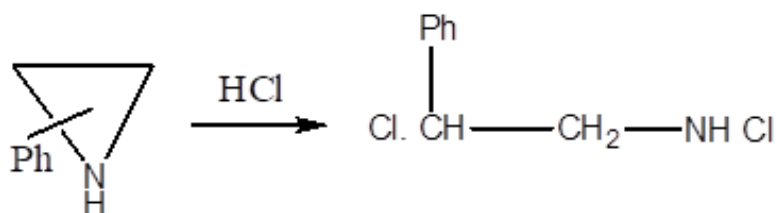
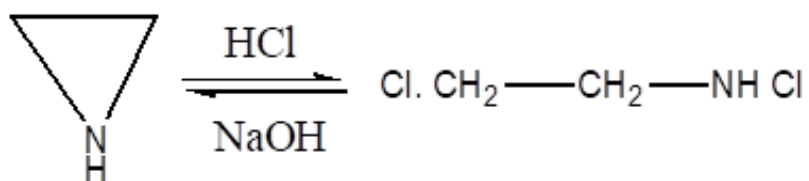


8. 1,3 dipolar cyclo addition Reactions: High pressure induced 1,3 dipolar cycloaddition of azides with electron deficient olefin gives aziridines.

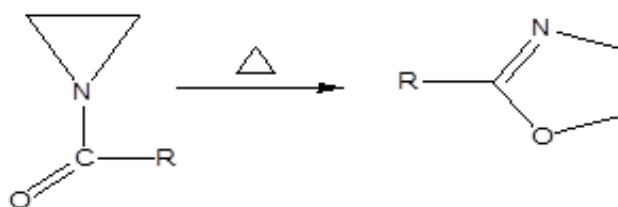


Chemical properties:

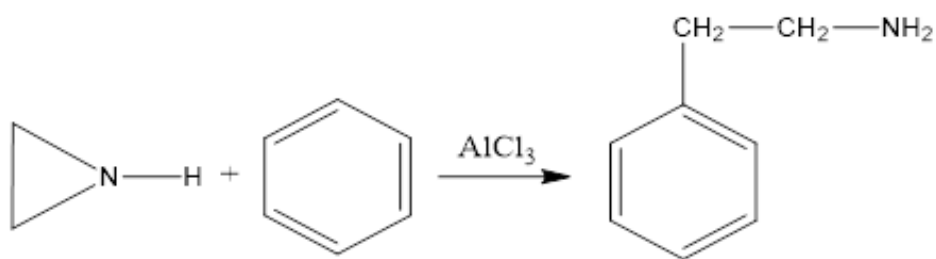
1. Ring opening Reactions: Aziridine gives β -chloro ethylamine hydrochloride on treatment with HCl by C-N bond cleavage.



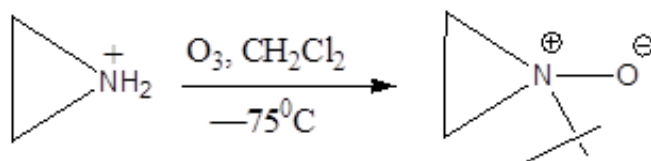
2. Thermal Reactions: Aziridines bearing unsaturated groups at the nitrogen atom rearrange under a variety of experimental conditions. N-acyl derivatives of aziridine are converted to 2-substituted oxazlines.



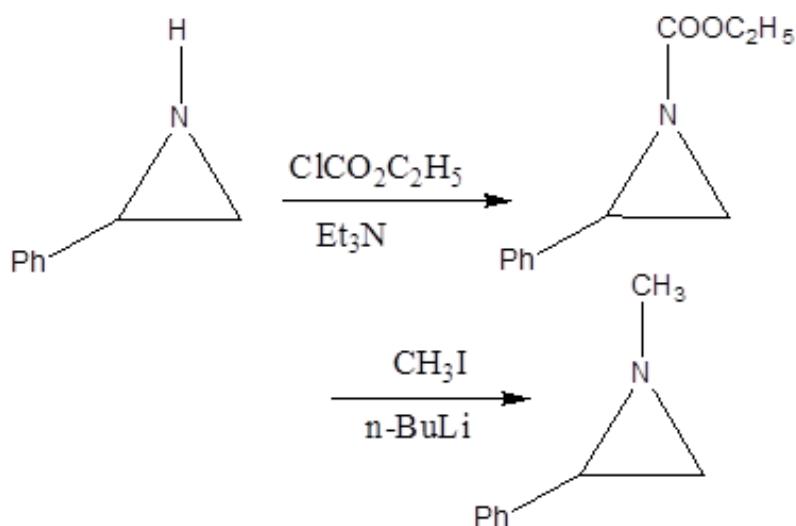
3. Friedal Crafts Reactions: Aziridene undergoes facile Friedal crafts Reaction with benzene in presence of $AlCl_3$ to give β -phenyl-ethylamine.



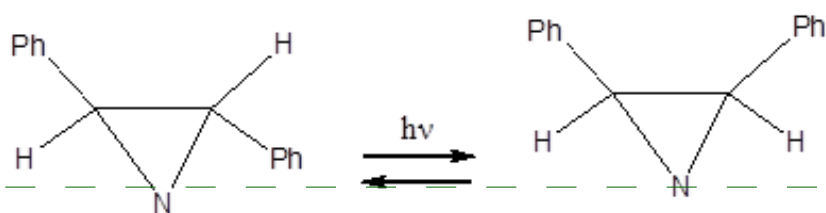
4. Ozonolysis: When N-t-butylaziridine is treated with ozone in dichloromethane gives N-t-butyl aziridine-N-oxide.

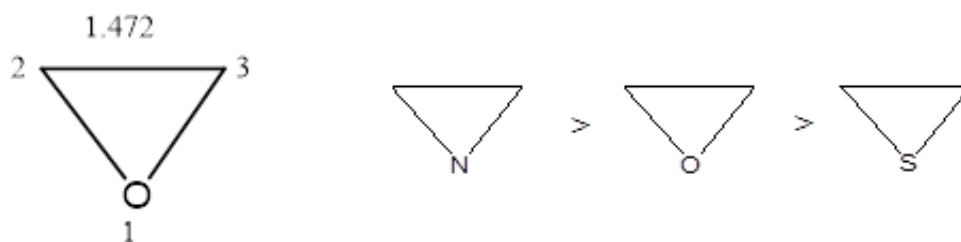


5. Replacement of the H-atom: The hydrogen on the nitrogen atom in aziridine is reactive and can be replaced by appropriate reagents.



6. Photochemical Reactions: Under photolytic conditions the following stereo isomeric urethanes undergo geometrical isomerism without any detectable fragmentation.



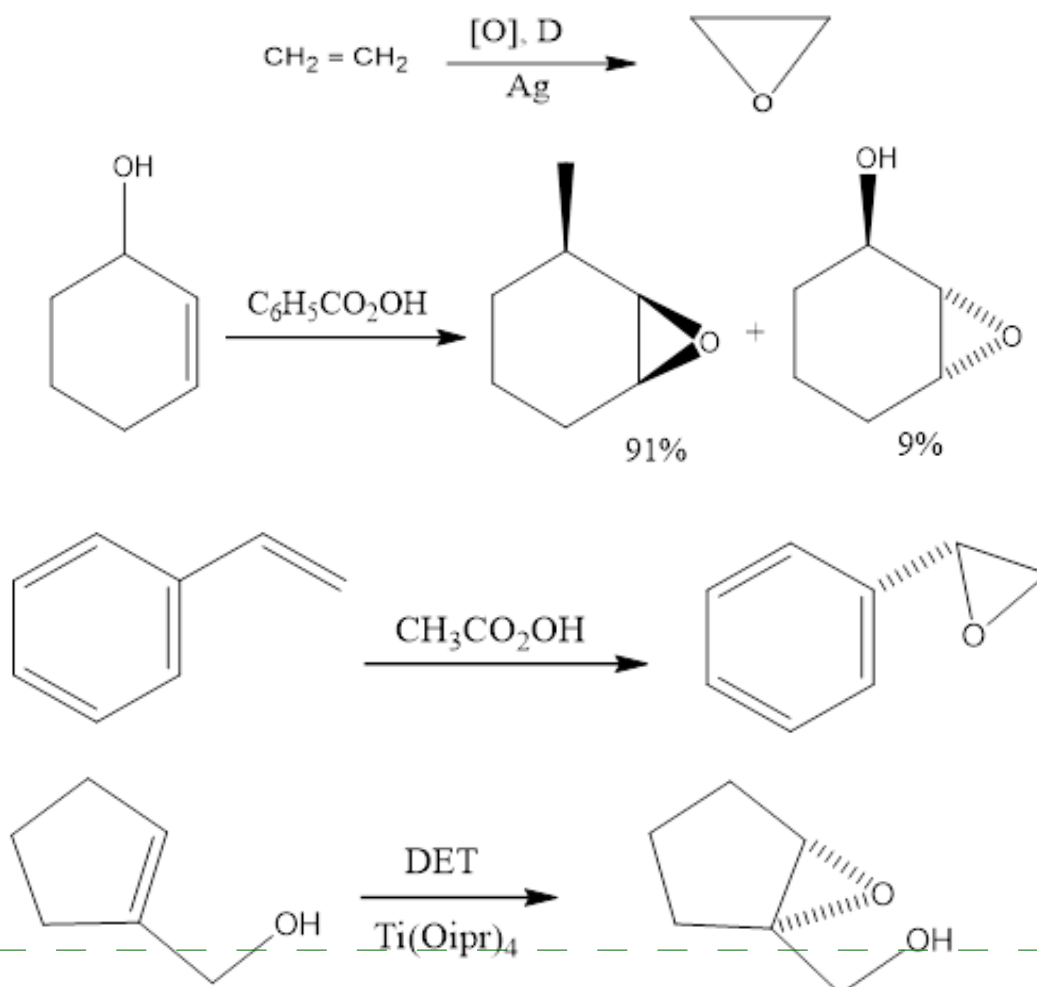
Oxiranes:


JC-H oxirane < aziridine < Thiirane

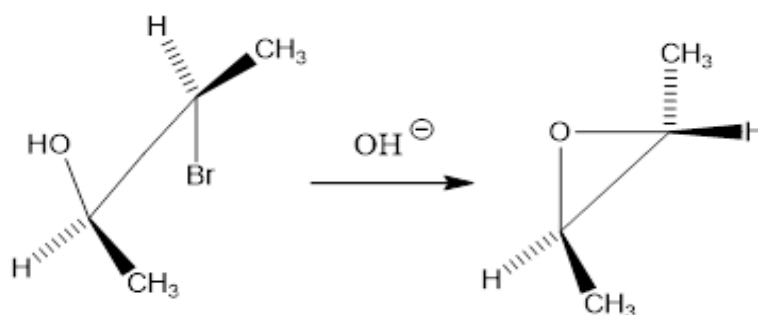
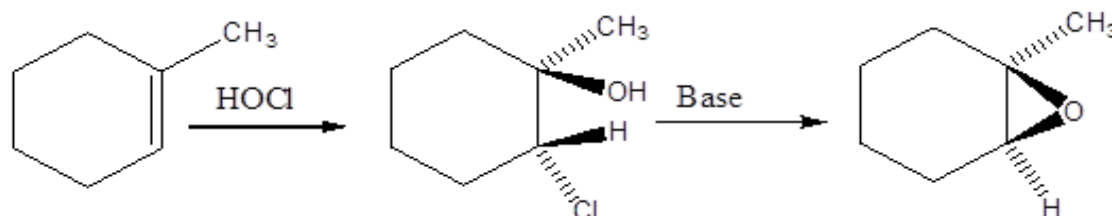
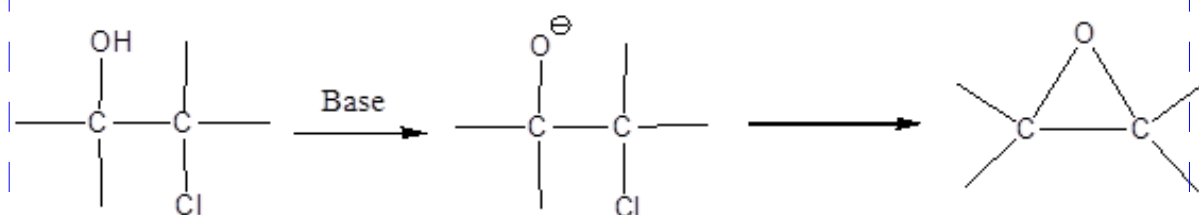
According to NMR spectral data basicity order aziridine > oxirane > thiirane

Synthesis:

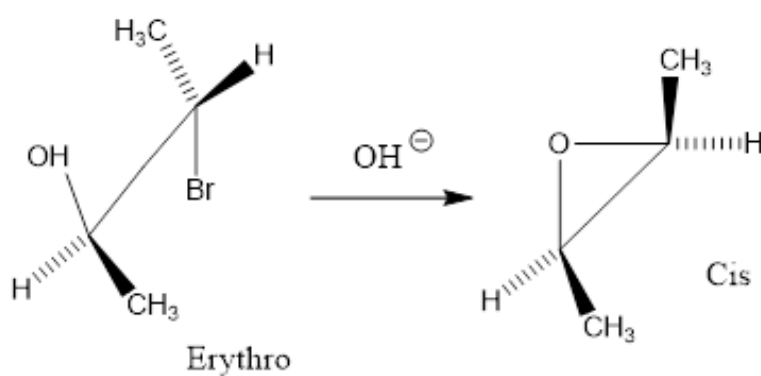
1. Oxidation of alkenes: The simplest method of preparing the parent compound oxirane is the direct oxidation of ethylene by air over a silver catalyst at elevated temperatures.

Using per acid:


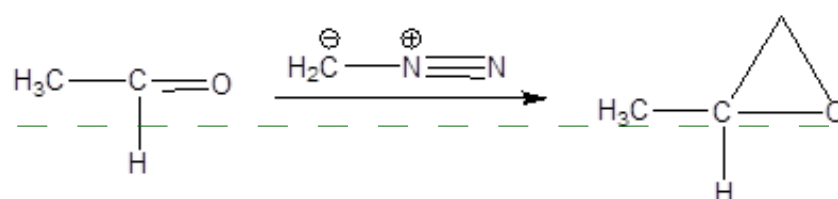
2. Ring closure methods: Hypochlorous acid adds to an alkene in a trans manner in which ring closes in presence of a base.



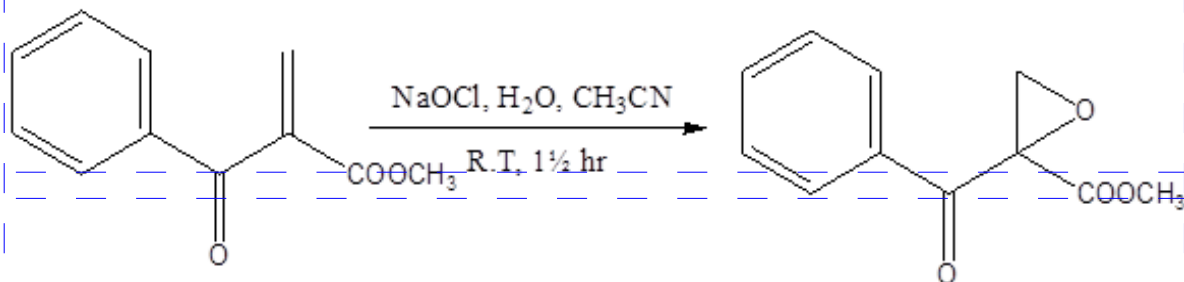
Threo



3. Methylene insertion Reactions: Methylene group is inserted in the reactant to give the product.

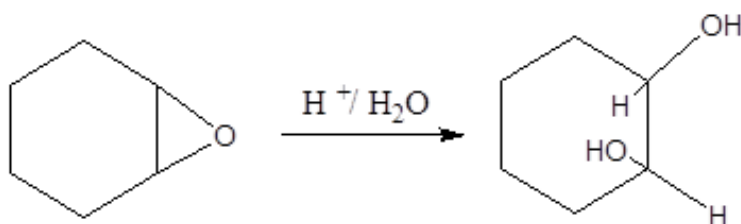
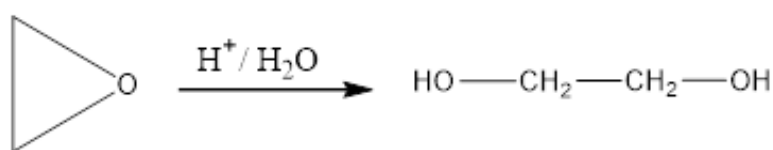


4. Miscellaneous Method : Certain hydroxyl alkenes undergo oxidation to ketone with simultaneous epoxidation of the methylene group in presence of sodiumhypochlorite.

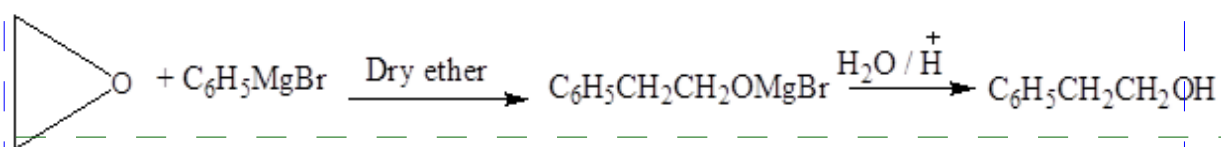


Chemical properties:

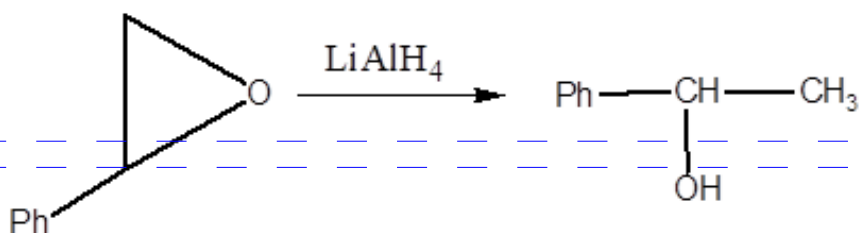
1. Ring opening Reactions: Because of the strain present in the oxirane ring, it is highly liable and the ring can be cleaved by a variety of reagents. It has been used as an intermediate in organic synthesis for the preparation of many classes of compounds. In solution, the reaction of oxirane involves both the electrophilic and nucleophilic attack. The ring is opened in a trans manner by water in presence of catalytic amount of acid.



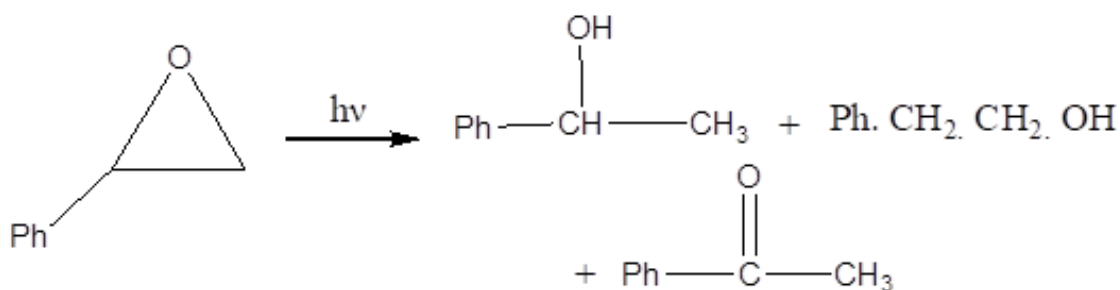
2. Reaction with organo metallics: The reaction between oxirane & Grignard reagent is extensively used for the preparation of certain primary alcohols & for the lengthening of c-c bond by two atoms. An intermediate is initially formed, which on hydrolysis gives alcohol.



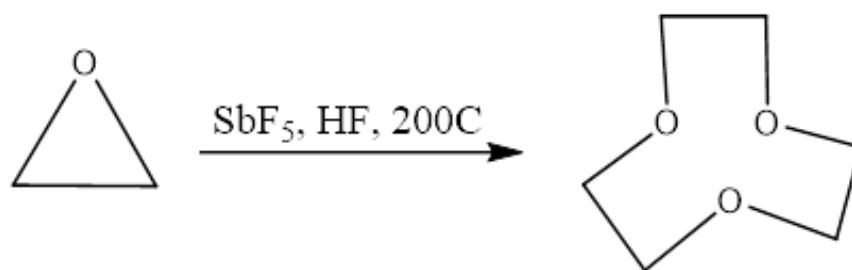
3. Reduction: Metal hydrides reduce an epoxide ring to the corresponding alcohol. Styrene oxide with lithium aluminium hydride gives α -phenylethanol. The hydride ion attacks C-3 with the simultaneous cleavage of C-O bond.



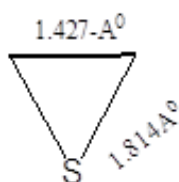
4. Photochemical Reactions: Photolysis of styrene oxide gives a mixture of products.



5. Miscellaneous Reactions: Polymeric ethers can be obtained by the action of Antimony pentafluoride on oxiranes.



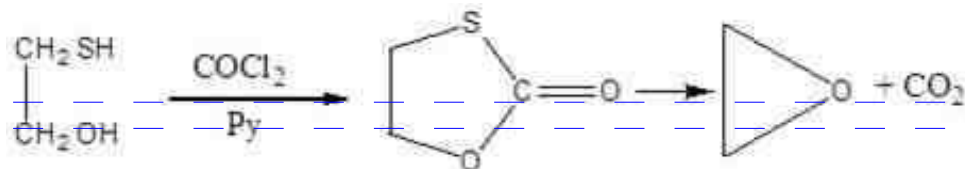
Thiiranes:



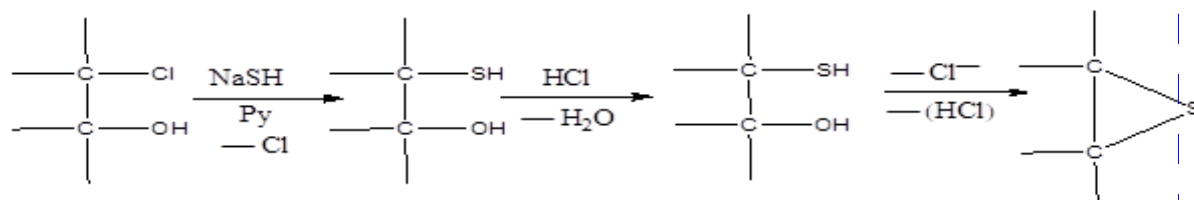
Thiacyclopropane / Ethylene sulphide/ thiirane is a colourless liquid with boiling point of 55°C .

Synthesis:

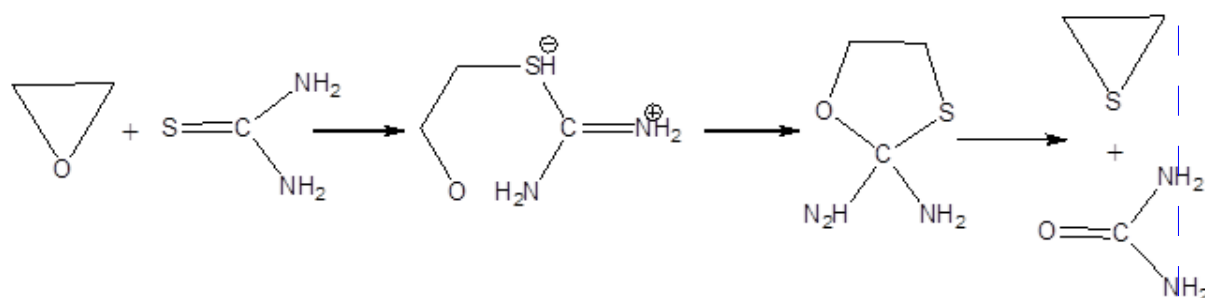
1. From 2-mercaptoethanol: The most useful method of preparing thiirane is from 2-mercaptoethanol by treating it with phosgene in presence of ethyl acetate and pyridine to give monothioethylene carbonate which on decarboxylation gives thiirane.



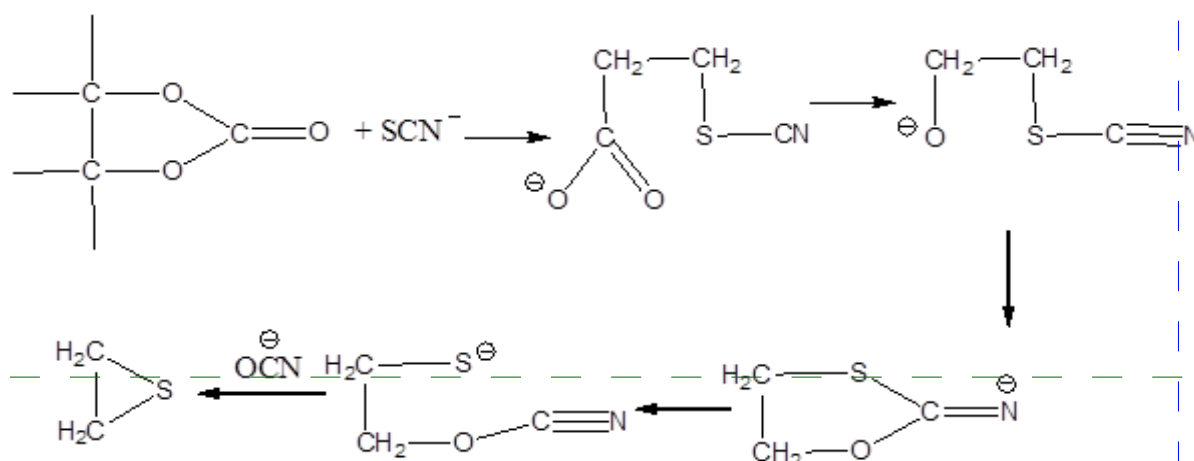
2. Ring closure Reactions: 2-halosulphides are prepared from 2-hydroxy sulphide which are in turn prepared from, 1,2 chlorohydrins 2-halosulphides with the elimination of hydrochloric acid gives thiirane.



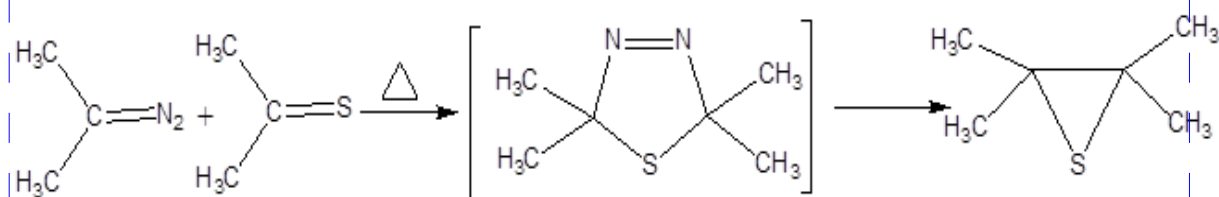
3. From Epoxides: Thiirane is also obtained by the action of thiourea on epoxides. The epoxide ring is first opened by thiourea, which then cyclises to Thioxoles which & finally gives thiiranes.



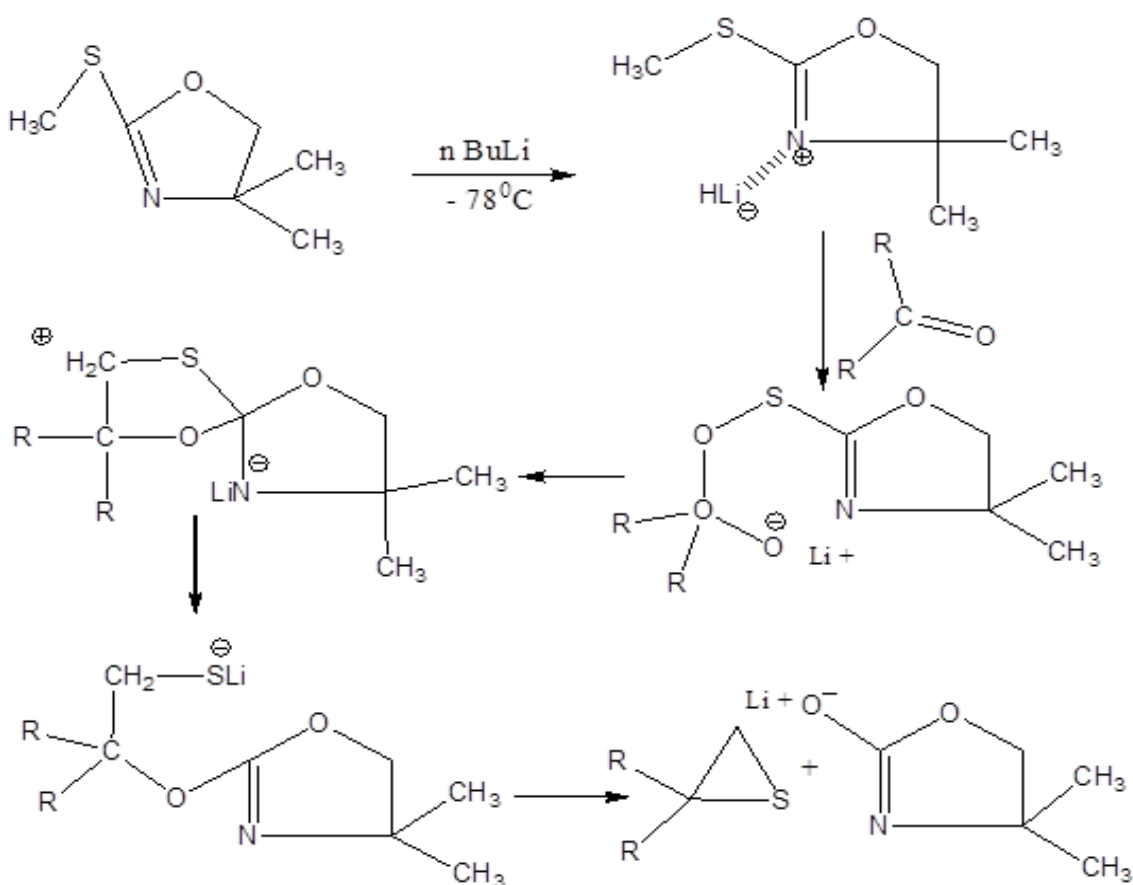
4. From cyclic ethylene carbonates: Reaction between a cyclic carbonate of 1,2 diol and an alkali thiocyanate at high temperature gives the corresponding thiirane molecule.



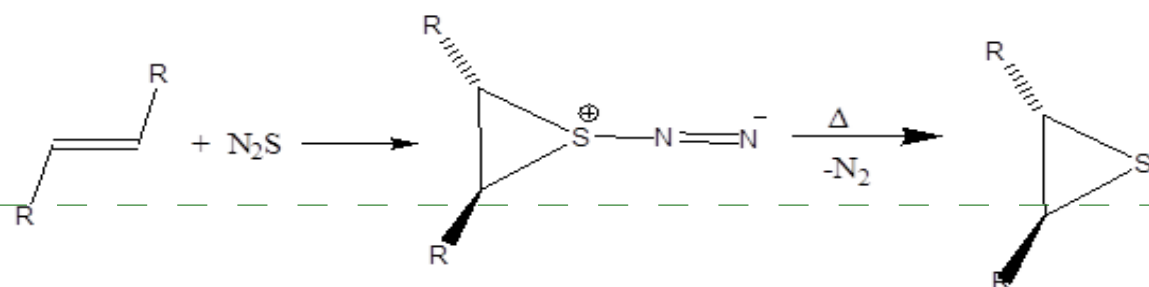
5. From diazoalkenes: The Rxn between diazoalkenes & thiketones is used for the synthesis of thiiranes.



6. From oxazolines: Thiirane derivatives have been prepared by using oxazolines and carbonyl compounds in presence of n-butyl lithium.

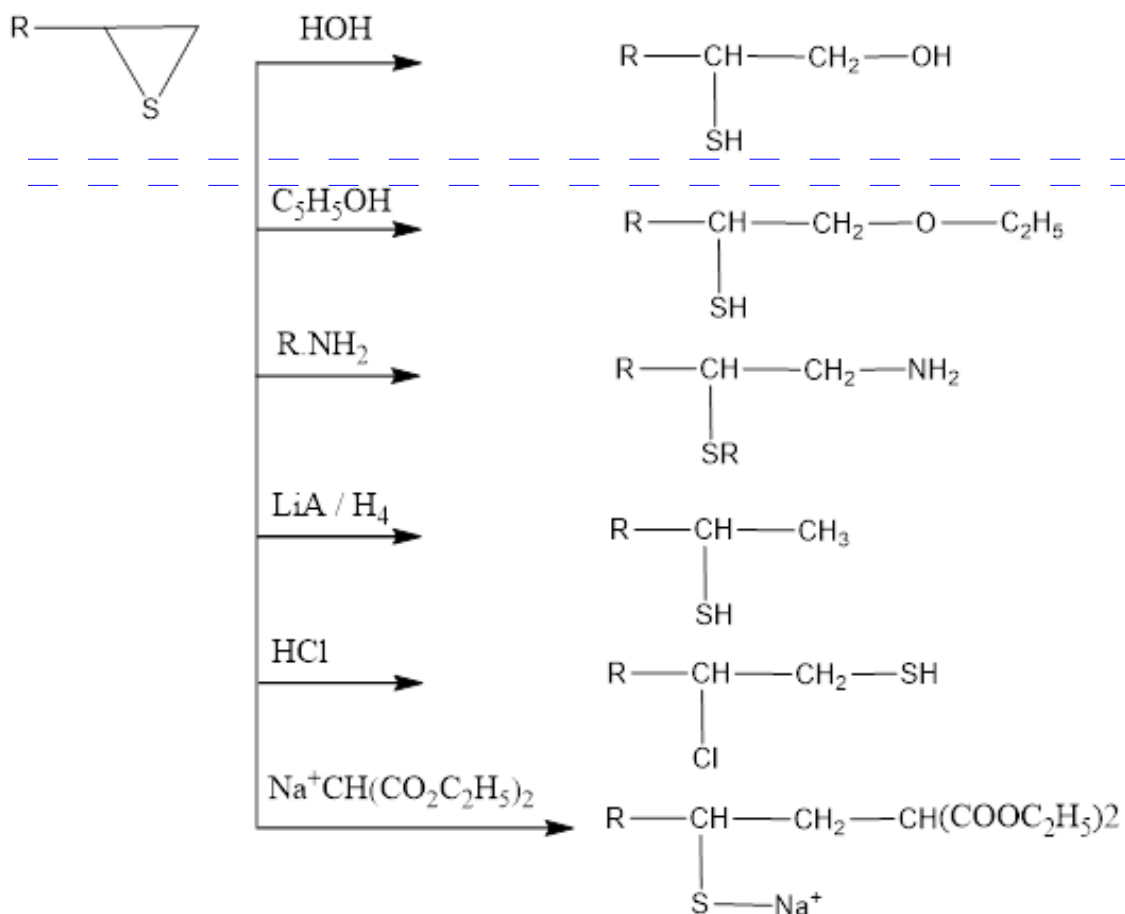


7. From alkene episulphadation: An alkene episulphadation by nitrogen sulphide forms a three member zwitter ionic species which on denitrogenation gives thiirane derivatives. This reaction is stereospecific.

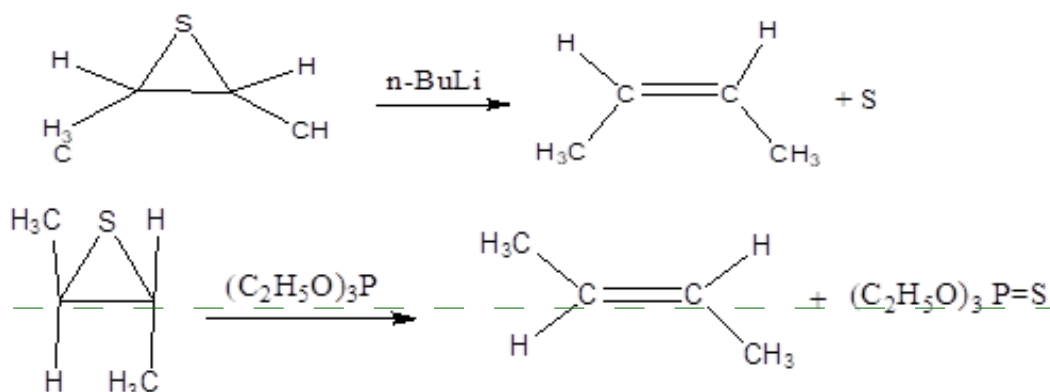


Chemical properties:

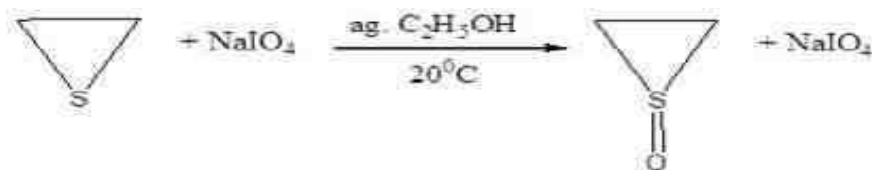
1. Ring opening Reactions: Alkyl thiirane undergoes various ring opening reactions.



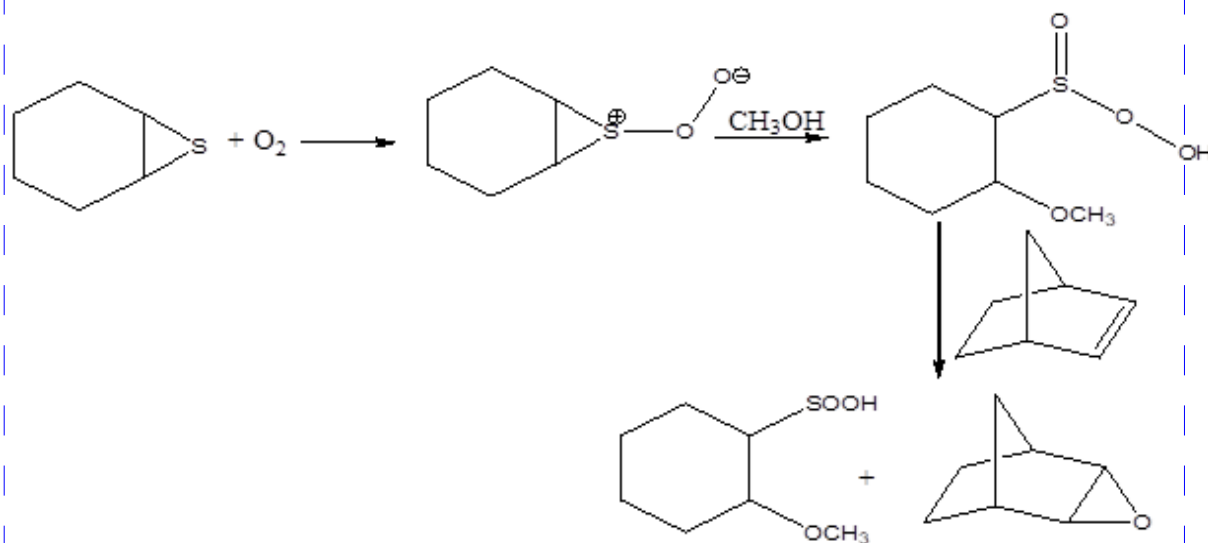
All the reactions of thiiranes involve ring opening and since the electron density at the sulfur atom is lower than that at the oxygen in oxiranes. Their reactivity towards nucleophilic reagents seems similar to or a little greater than that of oxiranes. Thiirane ring is readily cleaved by a larger number of nucleophilic and electrophilic reagents, to form mercaptans as oxiranes are obtained from alcohols.

2. Desulphurization:


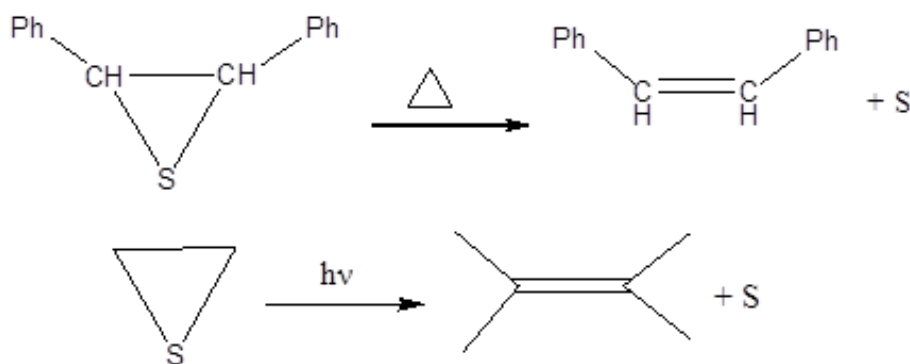
3. Oxidation: Thiirane is oxidized with sodiummetaperiodate in aqueous ethanol forming ethylenesulphoxide.



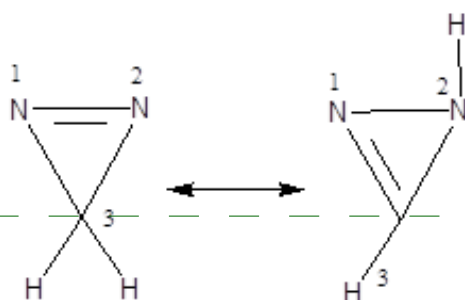
4. Formation of peroxysulphenic acid: Photolysis of Thiirane in methanol or methylene blue as sensitizer and light forms peroxy sulphenic acid.

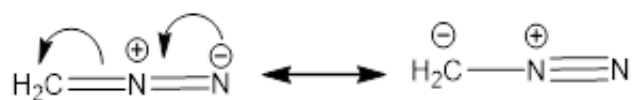


5. Thermal & photochemical Reactions:



Diazirines:

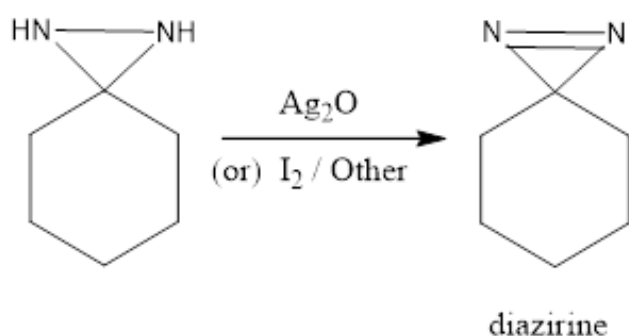




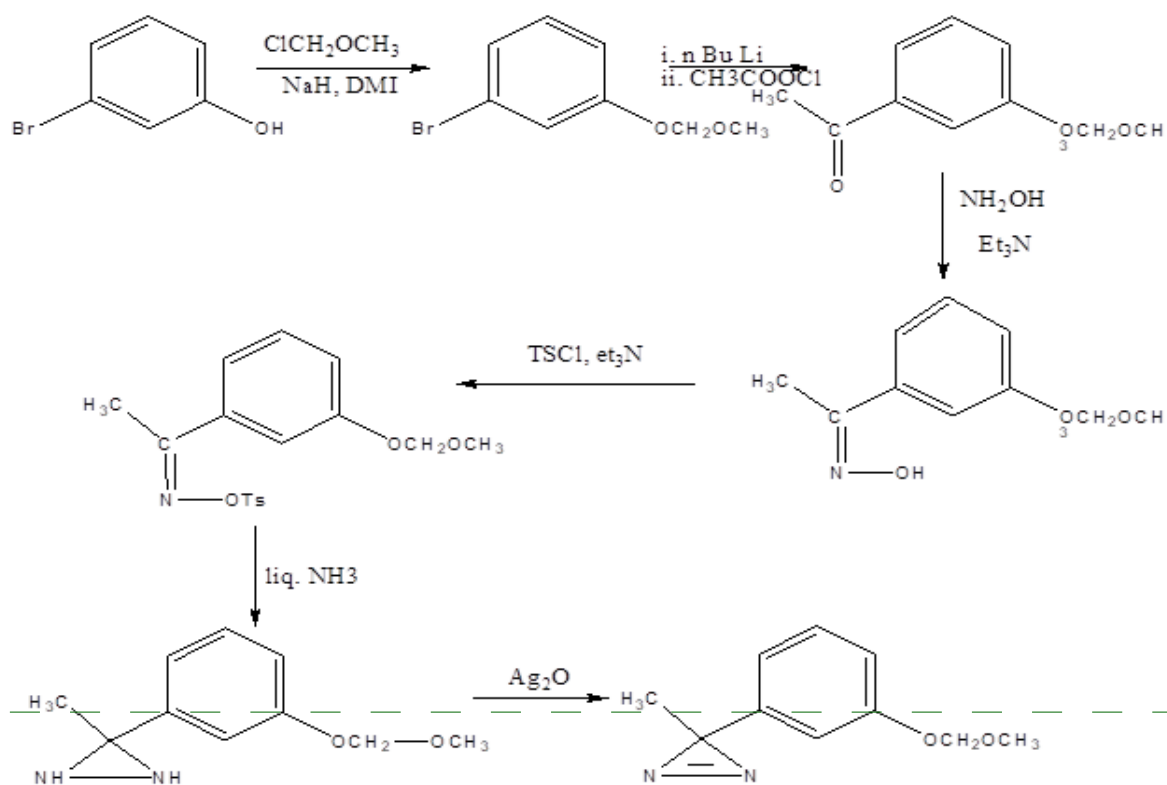
Aromatic character of diazirines is not yet confirmed. Parent diazirine is a gaseous in nature.

Synthesis:

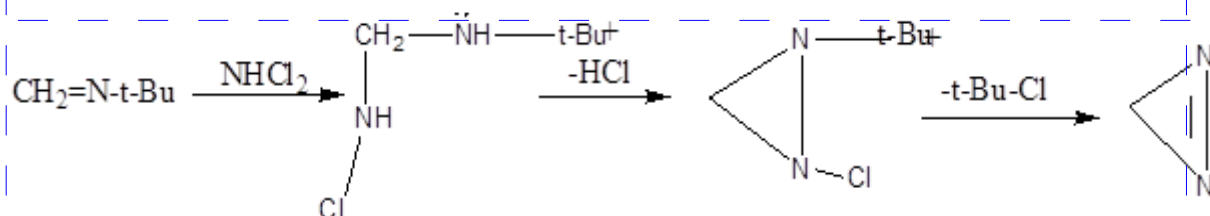
1. From oxidation of diaziridines: On oxidation of diaziridines with silveroxide or iodine with a catalytic amount triethyl amine gives diazirines.



2. From m-bromophenol: m-bromo phenol is first converted to the acetal followed by its reaction with n-butyl lithium & methyl trifluoroacetate to give a ketone. Its reaction with hydroxylamine formation of aziridine & finally with oxidation of silver oxide gives the diazirine.

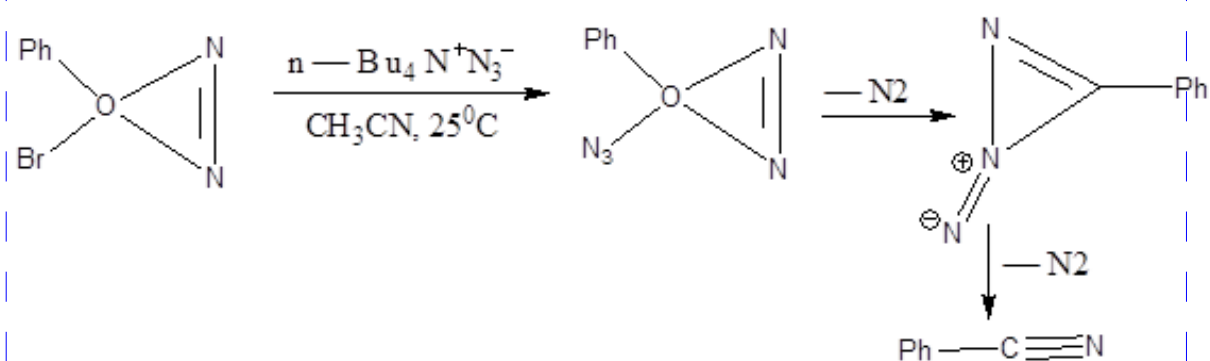


2. From m-bromophenol: m-bromo phenol is first converted to the acetal followed by its reaction with n-butyl I3. From t-alkylazomethine and Dihaloamine: The synthesis of the diazirine & involves the addition of dichloro/difluoro amine to a t-alkyl azomethine in presence of carbontetrachloride.ithium & methyl trifluoroacetate to give a ketone. Its reaction with hydroxylamine formation of aziridine & finally with oxidation of silver oxide gives the diazirine.

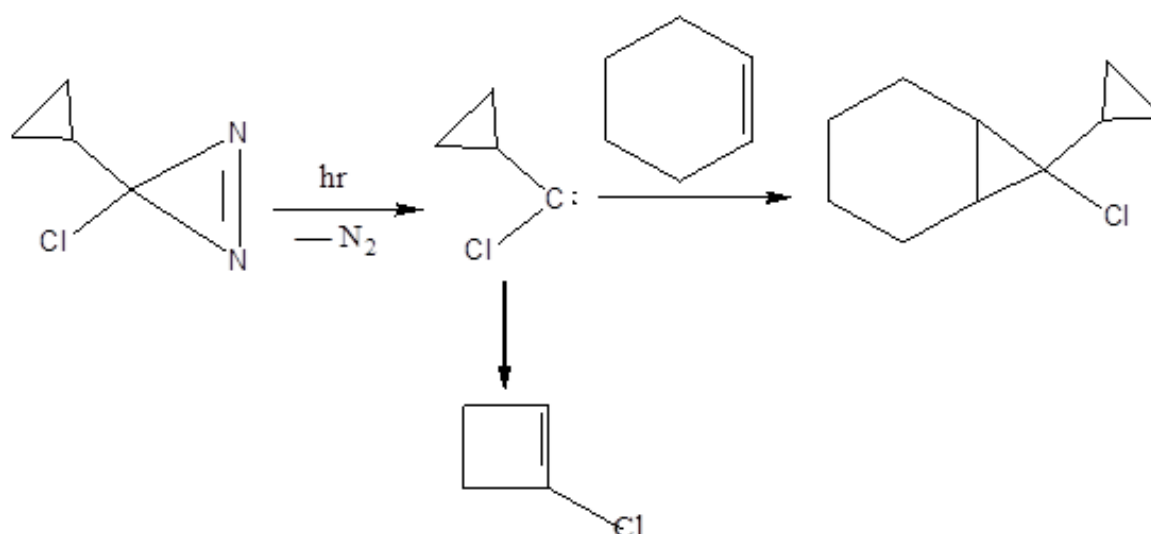


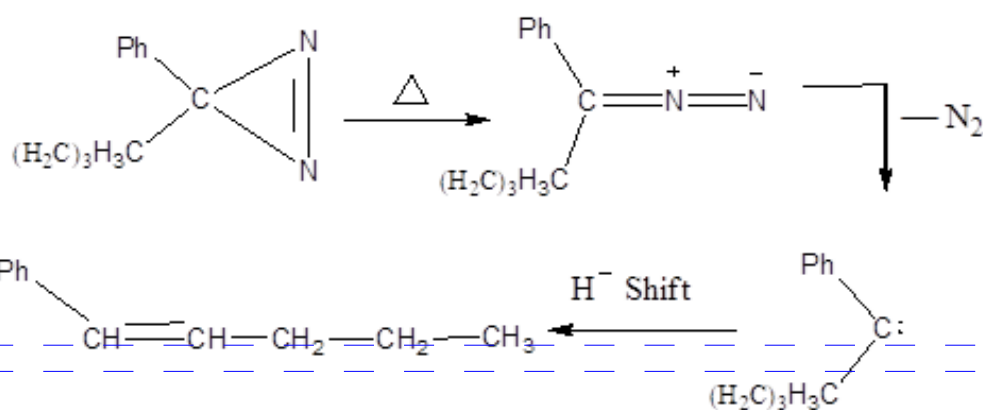
Chemical properties:

1. Reaction with Nucleophiles & electrophiles:

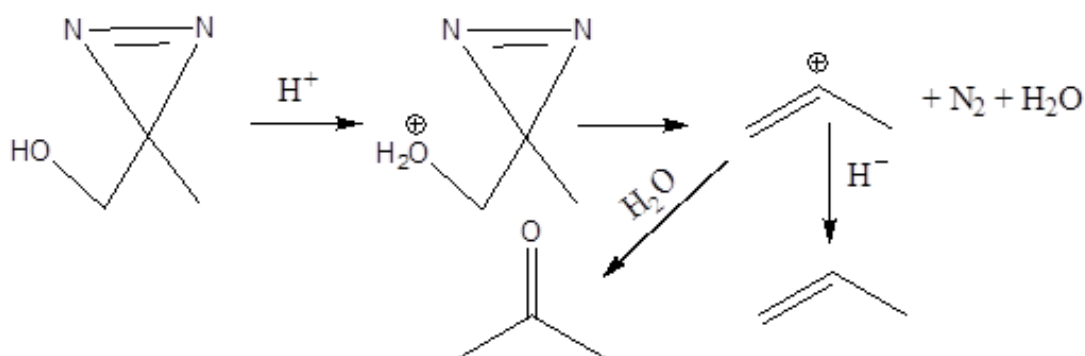


2. Photochemical & thermal decompositions:

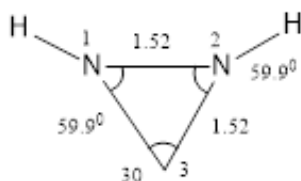




3. Ring opening Reactions:

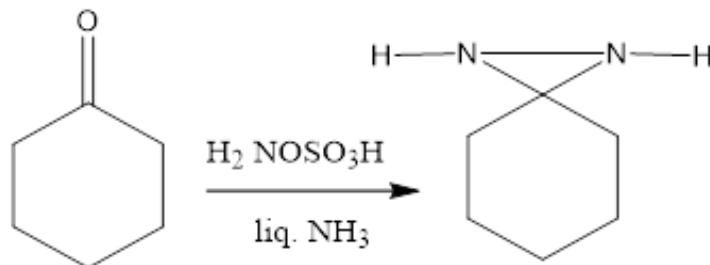


Diaziridines:

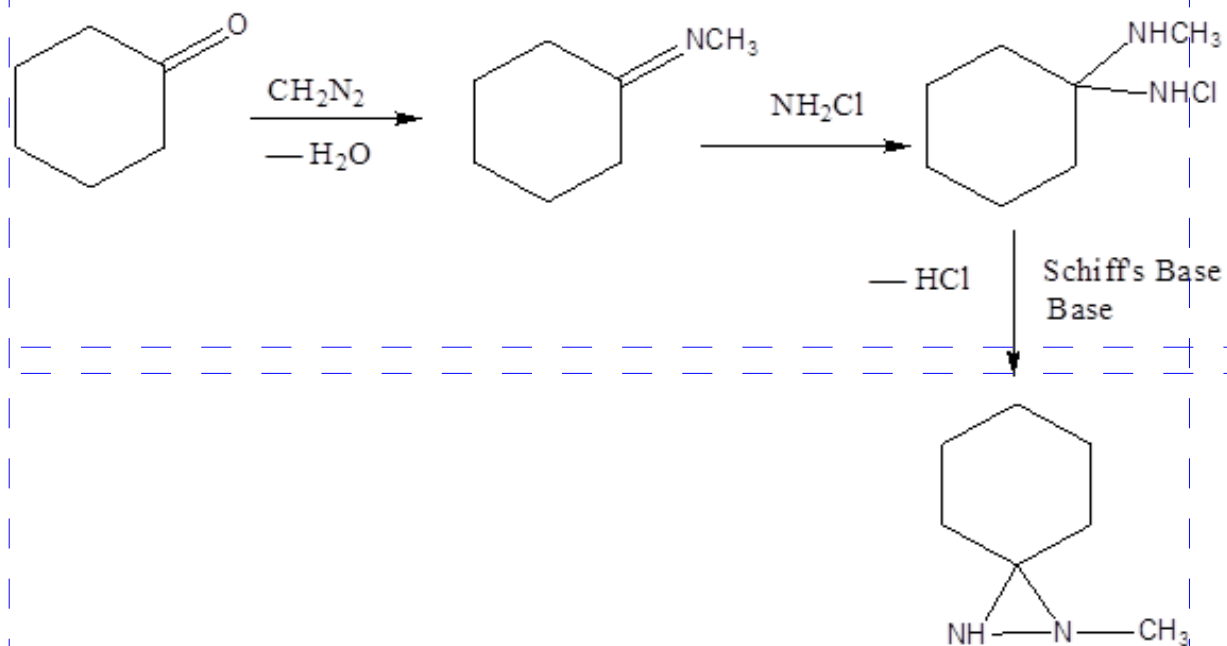


Synthesis:

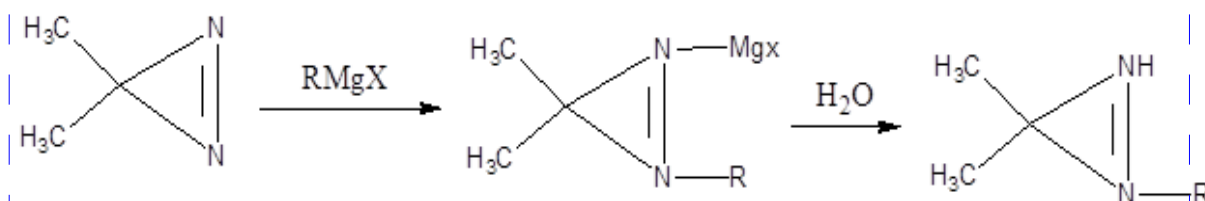
1. From ketones & Hydroxylamine-o-sulphonic acid: A ketone when treated with hydroxyl amine-o-sulphonic acid in presence of liq.ammonia to give diaziridine.



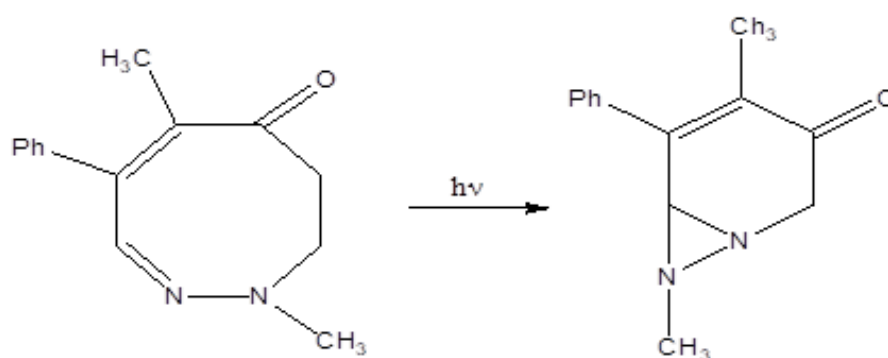
2. From schiff's Base: A Schiff's base add onto a molecule of chloroamine, an aminating reagent & then the ring closure of the terminal addition product in presence of a base takes place to give diaziridines.



3. From diazirines: Substituted diaziridines can also be prepared by the addition of a Grignard reagent to the reactive double bond of a diazirine, which on hydrolysis gives diaziridine.

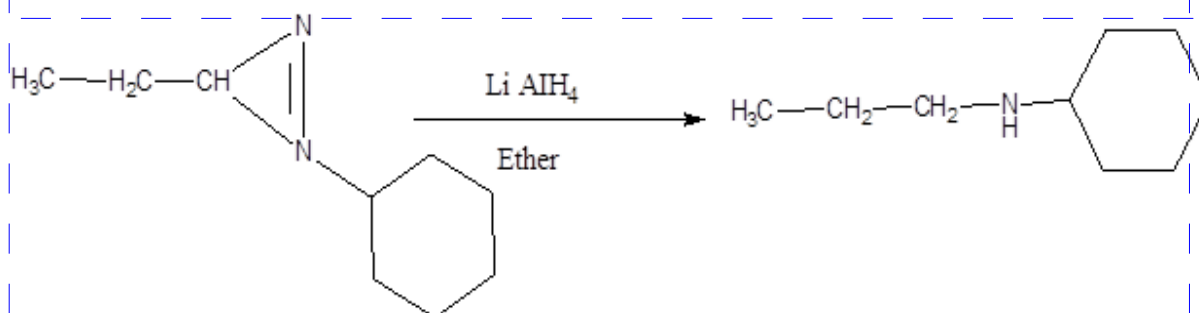
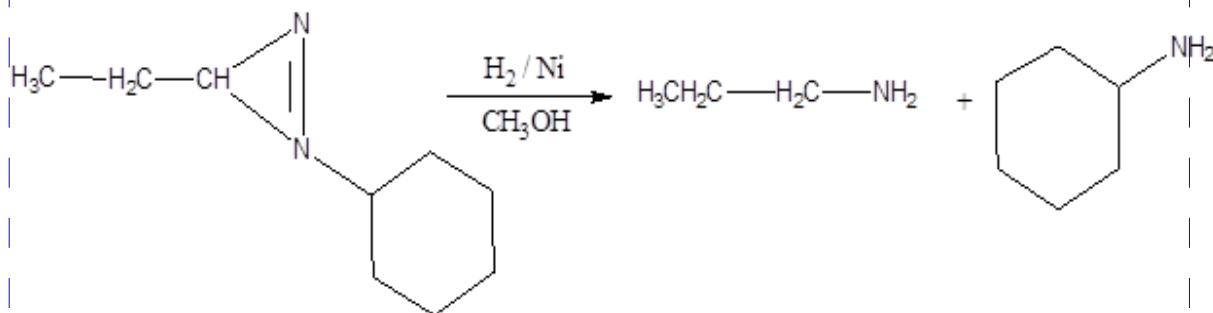


4. Photo isomerisation: Diazepine converts rapidly even when exposed to sunlight to give diaziridine isomer.

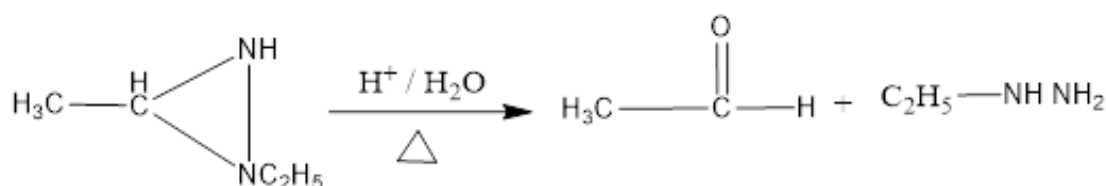


Chemical properties:

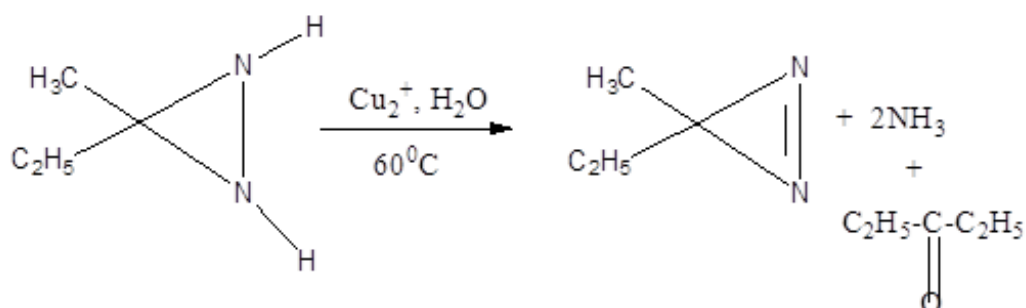
1. Reduction: Under catalytic reduction, a diaziridine takes two moles of hydrogen resulting in the formation of two molecules of amines. Lithium Aluminium hydride reacts only if one the Nitrogen atom is unsubstitued and the products are formed



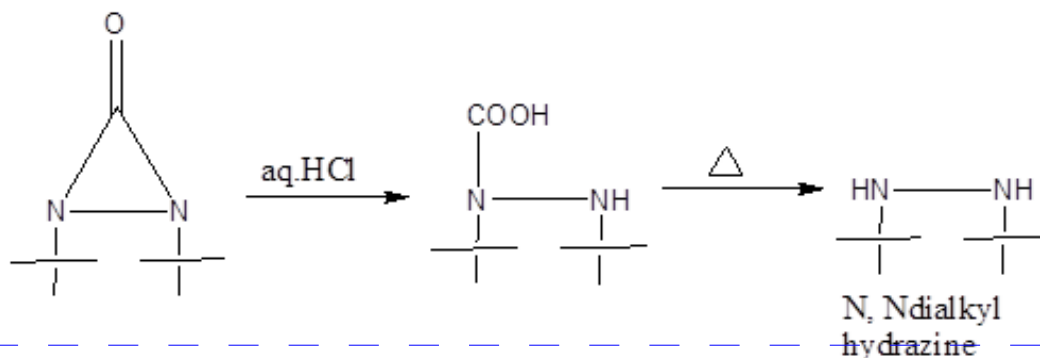
2. Hydrolysis: Fission of the diaziridine ring also takes place under hydrolytic conditions, for example, 1-ethyl-3-methyl-diaziridine gives acetaldehyde and ethyl hydrazine.



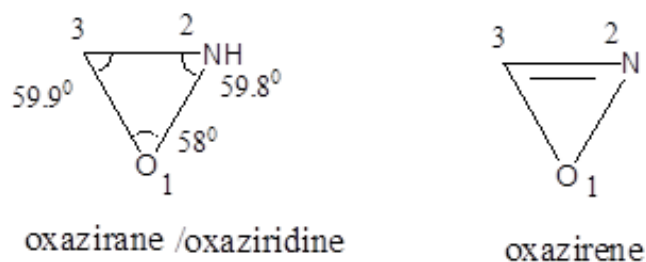
3. Oxidation: Diaziridines unsubstituted on both the nitrogen atoms tends to decompose at 1250°C by a redox reaction resulting in one mole of a diazirine, a ketone and ammonia form. The reaction takes place even below 600°C when copper salts are present as catalysts.



4. Ring opening Reactions: Diaziridines undergo facile ring opening in aqueous Hydrochloric acid and subsequently decarboxylate to a hydrazine derivative.

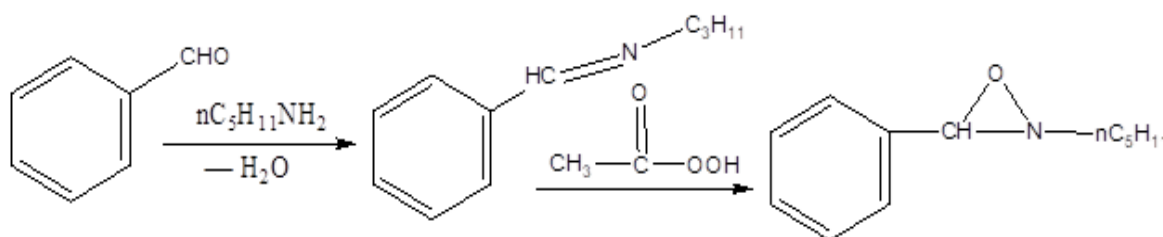


Oxaziridine:

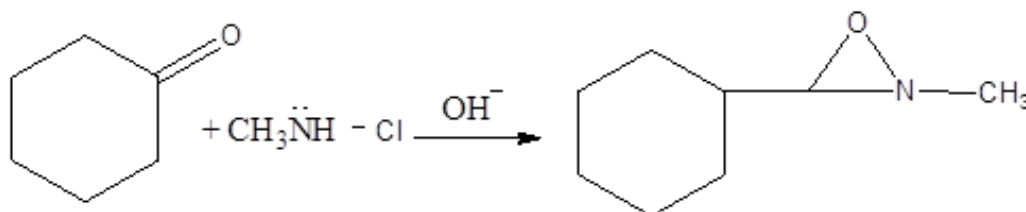


Synthesis:

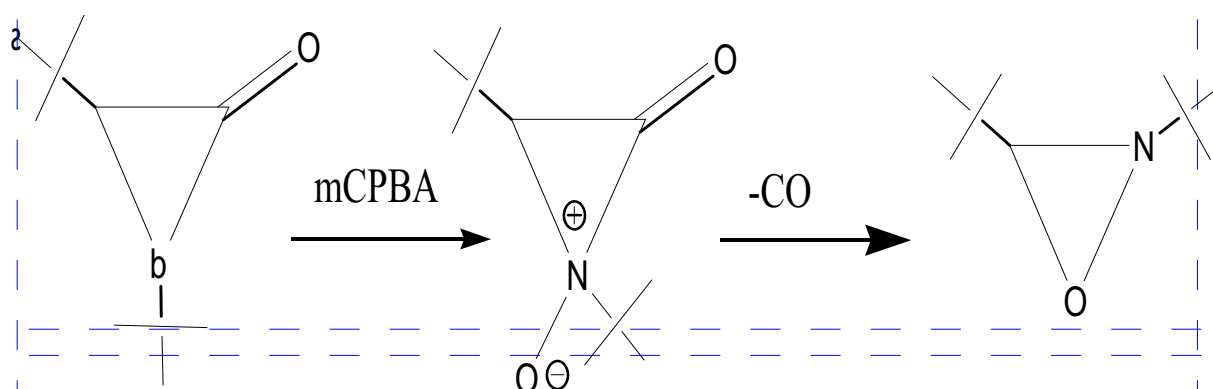
1. From carbonyl compounds: A carbonyl compound is converted to an amine (Schiff's base) by treating with an amine which on peroxidation yields the corresponding oxaziridine molecule.



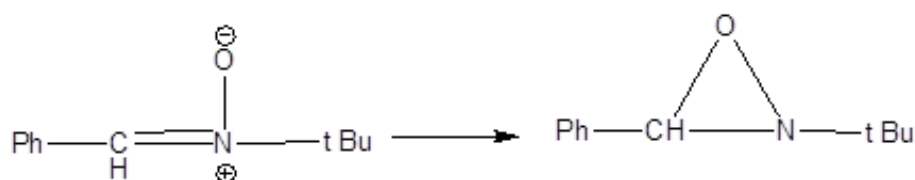
The hydroxylamine-o-sulphonic acid (or) chloramines reacts with aldehydes or ketones in alkaline solution to give the oxaziridine molecule.



2. From α -lactams: An α -lactam on oxidation with per acid gives oxaziridine molecule.

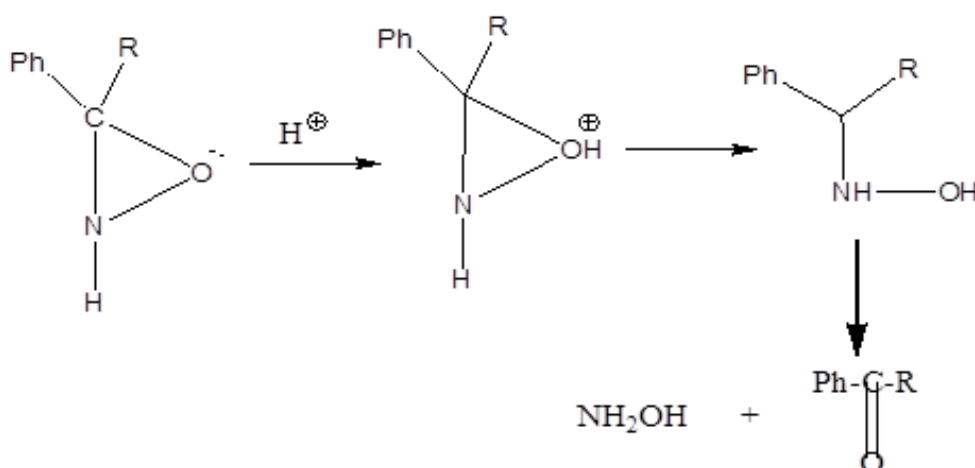


3. Photolysis of Nitrones: Photolytic rearrangement of nitrones to oxaziridines and it is exemplified in the conversion of phenyl-*t*-butylnitron to 2-*t*-butyl-3-phenyl-oxaziridine. The *t*-butylnitrones of benzaldehyde and 4-nitrobenzaldehyde.

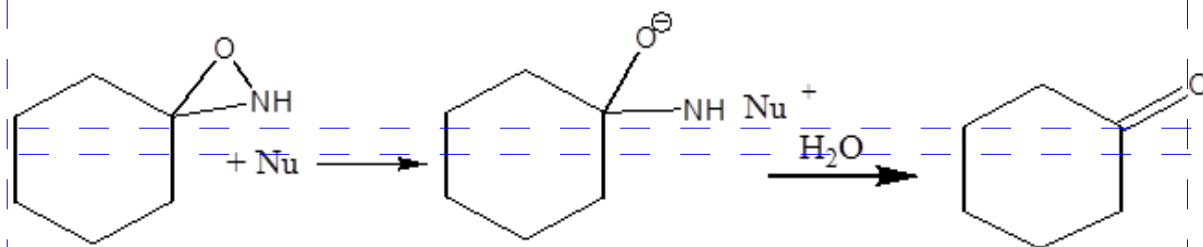


Chemical properties:

1. Ring opening reactions: These heterocycles have high energy and as a result without exception involve the opening of the ring at C-O or N-O bond by a large number of reagents such as acids, bases, reducing agents and thermally or photochemically. Acid hydrolysis of an oxaziridine takes place with N-O bond fission. A phenyl substituted oxaziridine cleaves at the 3-position under acidic conditions to give an aldehyde and hydroxylamine, according to the following mechanism.

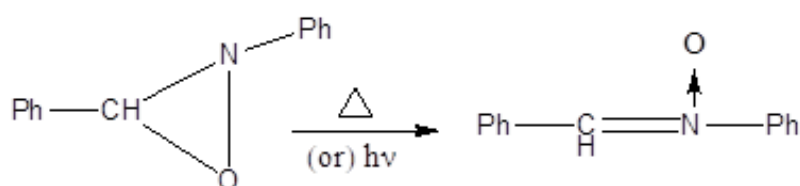


2. Reaction with Nucleophiles: Oxaziridines reacts with almost every nucleophile and they must be handled in inert solvent such as ether and toluene. Attack by a nucleophile takes place at the nitrogen atom of the three membered ring with simultaneous N-O bond cleavage.

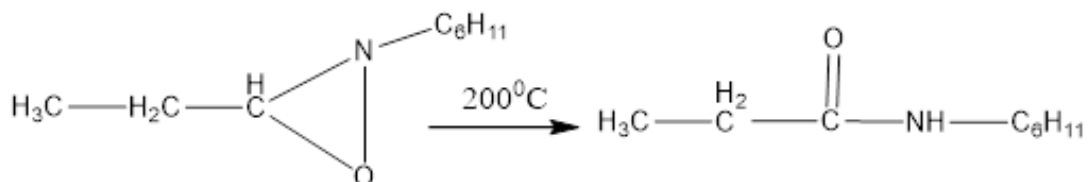


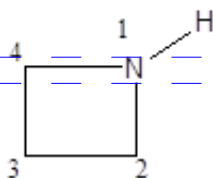
3. Thermal & photochemical Reactions: Oxaziridine ring is easily decomposed to give the products depending on the presence of substitution at the 3-position.

a. The C-aryl oxaziridine are isomerised to nitrones by C-O bond fission at a high temperature.



The C-alkyl oxaziridines are converted into amides by N-O bond fission.

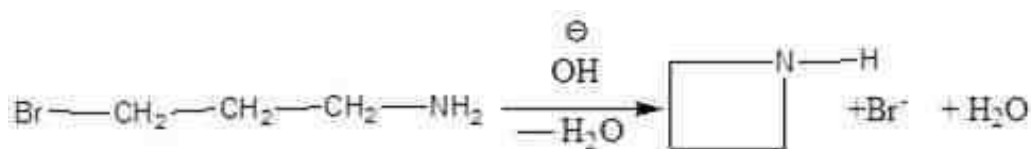


3
**FOUR MEMBER NONAROMATIC
HETEROCYCLES**
Azetidine:


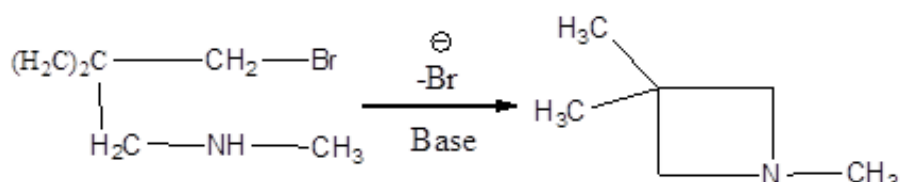
Azetidine is non aromatic molecule. It is a colorless liquid with the boiling point 61°C .

Synthesis:

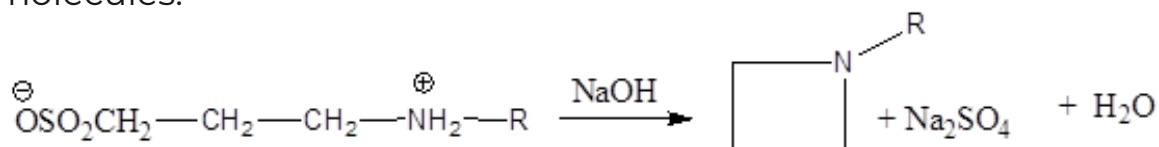
1. Cyclisation methods: γ -Haloalkylamines in presence of a base to prepare azetidine by intra molecular cyclisation.



Cyclisation takes place nucleophilic displacement of the halo group at one end of the chain.

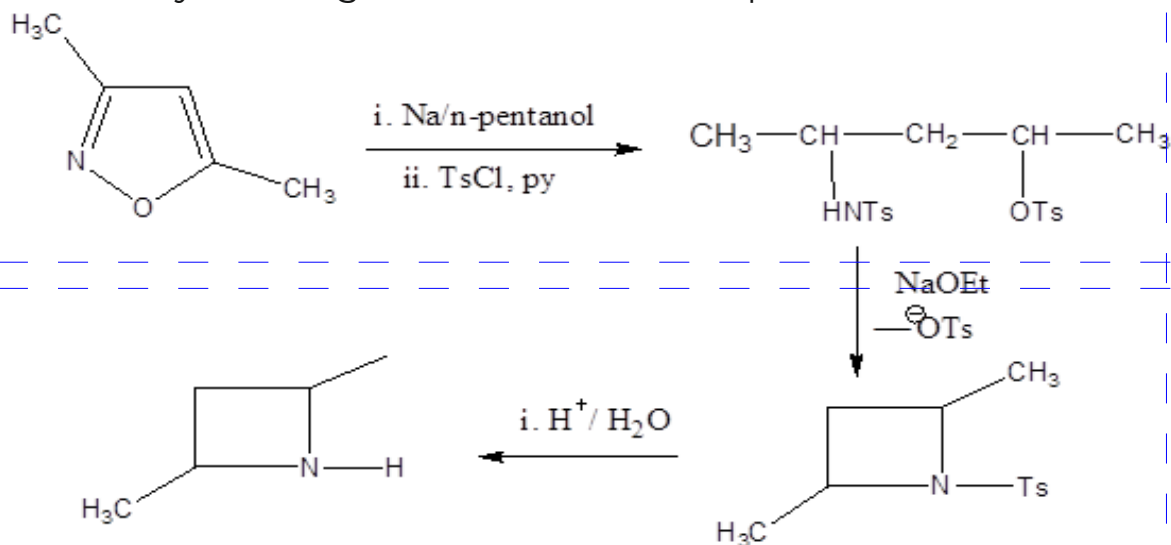


Sulfate esters of γ -amino alcohols have also been used in place of γ -haloamines by using the cyclisation method to give the azetidine molecules.

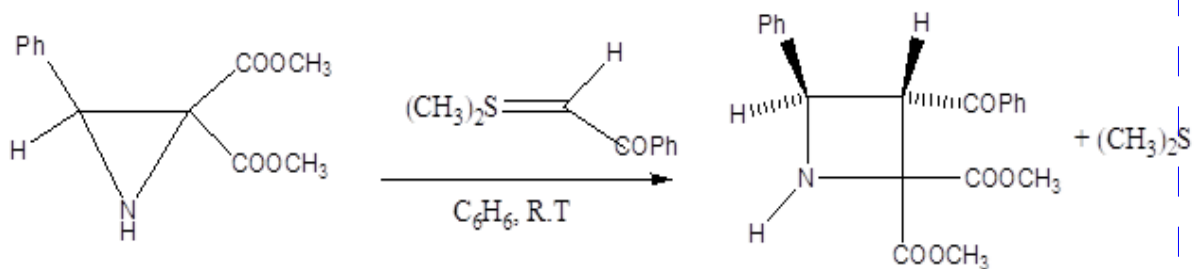


2. From isoxozoles derivatives: The 3, 5 dimethyl isoxazole ring is first opened by the treatment with sodium in presence of n-pentanol and subsequently reacted with the tosylchloride and pyridine. Cyclisation is then accomplished in presence of strong base to give the

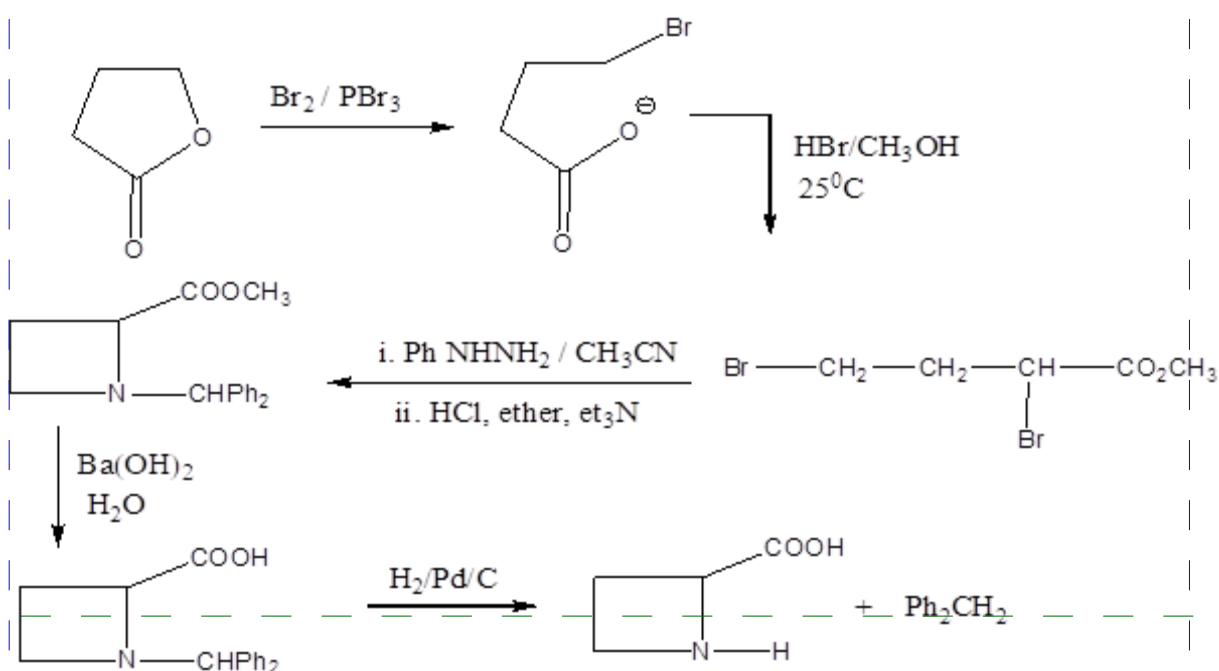
intermediate compound. The final product, 2,4-dimethylazetidene is obtained by reducing the intermediate compound.



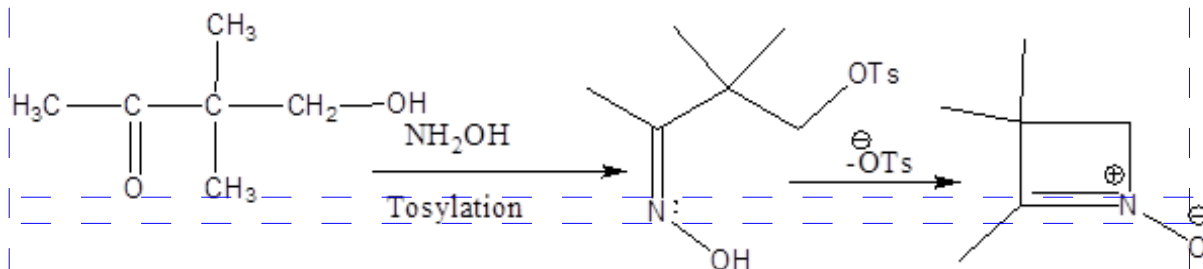
3. From Aziridine: Substituent aziridine reacts with sulpharane derivative in benzene at room temperature to give the substituted azetidine molecule.



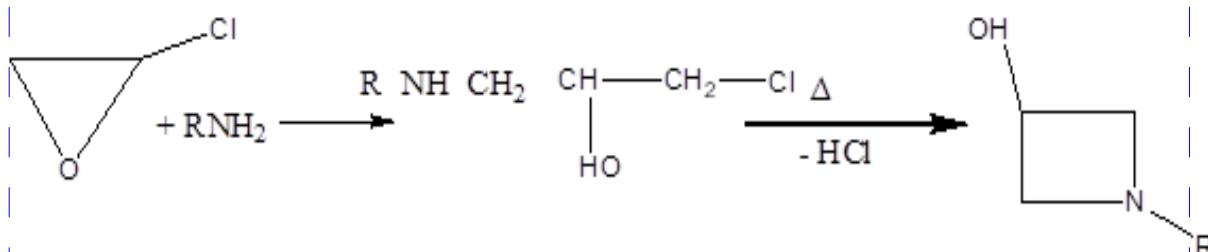
4. From lactones: The γ -lactones are converted into azetidine-2-carboxylic acid by using the following sequence of the reactions.



5. By intramolecular participation: Oxime group participation in intra molecular reactions is exhibited in the following compound which forms azetidine-N-oxide.

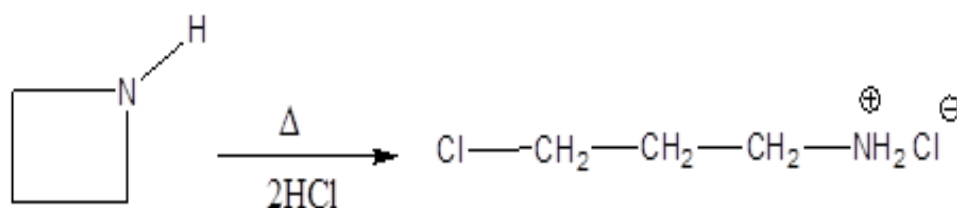


6. Reaction of Amines with halogenoalkynloxiranes: Amines reacts with epichlorohydrines to give 1-alkylamino-3-chloro-2-alkanones. Presence of a bulky group at the nitrogen atom suppresses side reactions. The intermediate cyclises on heating to 500C. This method provides the 3-hydroxyazetidines.

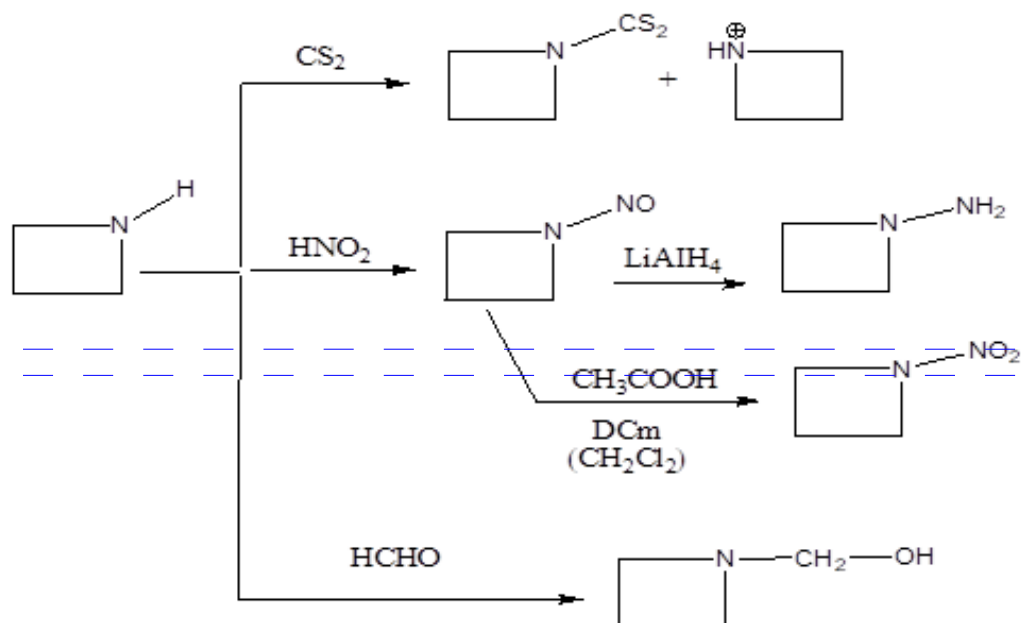


Chemical properties:

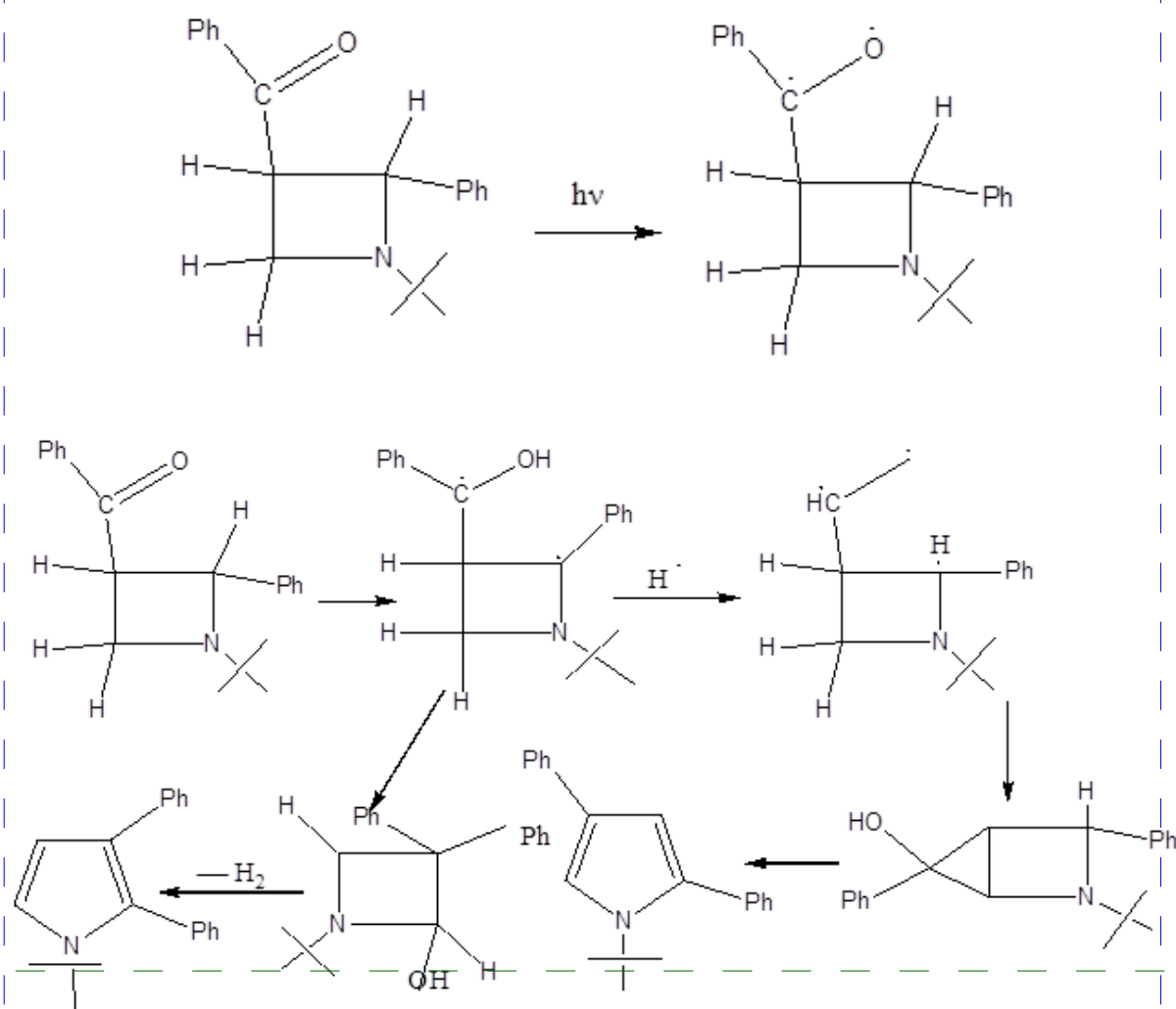
1. Ring opening Reactions: The azetidine ring is cleaved more slowly than the aziridine. The cleavage is considerably accelerated by the presence of acids catalysts. Opening of azetidine in the presence of hydrochloric acid results in 3-chloropropylaminehydrochloride.

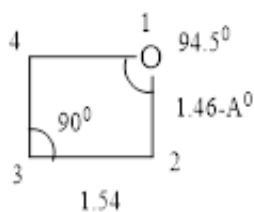


2. Formation of Azetidine derivatives: Azetidine behaves like a secondary aliphatic amine and thus it reacts with reagents such as carbondisulphide to form a salt, with nitrous acid to give N-aminoazetidine and with reacts formaldehyde to give N-hydroxymethylazetidine molecule.



3. Photochemical chemical Reaction: The photochemical reactions of azetidines have not been investigated well. Azetidinyketone which on irradiation rearranges to diaryl pyrroles.

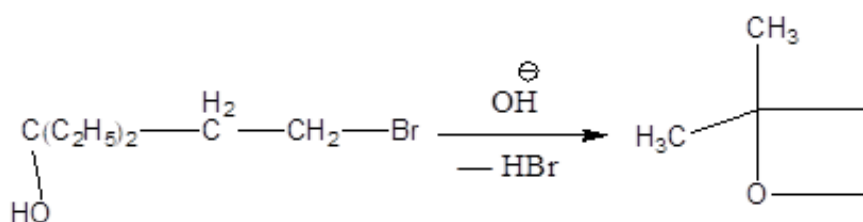


Oxetane:


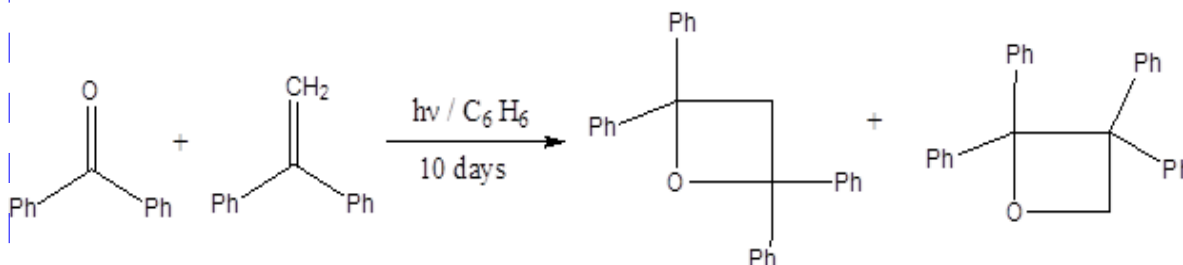
Oxetane is also known as trimethylene oxide. It is a colorless liquid with boiling point of 47°C.

Synthesis:

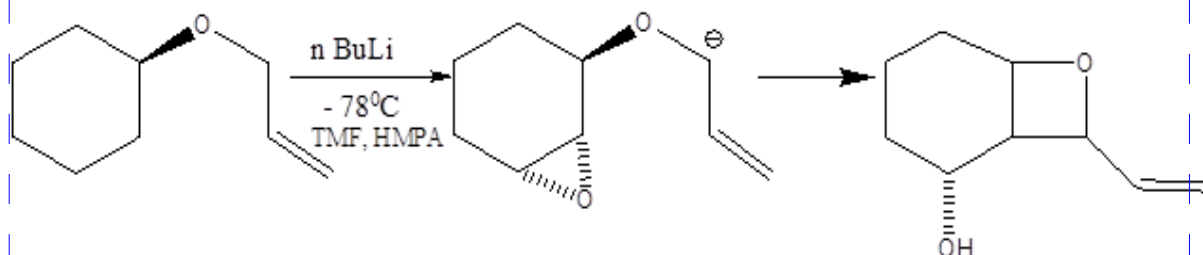
1. Cyclisation reactions: Intramolecular cyclisation of a halohydrines in presence of base gives oxetane ring with the loss of HBr.



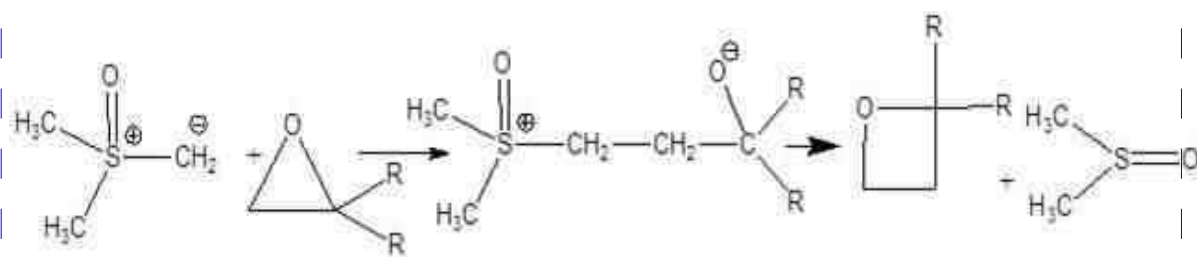
2. Photochemical reactions: The addition of benzophenone to 2-methylpropene produces a 9:1 mixture of 3,3-dimethyl-2,2-diphenyl oxetane and 2,2-dimethyl-4,4-diphenyl oxetane.



3. From Epoxy allyl ethers: Epoxyallyl ethers in presence of a strong base to give vinyl oxetane derivative.

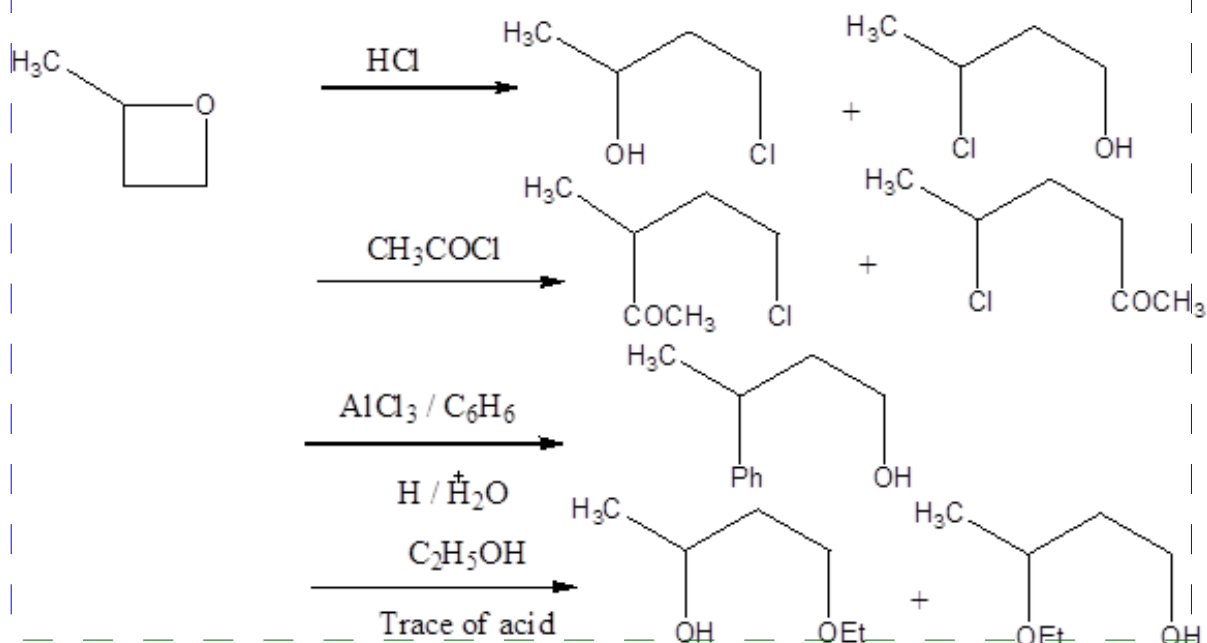
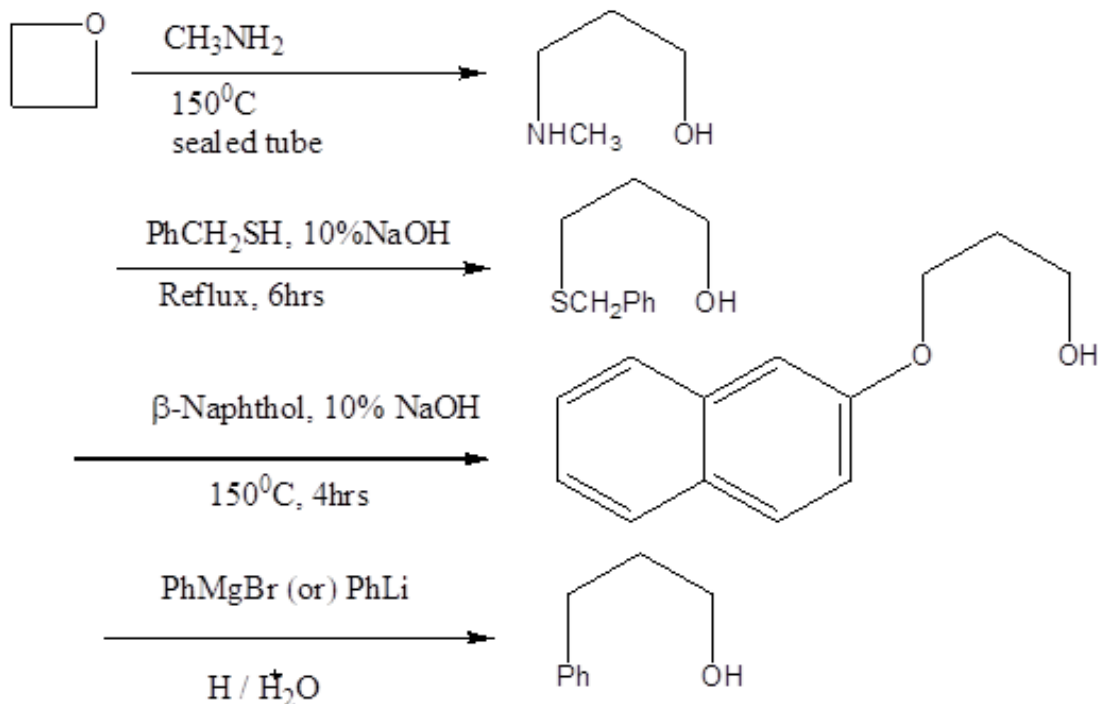


4. From ylides: Dimethyloxosulphonium methyllide transfers a methylene to a ketone to produce an oxirane. A similar transfer to an oxirane yields an oxetane.

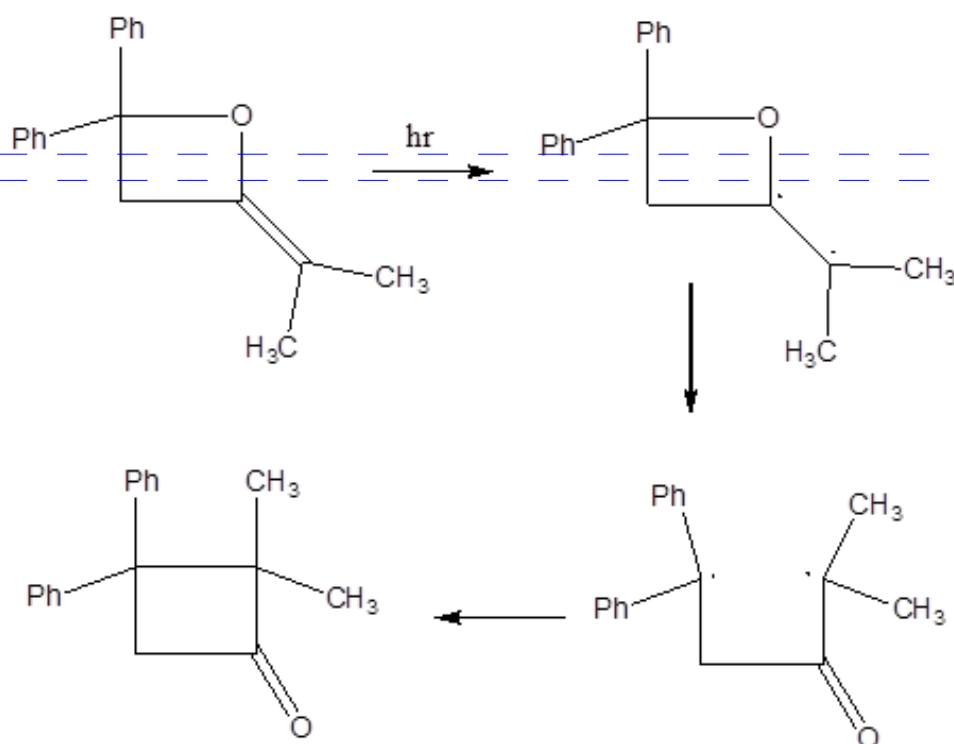


Chemical properties:

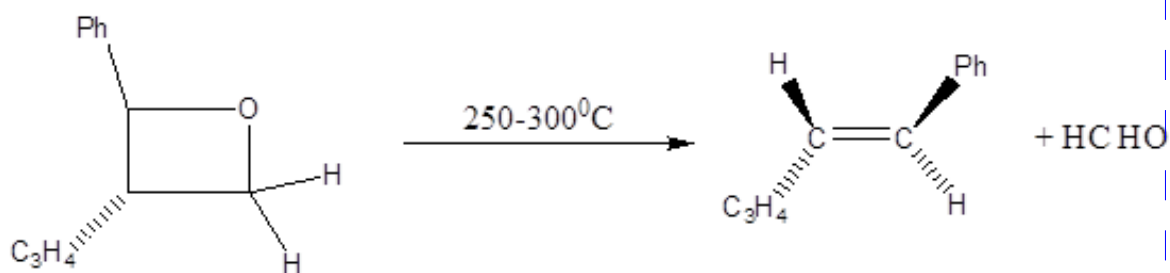
1. Ring opening reactions:



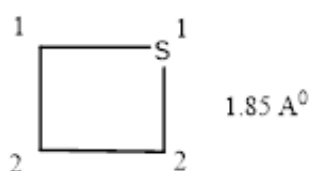
2. Photochemical & thermal reactions: Oxetone derivatives available easily from benzophenone & 1,1-dimethyl allene undergoes the photo rearrangement to give the cyclobutanone derivative, the reaction is sensitized by triphenylene.



Pyrolysis of trans-3-n-propyl-2-phenyloxetone at 250-300°C proceeds in a stereospecific manner and produces almost exclusive product as trans-1-phenylpent-1-ene.



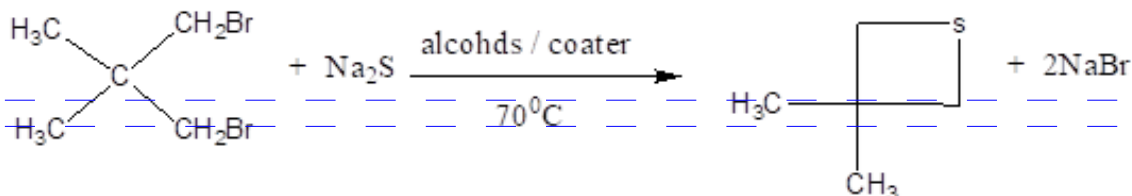
Thietanes:



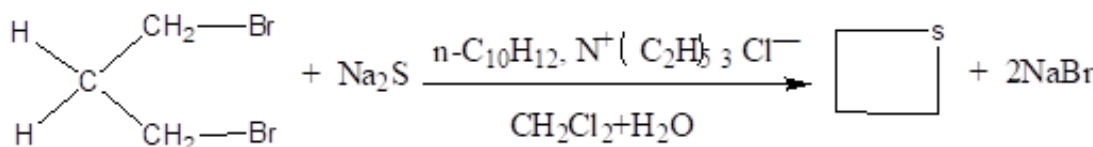
Thietane is a colorless liquid with boiling point 94.90°C and melting point -73.2°C.

Synthesis:

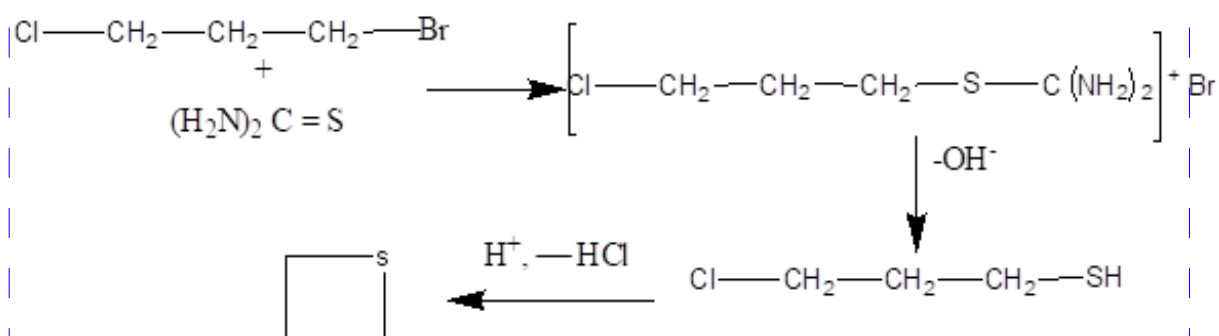
1. From 1,3-dihaloalkanes: The preparation of thietane involved the reaction of 1,3 dihaloalkanes with sodium or potassium sulfide. The reaction is generally carried out in alcohol or water mixture at 70°C and yield is 50%.



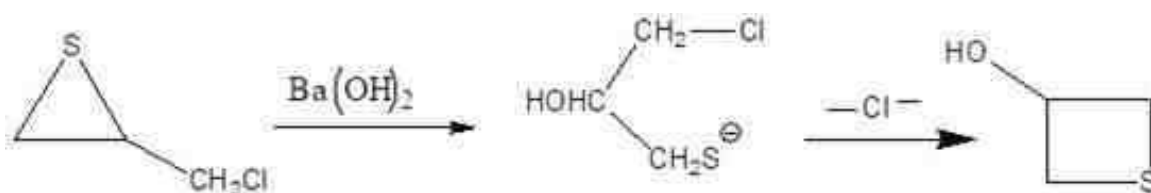
The preparation of thietone from 1,3 dihalo alkanes with on aqueous solution of sodium sulphide containing hexadecyltriethylammonium chloride as a phase transfer catalyst and the yield is 70%.



The dihalo alkanes are treated with thiourea to give the thietone molecule.

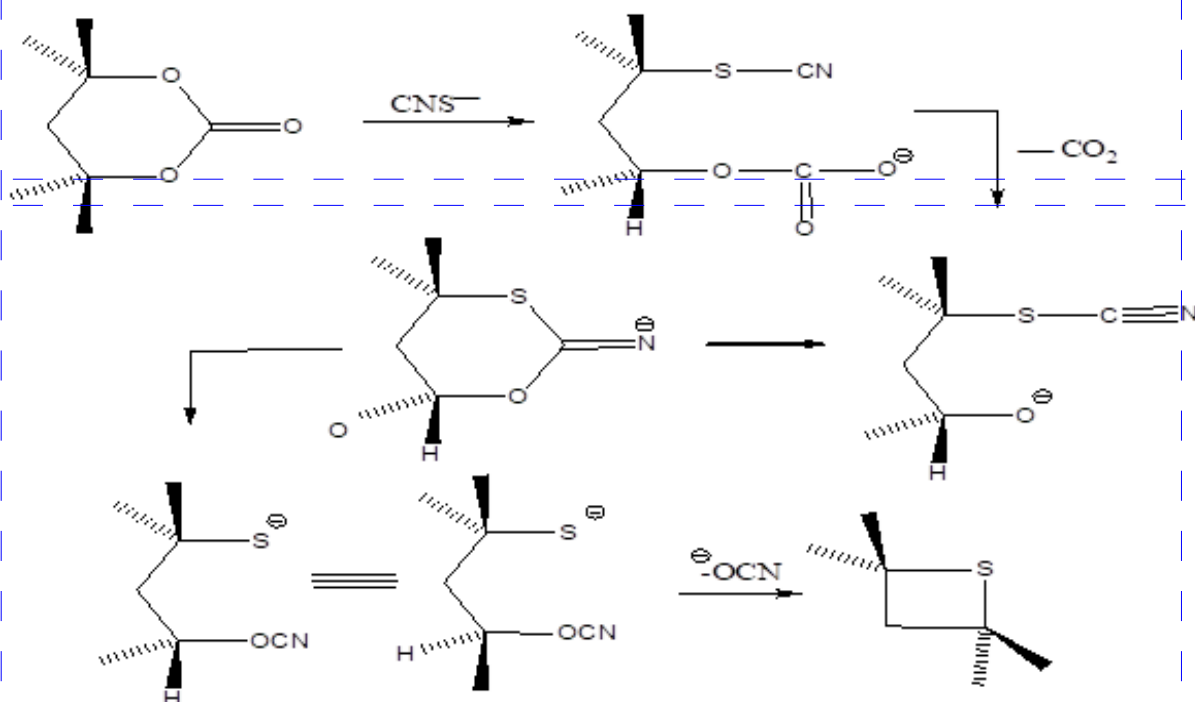


2. From chloromethyl thierane: Alkaline ring opening of chloromethyl thierane to 3- chloropropane sulfide, which cyclises to gives 3-thietanol. Epichlorohydrin in presence of barium hydroxide also gives 3-thietanol.

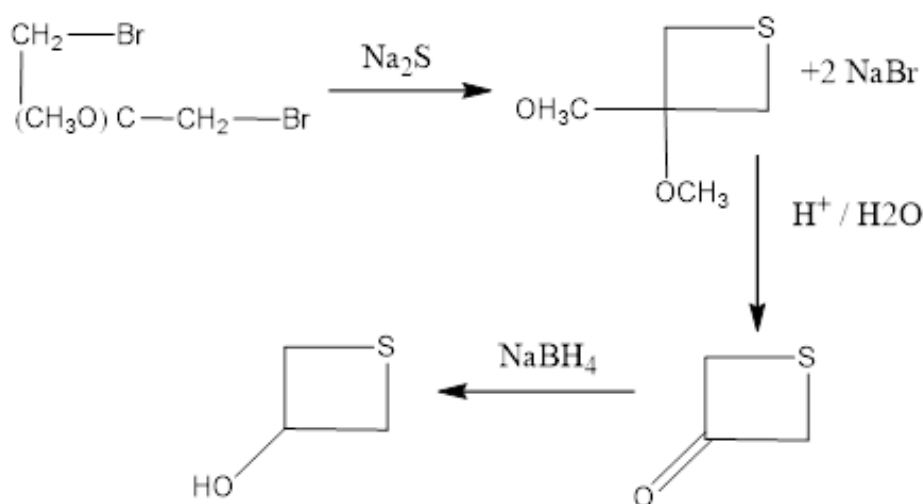


3. From the decomposition of cyclic carbonates: A highly stereospecific synthesis for the preparation of 2,3-disubstituted

thietanes involves the decomposition of cyclic carbonates of 1,3-diols (1,3-dioxan-2-one) in the presence of thiocyanate ion. The 4R-4-methyl derivative is converted to 2S-2-methyl thietane.



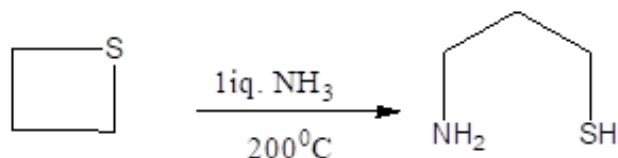
4. Thietane-3-one is readily by the hydrolysis of acetal. The ketone is reduced with sodiumborohydride to 3-thietanol



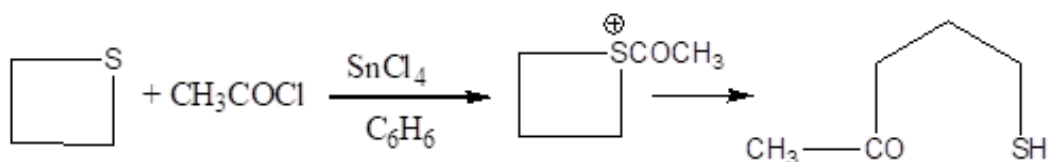
Chemical properties:

1. Ring opening reactions: Thietane molecule is less reactive than the thiirane but more so than the inert thiophene. This is explained to be due to lower strain in the thietane molecule than in thiirane. The thietane ring is opened rather slowly and that too drastic conditions

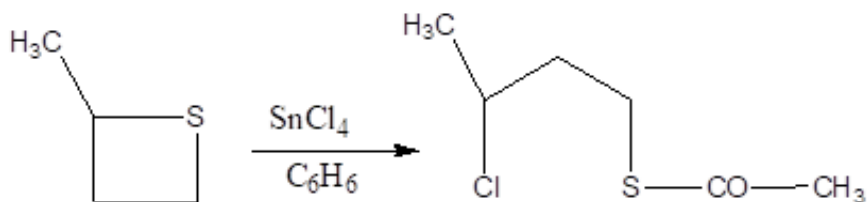
with ammonia it forms 3-aminopropanethiol.



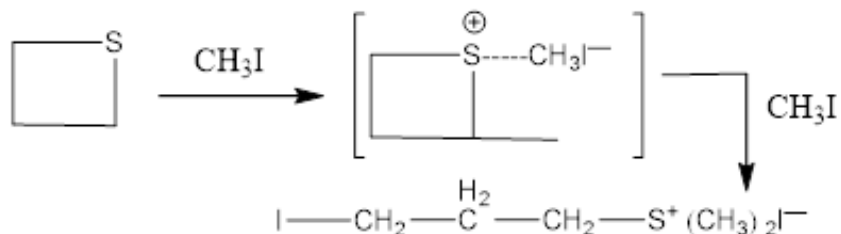
Thietane reacts similarly with acidic reagent acetyl chloride in presence of tin chloride in benzene to form 3-chloropropylthioacetate.



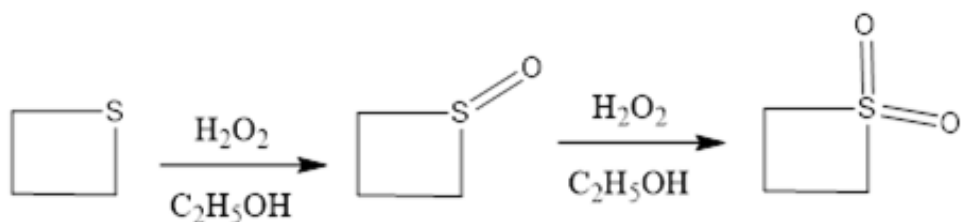
In 2-methylthietane, the S-C bond is attacked preferentially by acetyl chloride.



2. Formation of Quarternary salt: Methyl iodine reacts with thietane to give a quarternary thietanium salt but the ring is immediately cleaved. In addition other polyhalides are also formed.

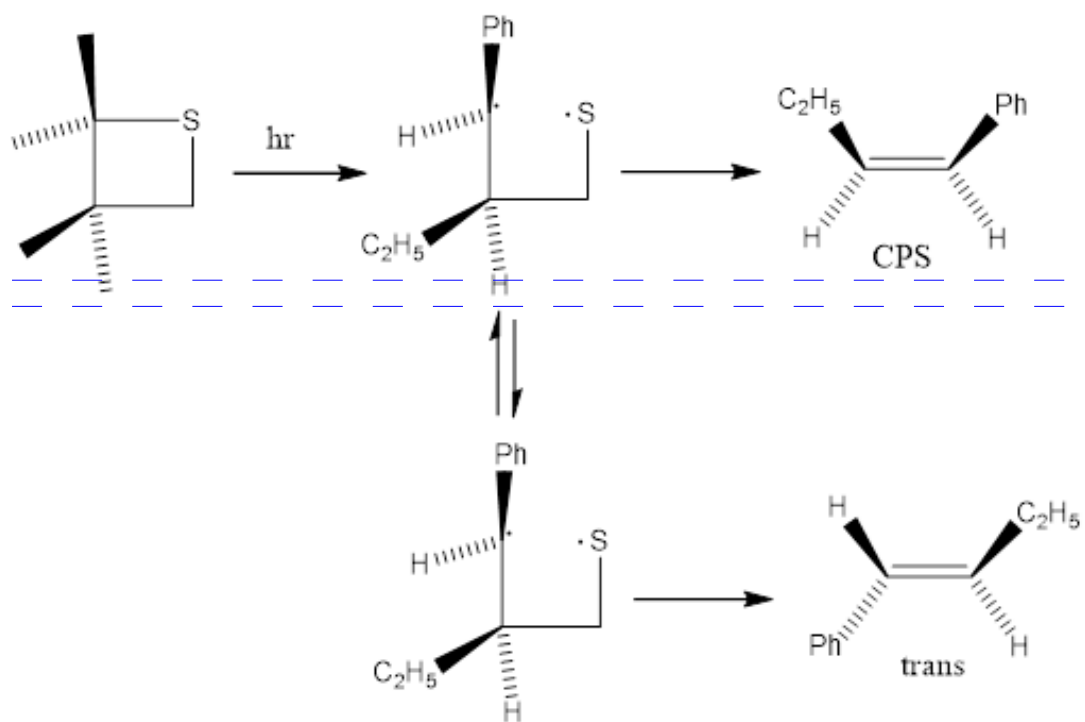


3. Oxidation: Thietane is easily oxidized by hydrogenperoxide to produce successively 1-oxide & finally gives sulfones.



4. Photo chemical Reaction: Cis- & trans- 3-ethyl-2-phenyl thietone on photolysis gives corresponding cis & trans alkenes through a biradical

intermediate formation.

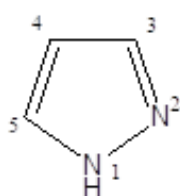


4

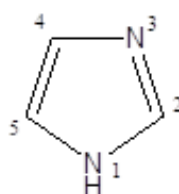
FIVE MEMBER HETEROCYCLES WITH TWO HETERO ATOMS

Heterocycles containing one hetero atom, the numbering starts from the Heteroatom. Whereas, if two or more different hetero atoms are present in a heterocyclic compound it is named by combining prefix in order of their preference that is oxygen, nitrogen and sulphur. For numbering of these systems the heteroatom which is in the highest group in periodic table and the element of least atomic number in that group is often given the preference that is oxygen, sulphur and nitrogen. All these heterocycles contains six π electrons, therefore, they are aromatic in nature.

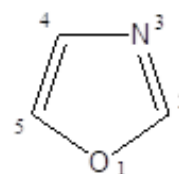
5-membered Heterocycles containing two hetero atoms:



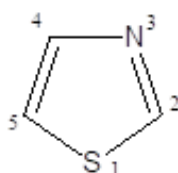
Pyrazole



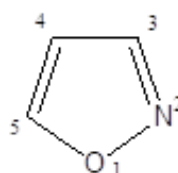
Imidazole



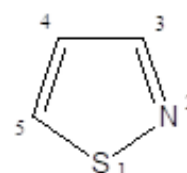
Oxazole



Thiazole



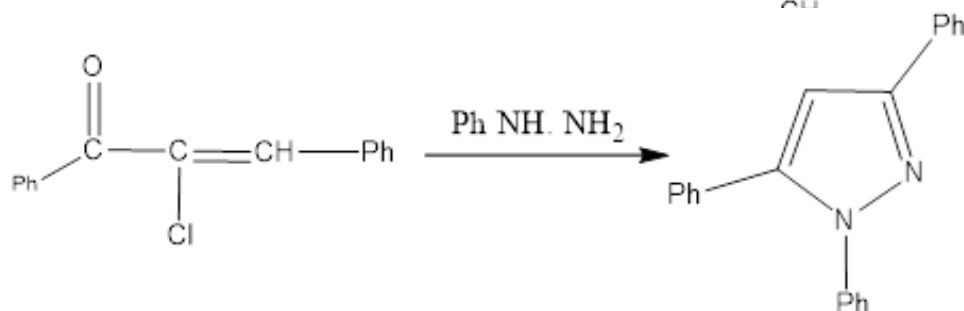
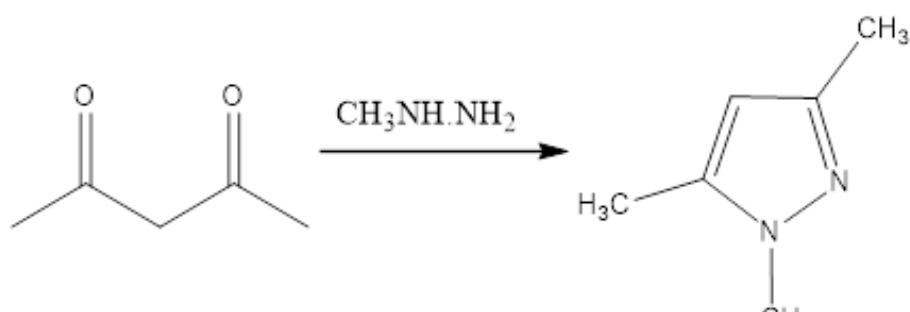
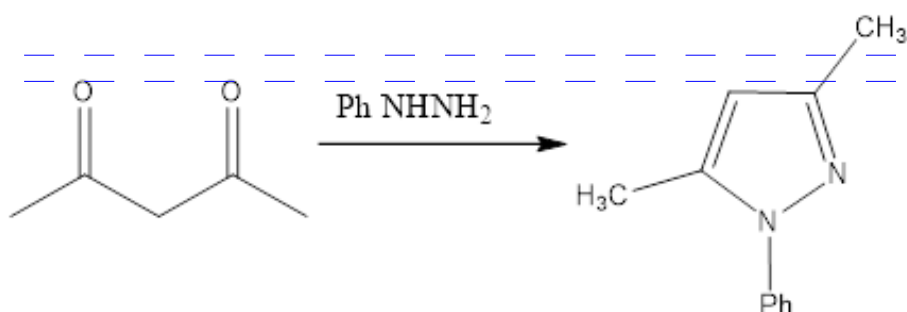
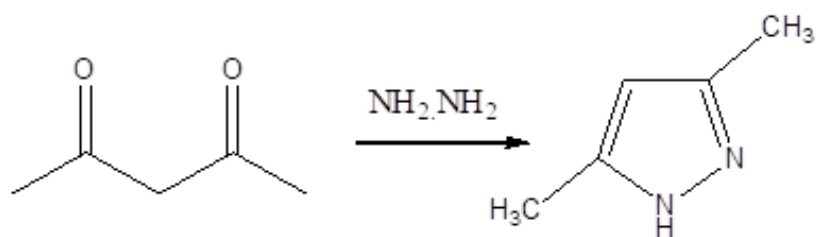
Isoxazole



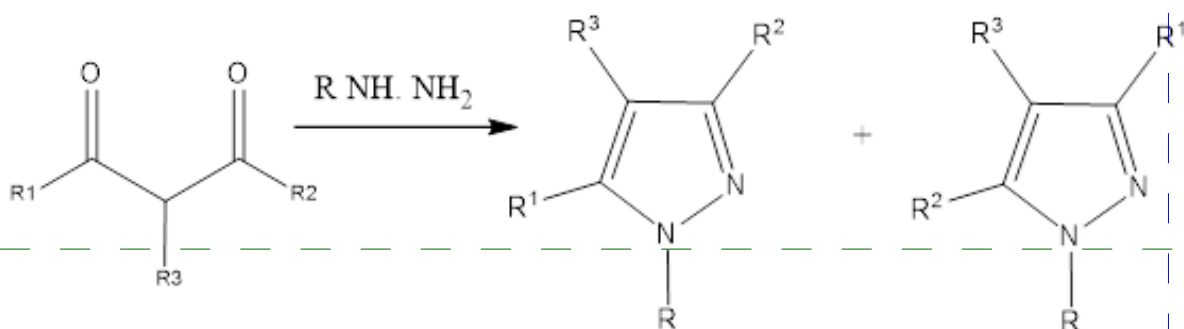
Isothiazole

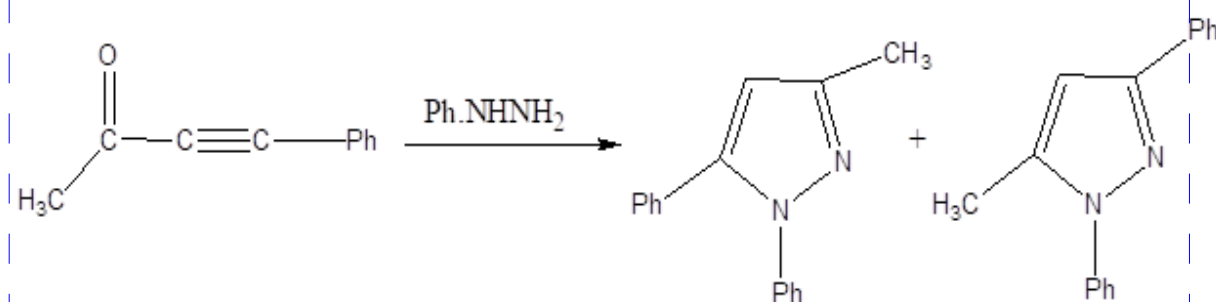
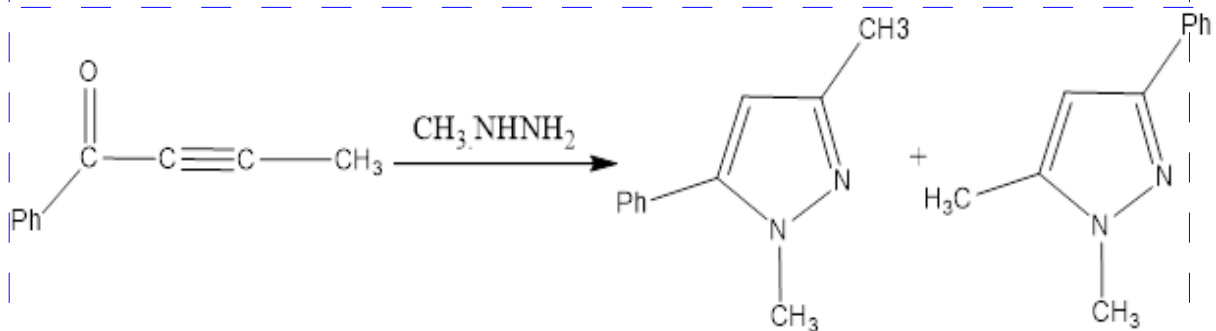
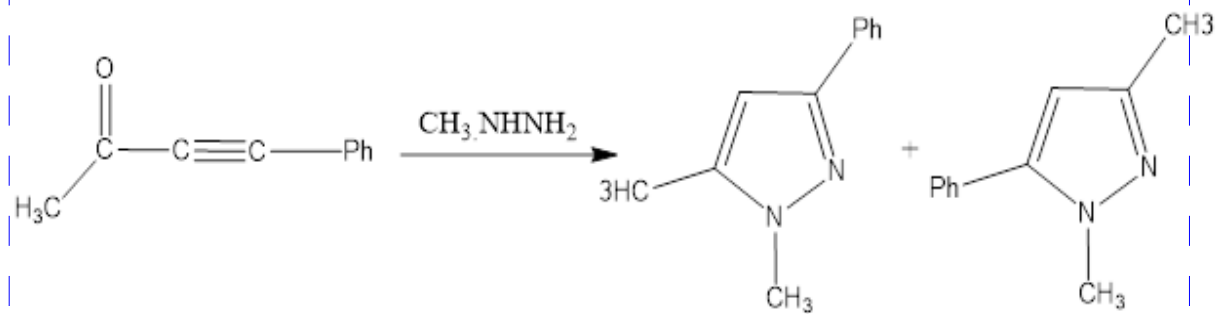
Heterocycles containing one hetero atom, the numbering starts from the Heteroatom. Whereas, if two or more different hetero atoms are present in a heterocyclic compound it is named by combining prefix in order of their preference that is oxygen, nitrogen and sulphur. For numbering of these systems the heteroatom which is in the highest group in periodic table and the element of least atomic number in that group is often given the preference that is oxygen, sulphur and nitrogen. All these heterocycles contains six π electrons, therefore, they are aromatic in nature.

5-membered Heterocycles containing two hetero atoms:

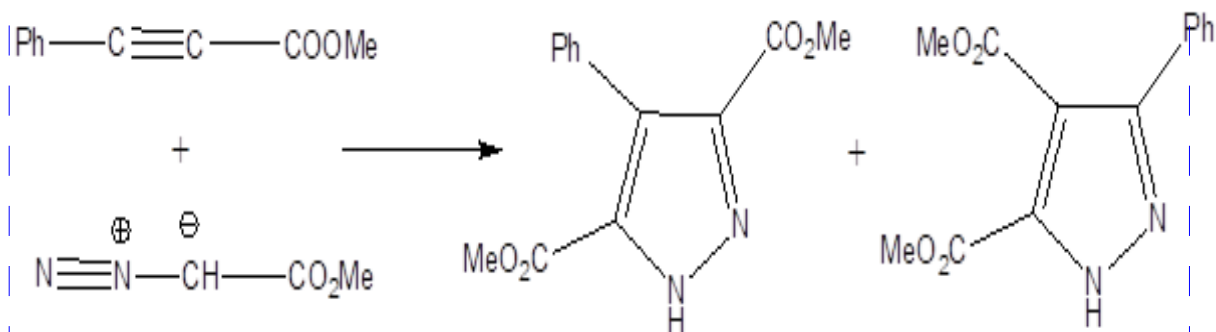


2. From α,β unsaturated carbonyl compounds: α,β unsaturated carbonyl compounds are treated with hydrazine to yield the corresponding pyrazole derivatives.

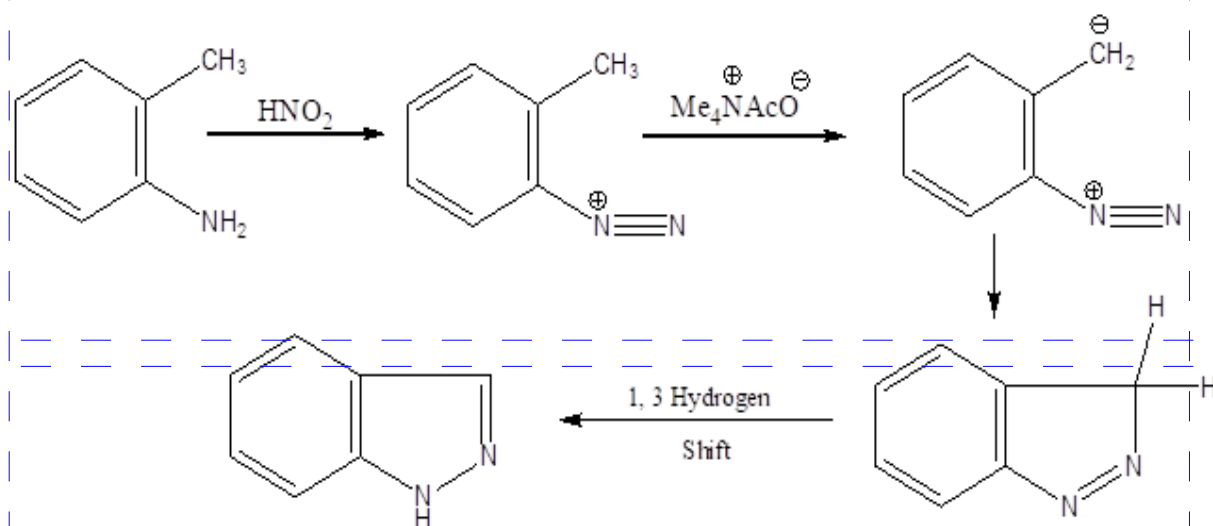




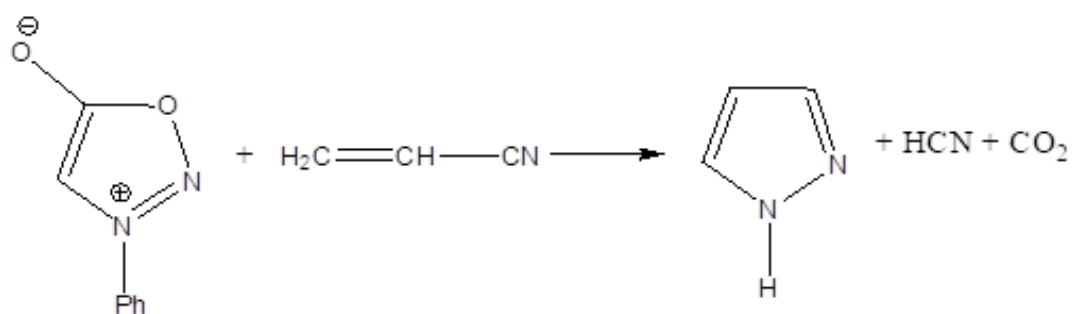
3. By 1,3 dipolar Addition: By 1,3 dipolar addition to alkynylides gives substituted pyrazoles.



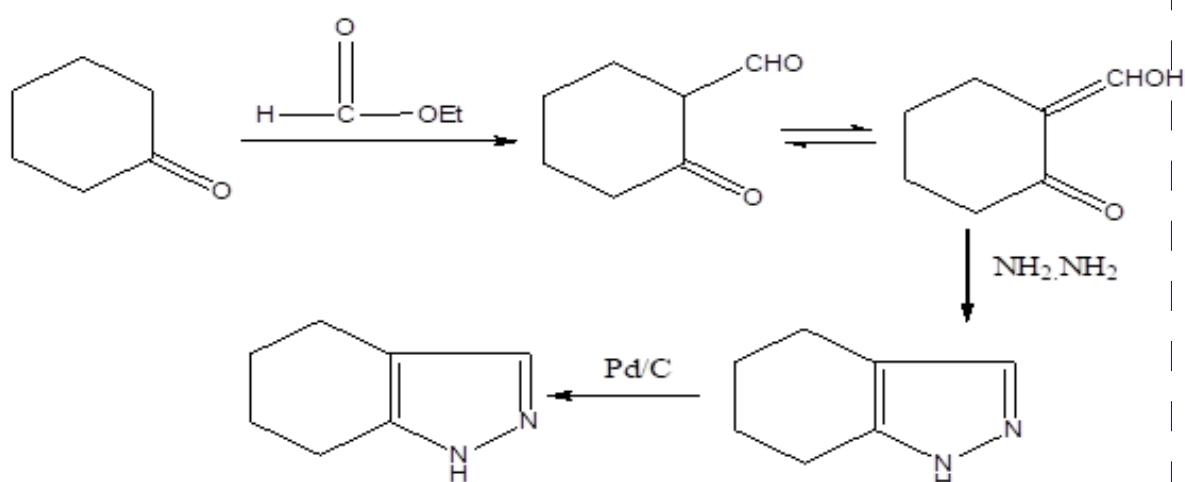
4. From substituted Anilines: Diazotisation of substituted anilines yields the benzo substituted pyrazoles.



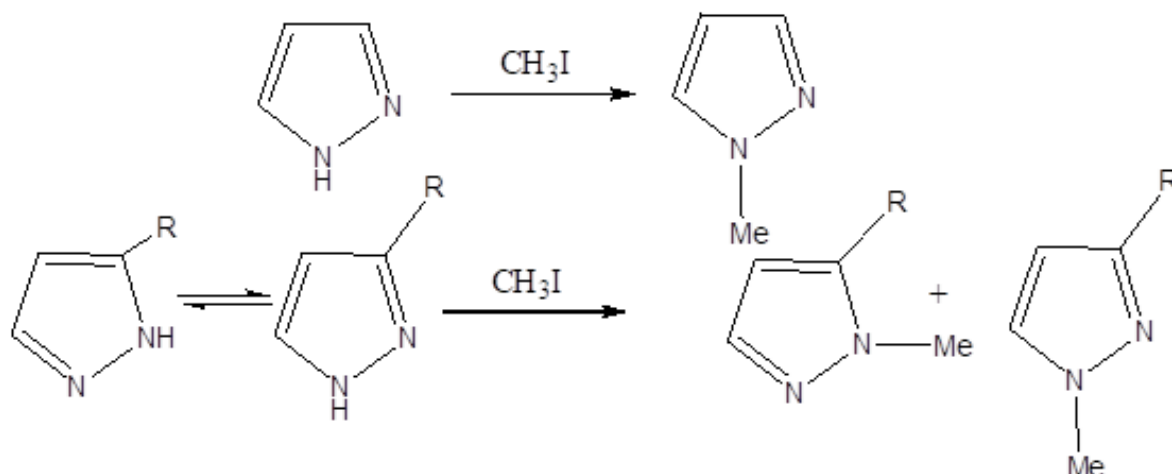
5. From other ring compounds: Syndones in presence of vinyl cyanide gives pyrazoles.



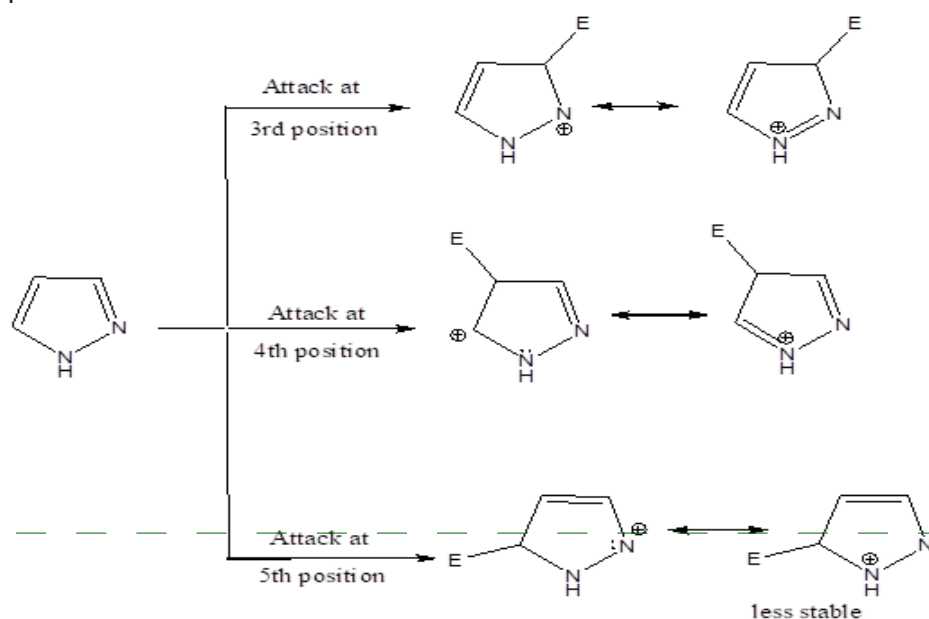
6. From cyclohexanone: Cyclohexanone is treated with formate ester gives an intermediate keto aldehyde, which reacts with hydrazine followed by the treatment with palladium-charcoal yields the benzo substituted pyrazoles.



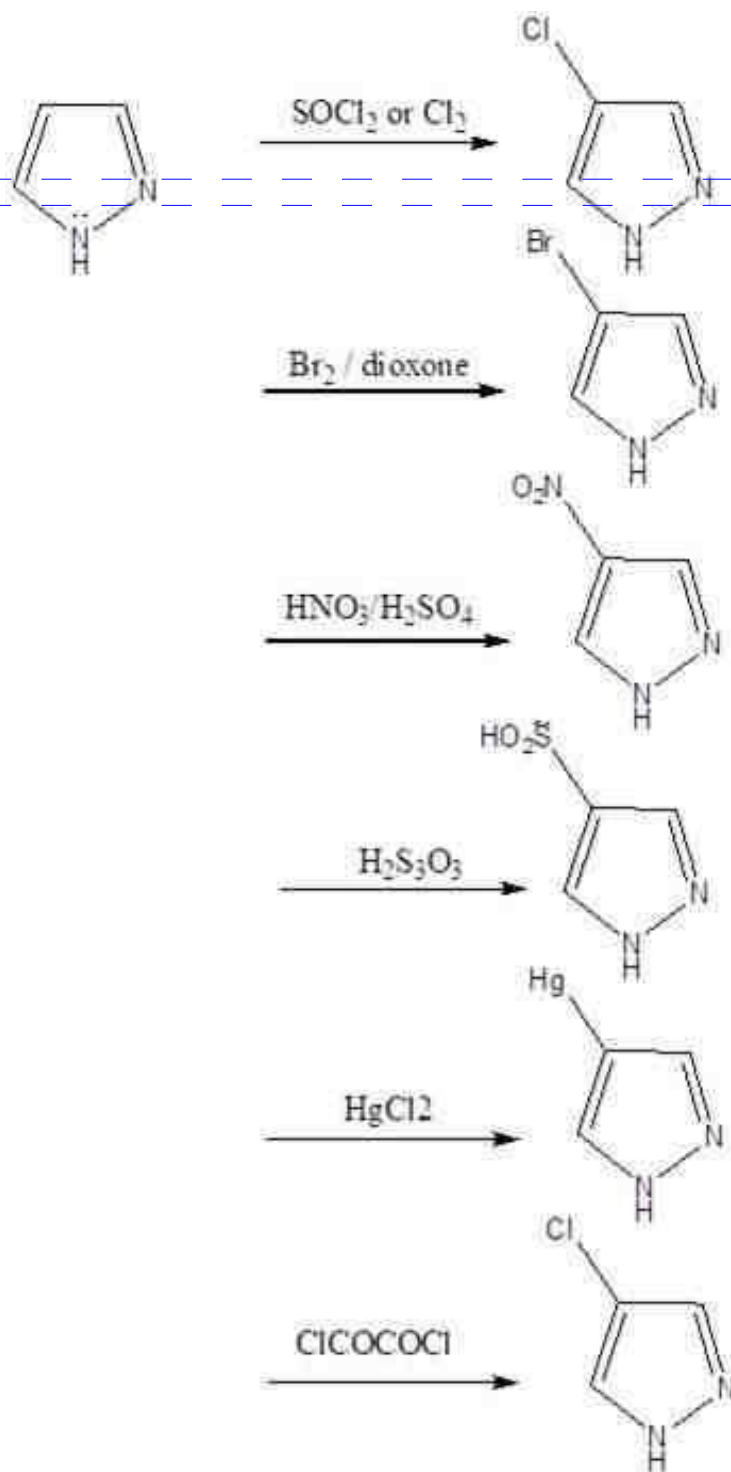
3. N-methylation reaction: Methylation of free -NH group of pyrazole takes place with the different alkylating agents. For example, diazomethane or dimethylsulphate. Substituted pyrazoles undergo alkylation to give a mixture of two isomeric products. However, under controlled conditions, one of the isomers may be preferentially obtained, which depends on nature of the alkylating agent and the reaction conditions that is whether the free pyrazole or its anion is the main reactant.



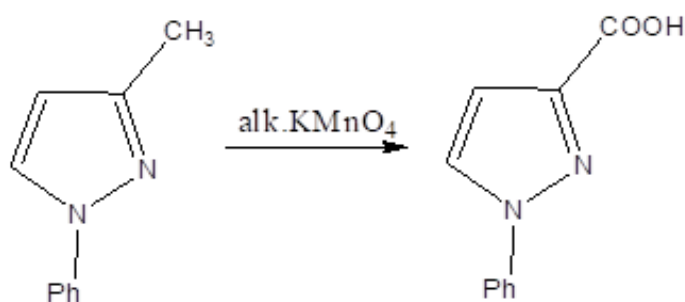
4. Electrophilic Substitution Reactions: Based on the relative stabilities of π -complex intermediate electron substitution reactions frequently takes place at 4th position the resonating structure obtained by the attract of electrophile at position 3- and 5- involves the resonance form with a highly unfavoured positively charges nitrogen atom. The π -complex obtained by the attack of electrophile at position 4- is more stable than the π -complexes obtained by the electrophile attack at C-3 and C-5.



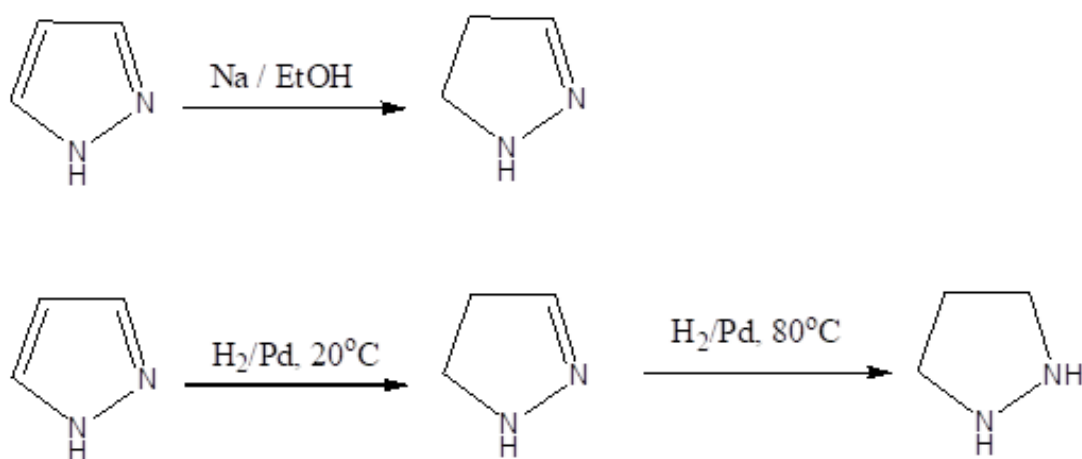
In acidic medium the electrophilic substitution has little use because the intermediate formed in the presence of acid catalyst is more resistant to electrophilic attack than pyrazole itself.



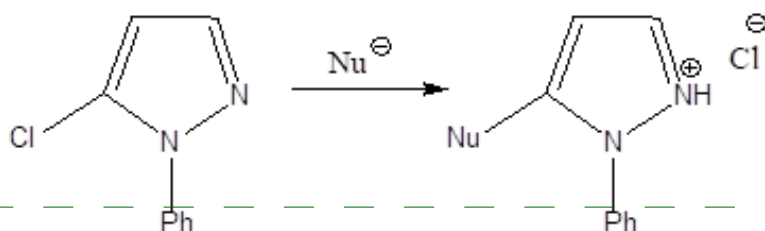
5. Reaction with oxidizing agents: Pyrazole ring is very stable to the action of oxidizing agents. The substituted pyrazole reacts with oxidizing agent to give the product.



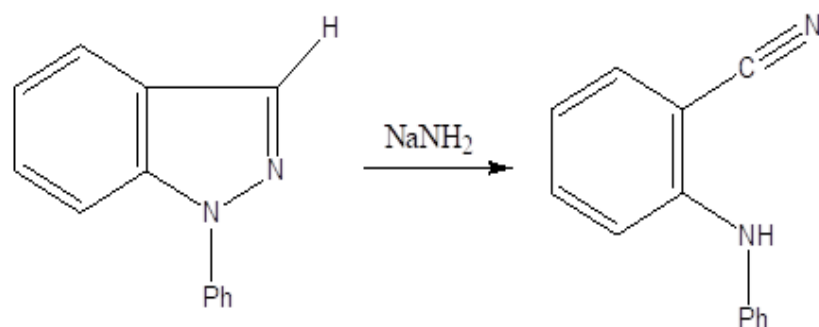
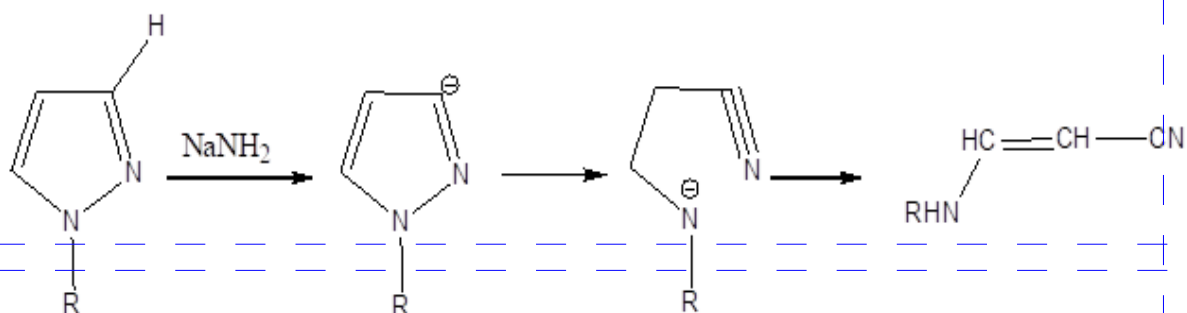
6. Reaction with reducing agent: Pyrazole partially reduces with reducing agents to yield the pyrazoline with sodium in presence of ethyl alcohol and with hydrogen in presence of palladium, which undergoes complete reduction takes place with hydrogen in presence of palladium at 80°C.



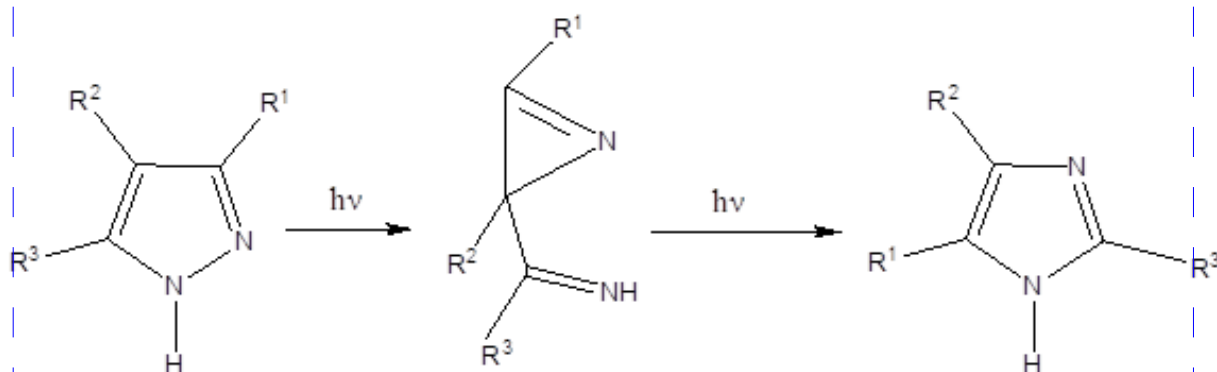
7. Reaction with Nucleophiles: Halogens attached to pyrazole nucleus are inert and thus will not undergo nucleophilic substitution under the usual reaction conditions. In 1-phenyl pyrazole, the halogen atom is more reactive at the position 5-, less at the position 4- and the least at the position 3-. The presence of electron withdrawing groups, reactivity of nucleophilic substitution of halogens. Pyrazole quaternary salts increases the reactivity of the nucleophilic substitution of halogen atom.



Direct amination of pyrazole with sodamide has not observed but it cause ring opening molecules.

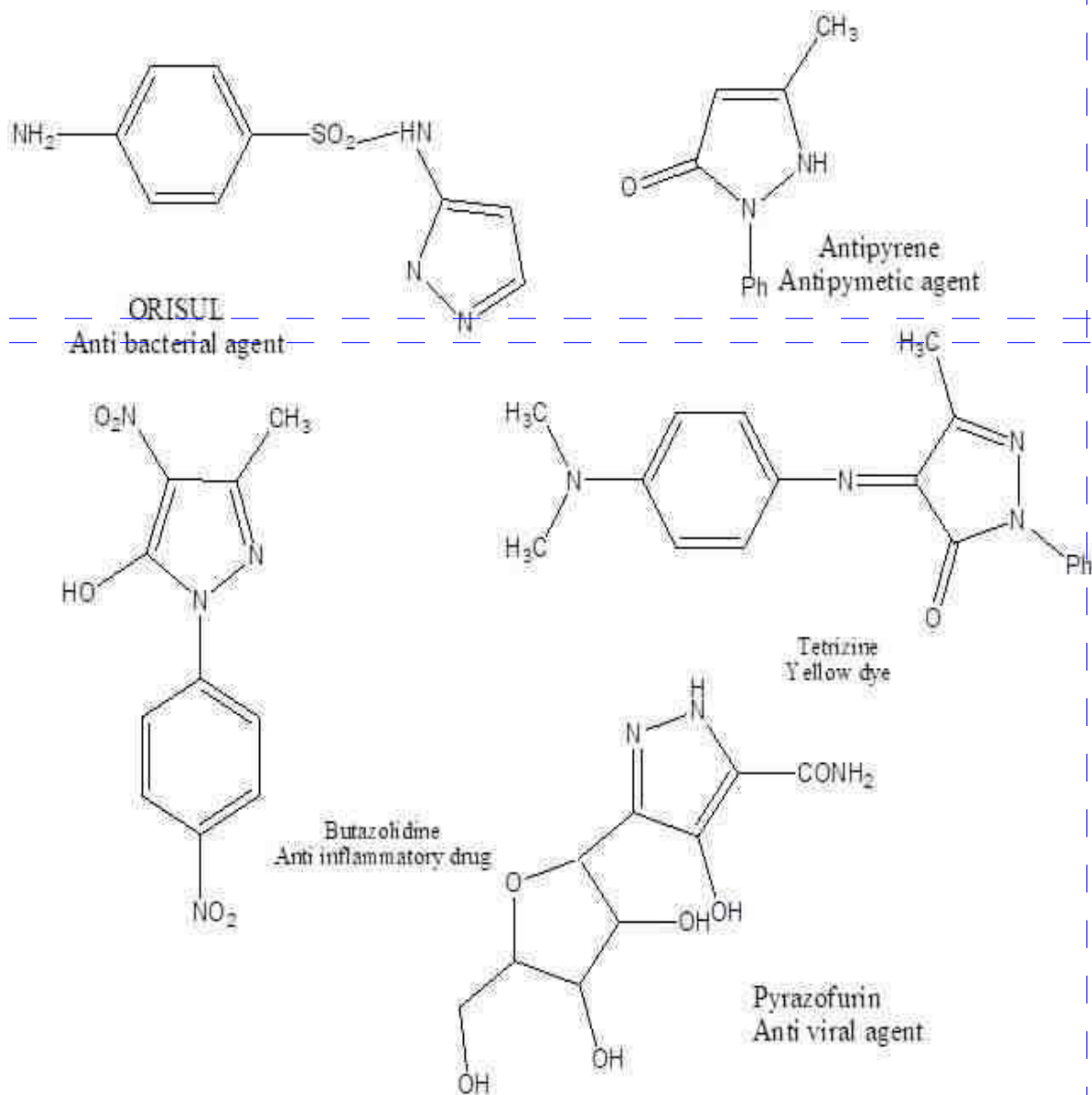


8. Photochemical Reactions: The most important reaction of pyrazole is its conversion to imidazole. In this process first ring opening takes place to produce azirine and further it is converted to imidazole with ring closure.



Natural and biological active pyrazole derivatives:

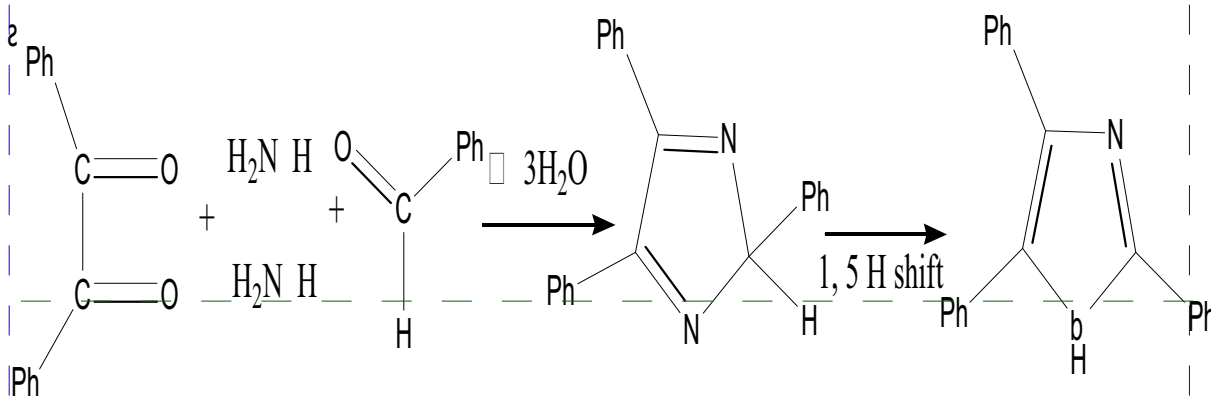
- Pyrazole ring has been shown to be the basis of number of dyes & drugs.
- Pyrazoline acts as effective bleaching agent. The sulfonamides based on pyrazole shows good pharmacological activity.



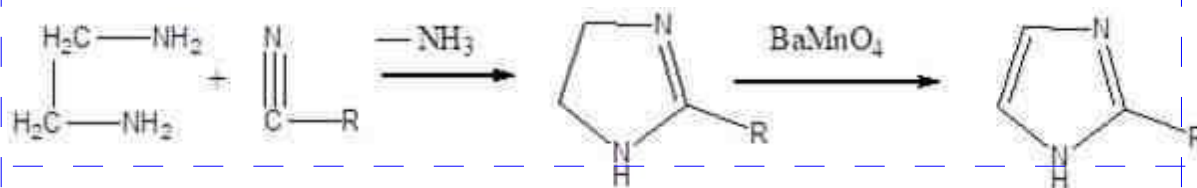
Imidazole:

Synthesis:

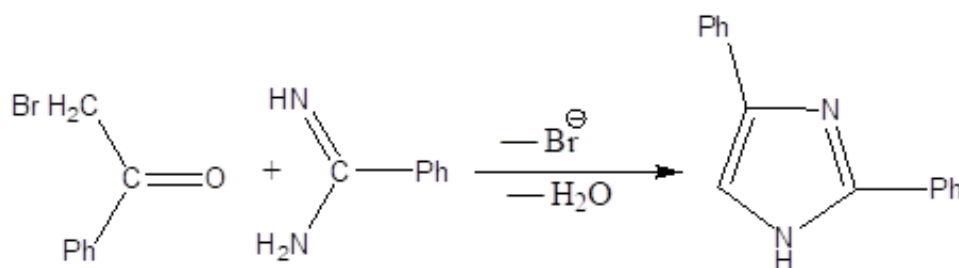
1. Radiszecski Synthesis: 1, 2 diketo compounds, benzaldehyde condensed with 2 moles of ammonia to give a cyclic intermediate which on migration of hydrogen gives the tri substituted imidazole.



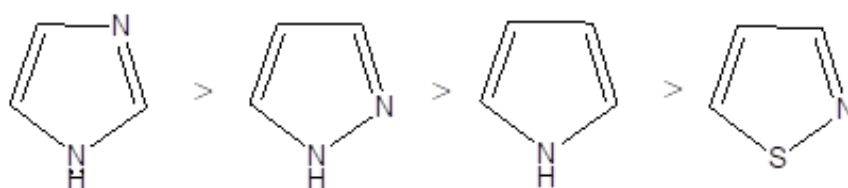
2. Dehydrogenation of Imidazolines: 1, 2 diaminoethane reacts with alkyl cyanide with the loss of ammonia gives alkyl imidazoline which on dehydrogenation gives the alkyl imidazole.



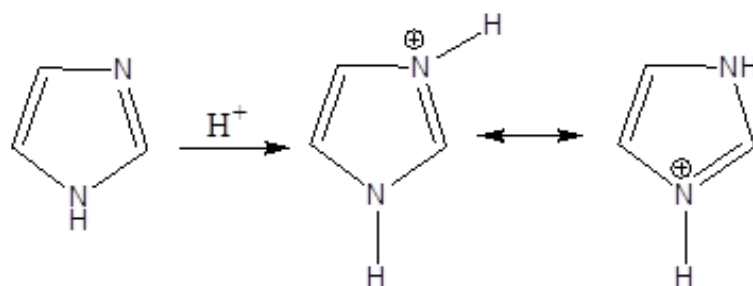
3. From α -haloketones: α -haloketones reacts with phenyl hydrazones to give the imidazole.



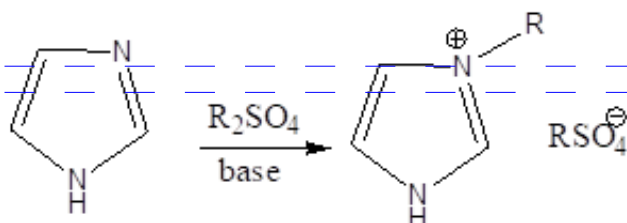
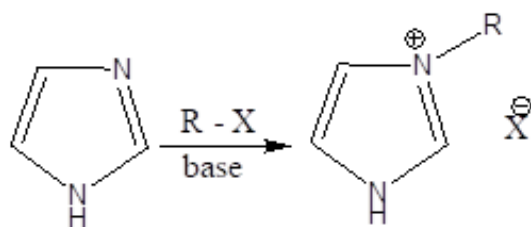
Reactivity:



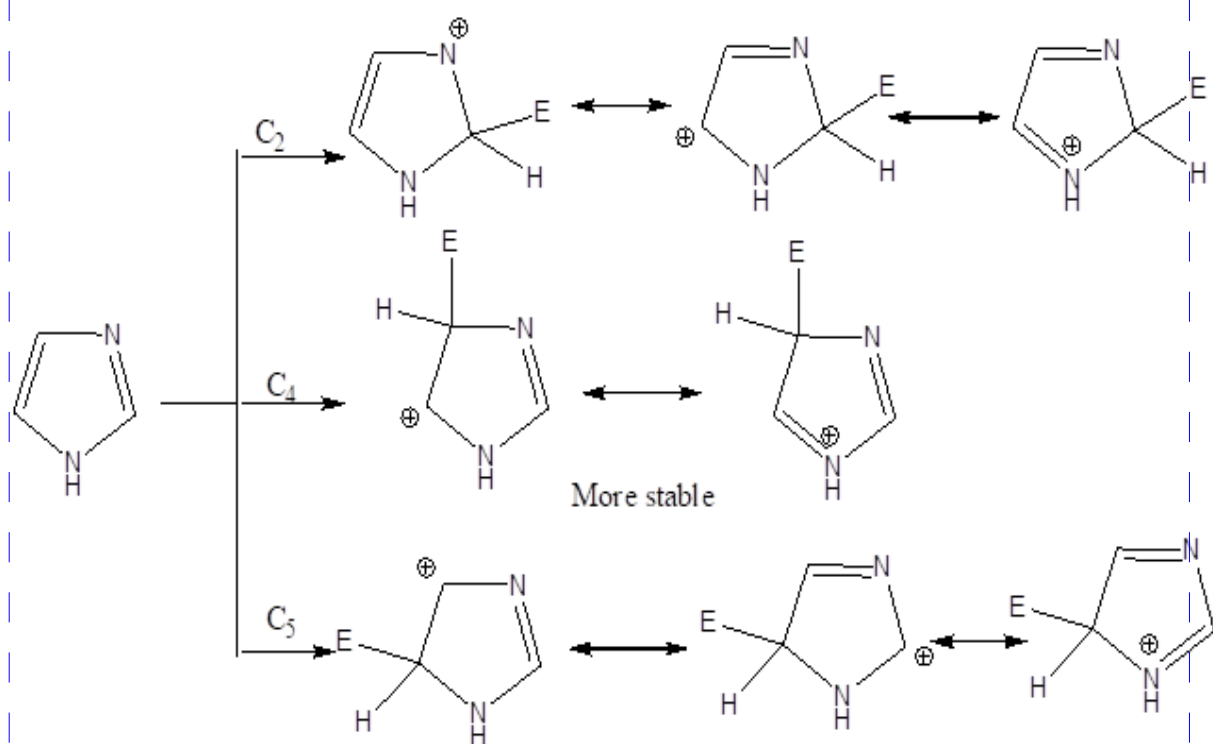
1. Reaction with Acids: Pyrazole reacts with the acid to yield the cations



2. Quaternisation of Imidazoles: Quaternisation of imidazoles can be achieved by treating the imidazole with alkylhalides or dialkyl sulphates under strong basic conditions in an alcoholic solvent.

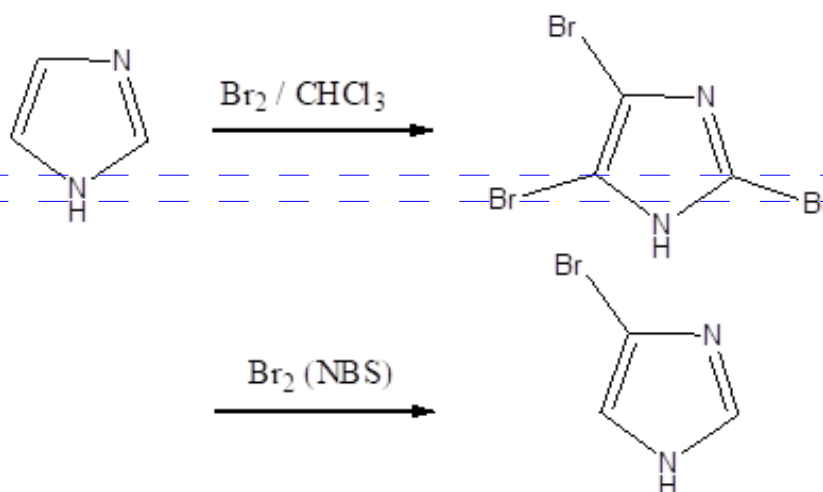


3. Electrophilic Substitution Reactions: Reactivity of imidazole is more than pyrazoles, furans and thiazoles. The electrophilic substitution may take place at C-2, C-4 or at C-5.

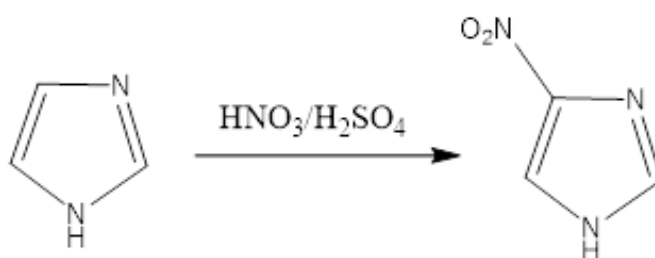


From the above resonating structures it is generated that the attack takes place at position 4- or position 5-. Attack at C-5 gives three resonating structures which indicate that the charge dispersal is more which make that as the less stable. The C-4 attack gives only two resonating structures, which indicates that the charge dispersal is less and hence more stable. It may be noticed that the attack at C-2 involves a resonance structure with a highly unfavoured positive charge on nitrogen at position 3-.

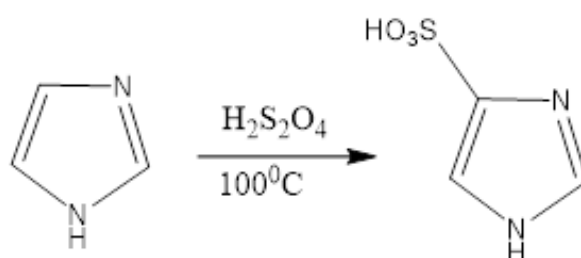
1. Bromination: Bromination of imidazole proceeds in two ways: polybromination takes place in presence of bromine in chloroform whereas by using the N-bromosuccinimide gives monobromination.



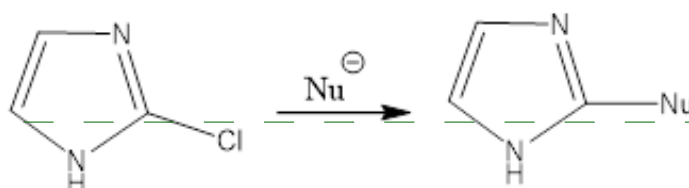
i. Nitration:



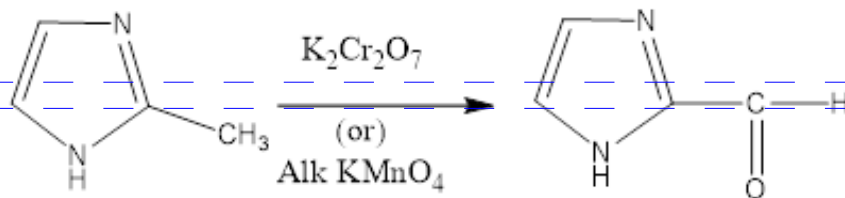
ii. Sulphonation:



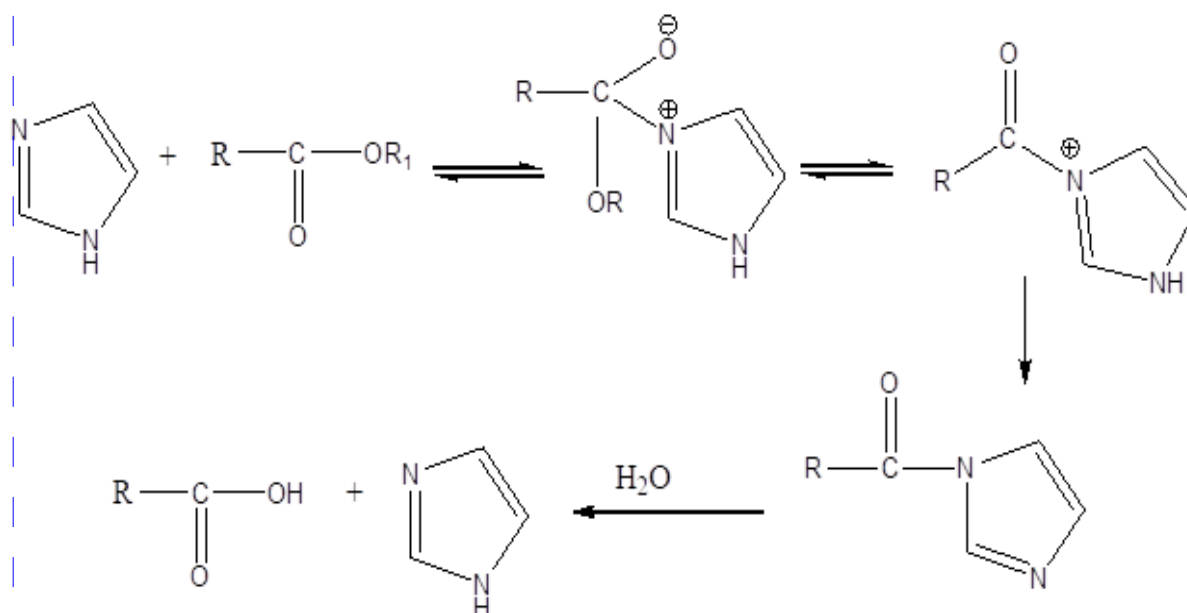
4. Reaction with Nucleophiles: Imidazole does not react with nucleophilic reagents unless electron withdrawing group is present. A halogen atom in the second position can be replaced by nucleophiles such as alkoxy group, thio alcohol or amino alkyl groups, etc.



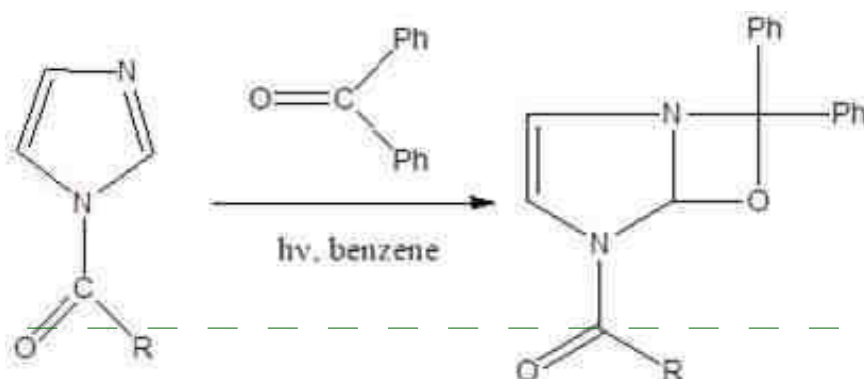
5. Reaction with oxidizing agent: Imidazole is stable to auto oxidation and the action of chromic acid but it is attacked by potassium permanganate. Imidazolium dichromate a mild oxidizing agent used for the oxidation of allylic and benzylic alcohols to the corresponding carbonyl compounds.

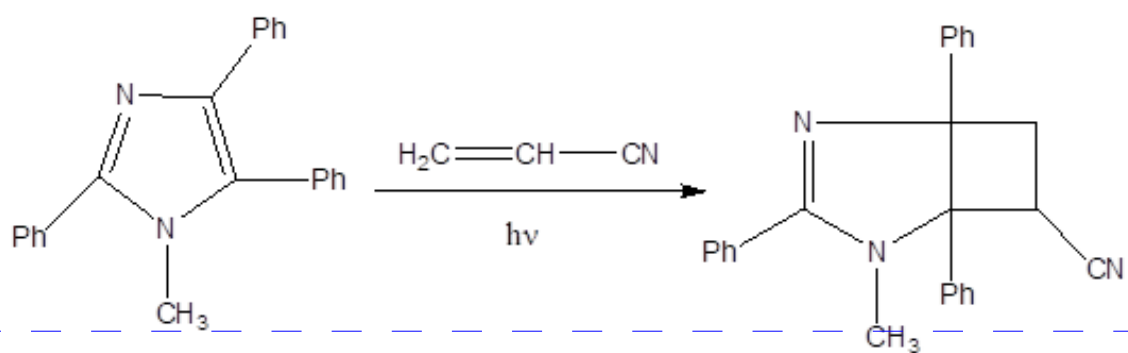


imidazole is due to the N-acyl imidazole intermediate.

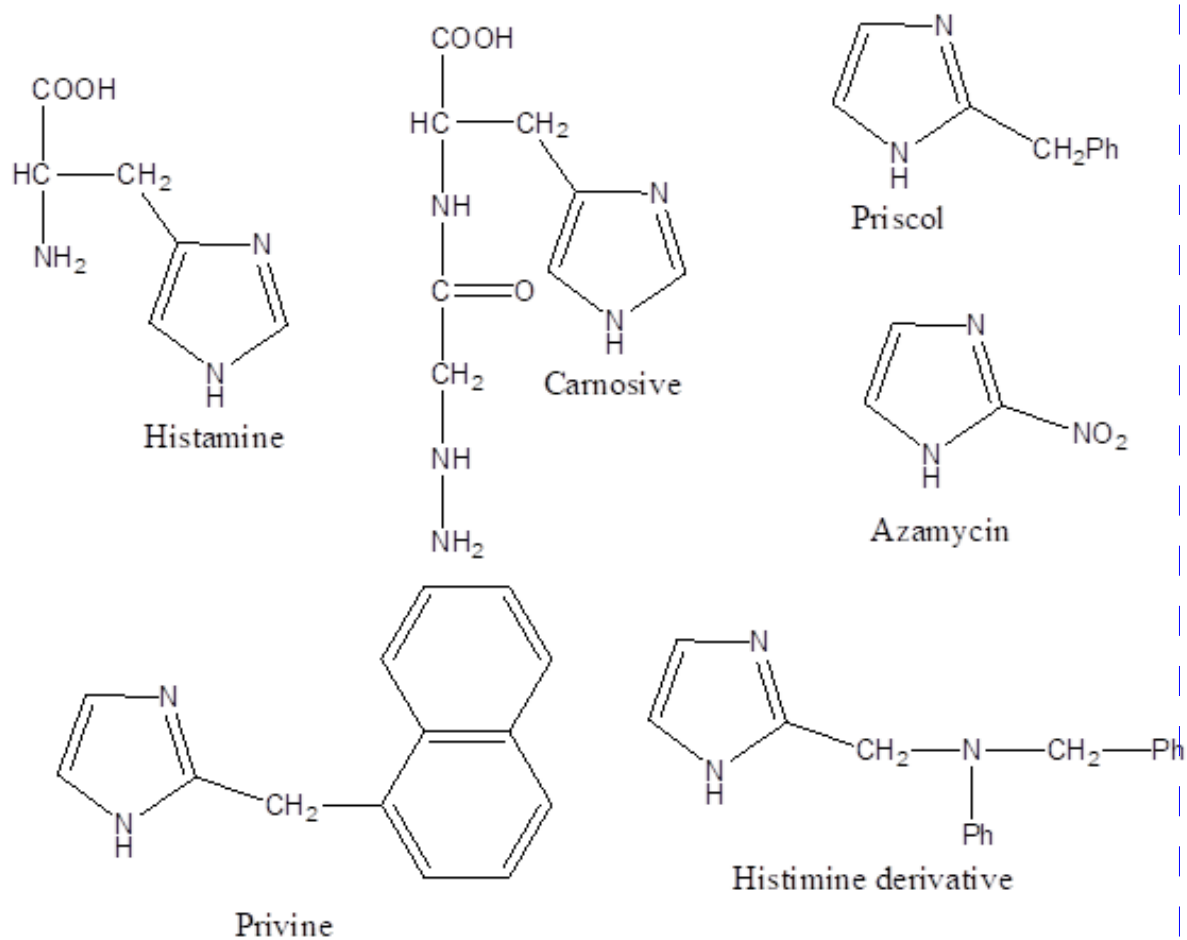


7. Cycle addition Reactions: The imidazole undergoes addition across the C-C double bond under photochemical conditions.

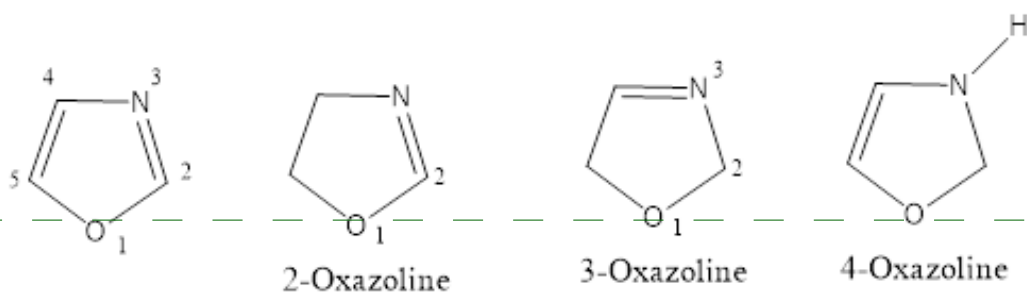




Natural & biologically active compounds containing Imidazole rings



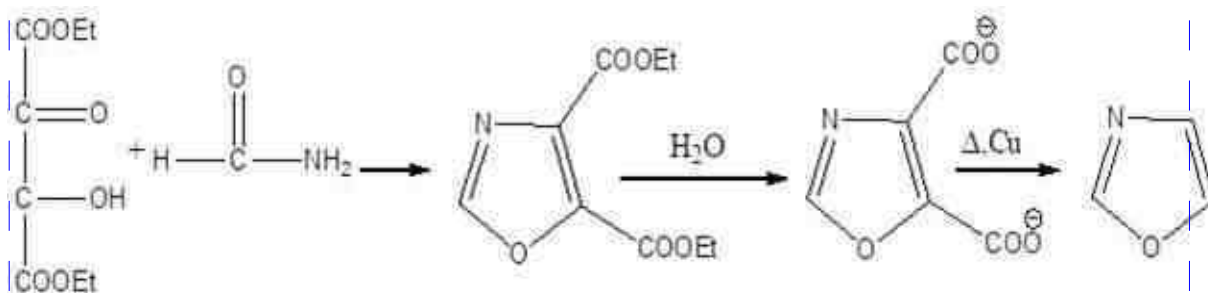
oxazole:



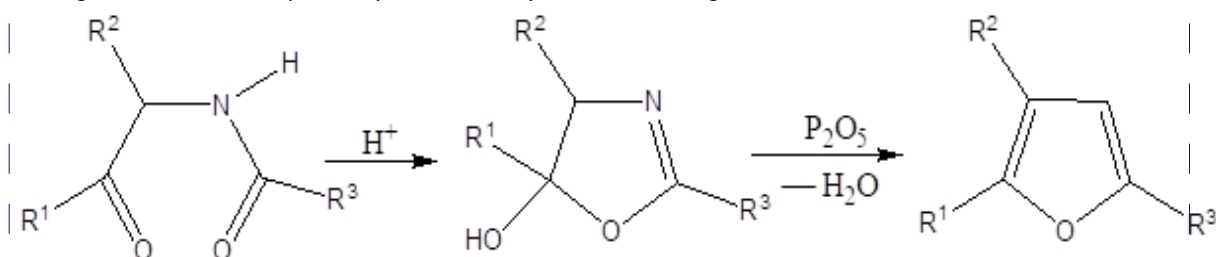
Oxazole is partially reduced to oxazoline which exist in three tautomers known as 2-oxazoline, 3-oxazoline & 4-oxazoline molecules.

Synthesis:

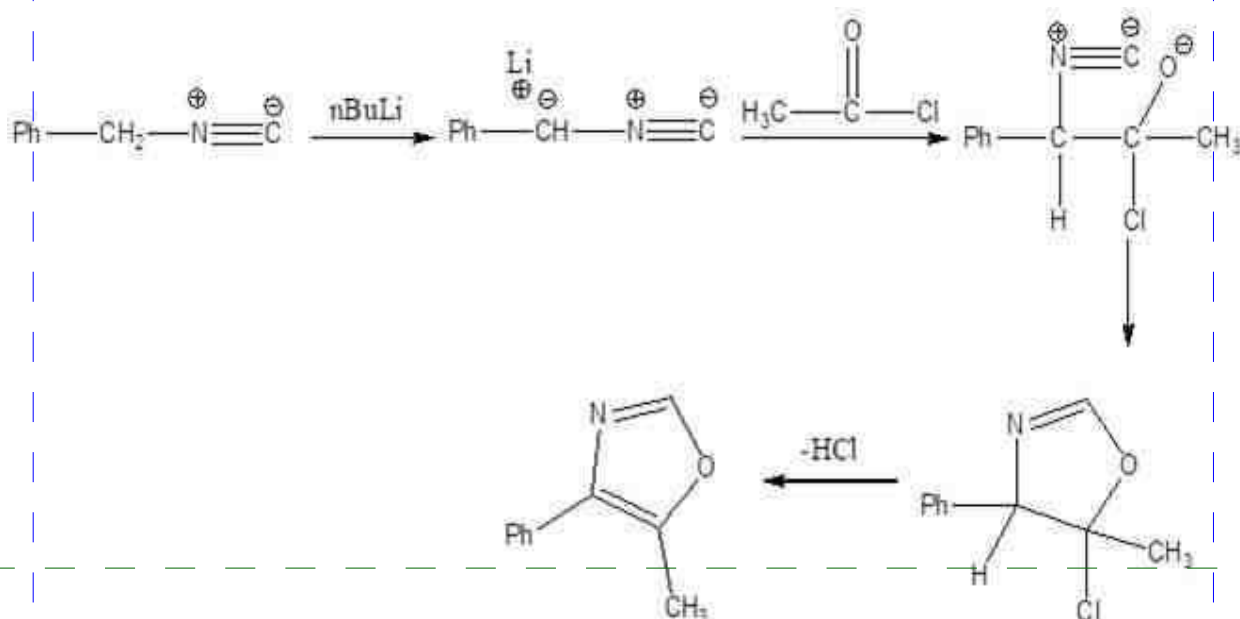
1. From α -keto succinate: α - hydroxyl succinate cyclises with formamide to give diethyl carboxylate derivative of oxazole molecule, which upon hydrolysis diethylcarboxylate anion of oxazole. On pyrolysis with copper yields oxazole with the loss of two carbon dioxide molecules.



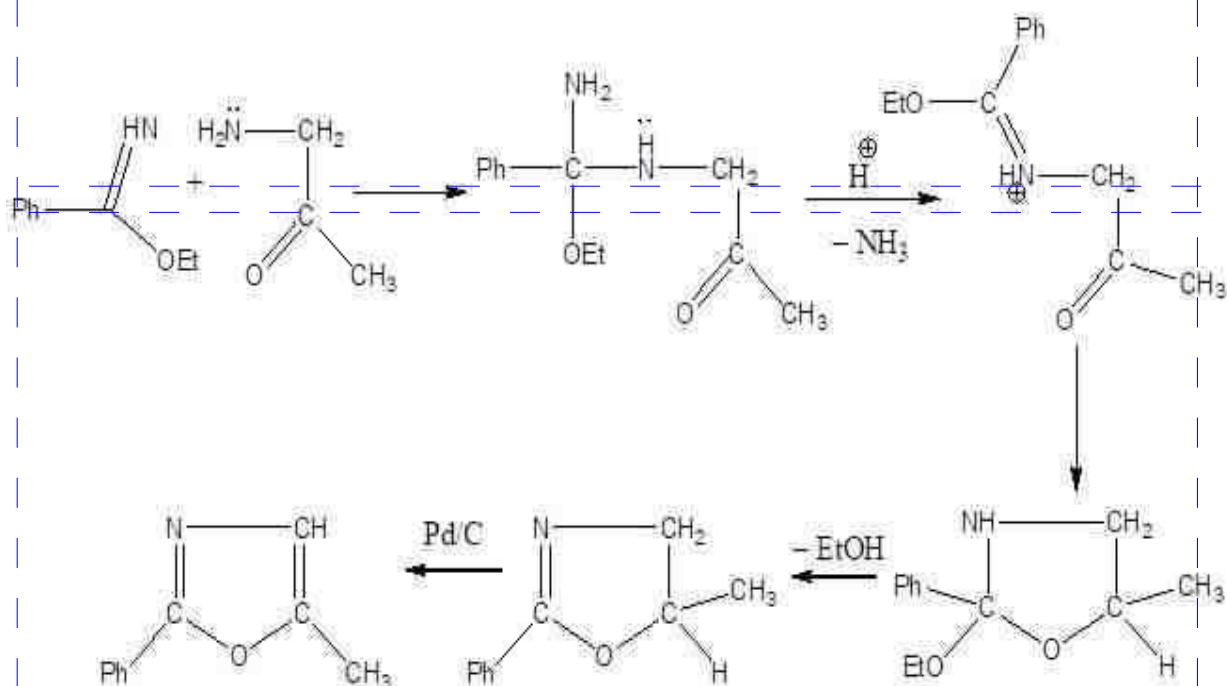
2. Robinson Gabriel Synthesis: α -acyl amino keto compound on treatment with acid yields the oxazoline derivative, which upon dehydration with phosphorous pentoxide yields the oxazole derivative.



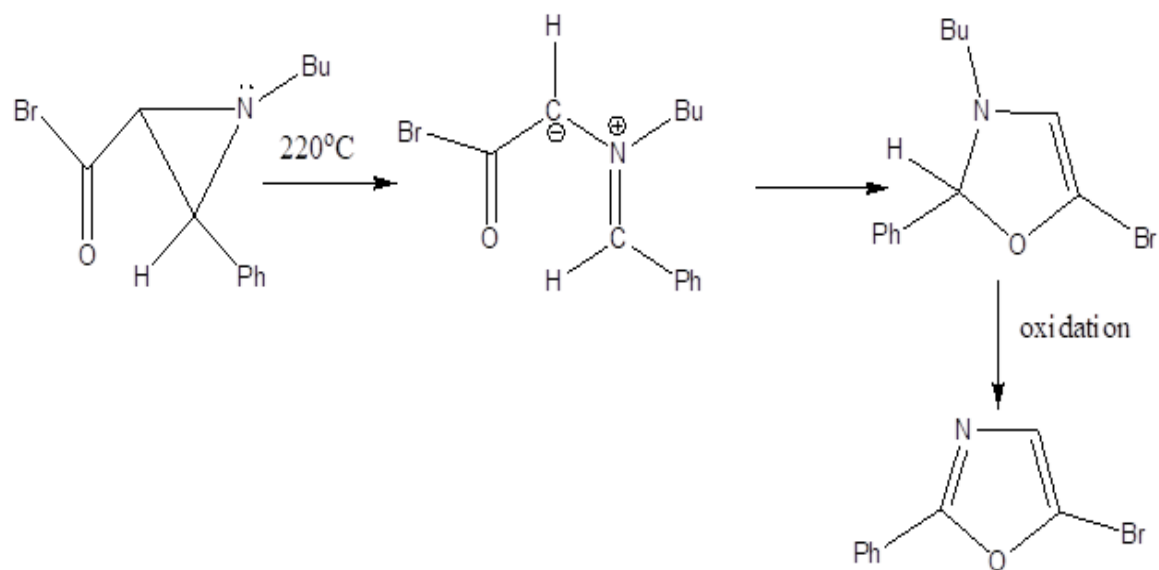
3. From Isocyanides: Ring cyclisation takes place to yield the oxazole.



4. From α - amino carbonyl compounds: α - amino carbonyl compounds with imino ester in presence of acetic acid under refluxing on loss one ammonia molecule yields the oxazole.

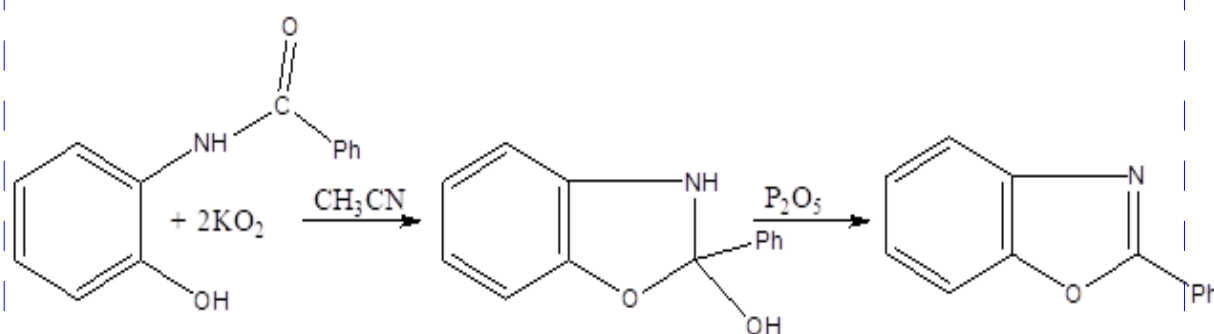
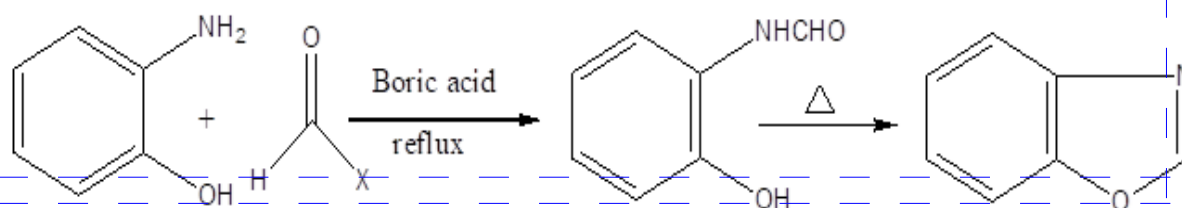


5. From acyl aziridines: Alkyl aziridines on pyrolysis at 220°C cyclises to yield the oxazole derivative.



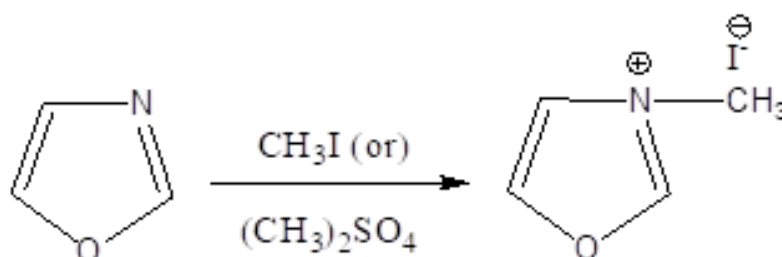
Synthesis of Benzoxazole:

i. 2-amino phenols with hypohalite in presence of boric acid refluxed to yield benzoxazole.

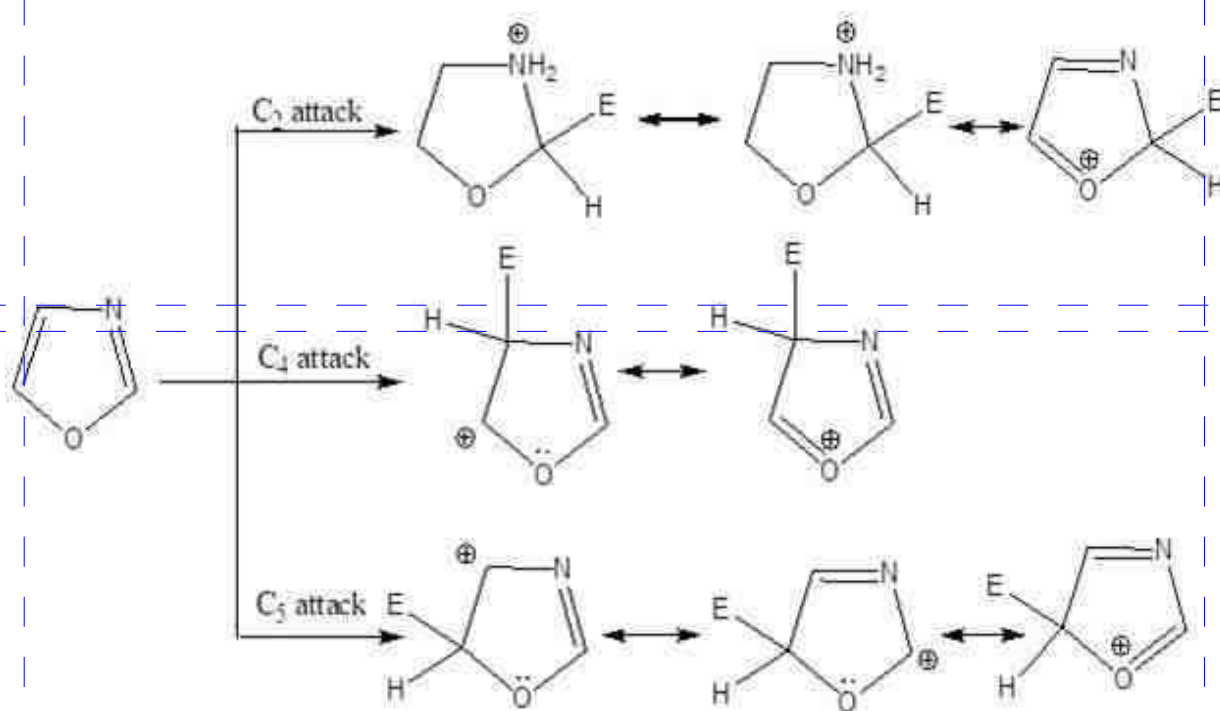


Reactivity: Although oxazole possess a six π electrons, all its properties demonstrate that the delocalization is incomplete as a result it exhibits little aromatic character. Therefore, oxazole acts as diene in Diel's Alder reaction of electrophilic substitution reactions are very limited.

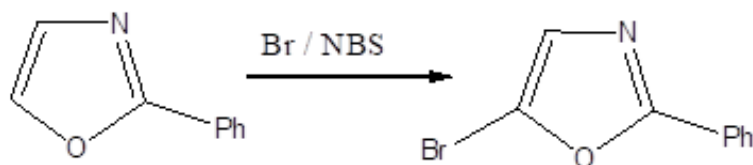
1. Quaternisation: Oxazole reacts with the methyl iodide or dimethyl sulphate to yield the quaternary salts.



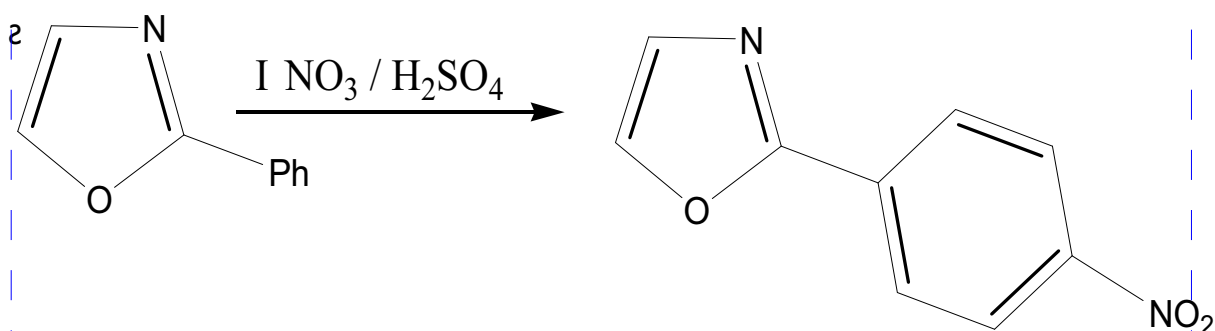
2. Electrophilic Substitution Reactions: Oxazole is less reactive towards electrophilic substitution reactions than imidazole. The electrophile preferably attacks at C-5 than C-2. Based on the resonance structures C-4 does not participate in electrophilic substitution reactions.



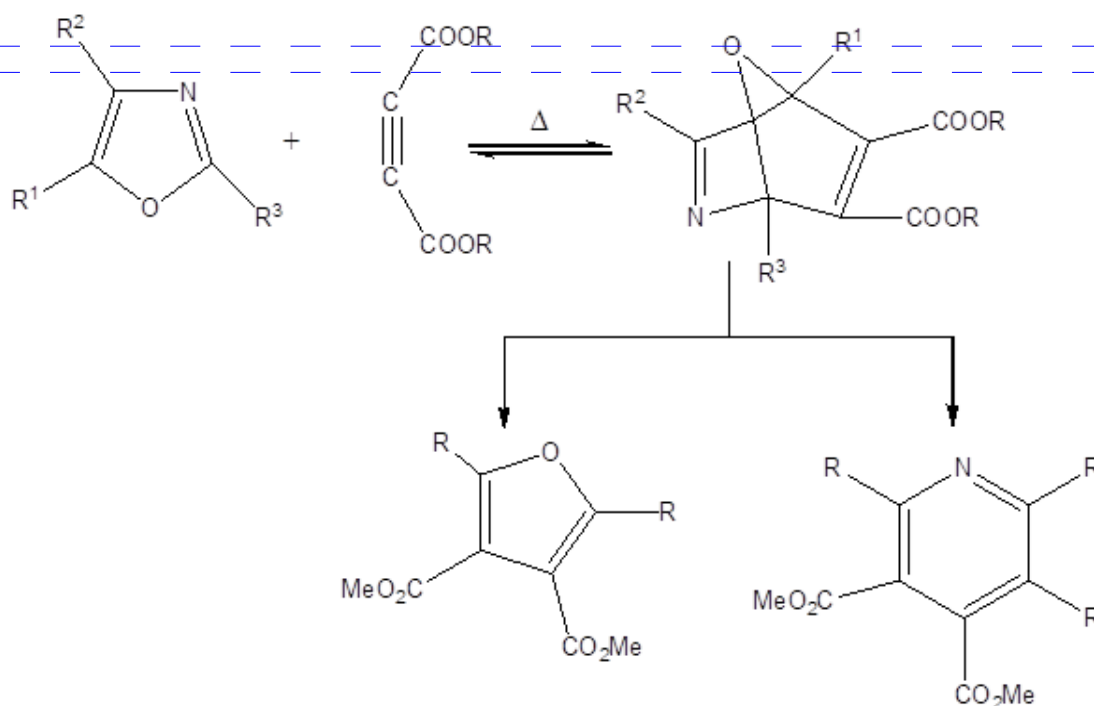
Electrophilic substitution reactions take place readily when the ring is activated by electron-donating substituents.



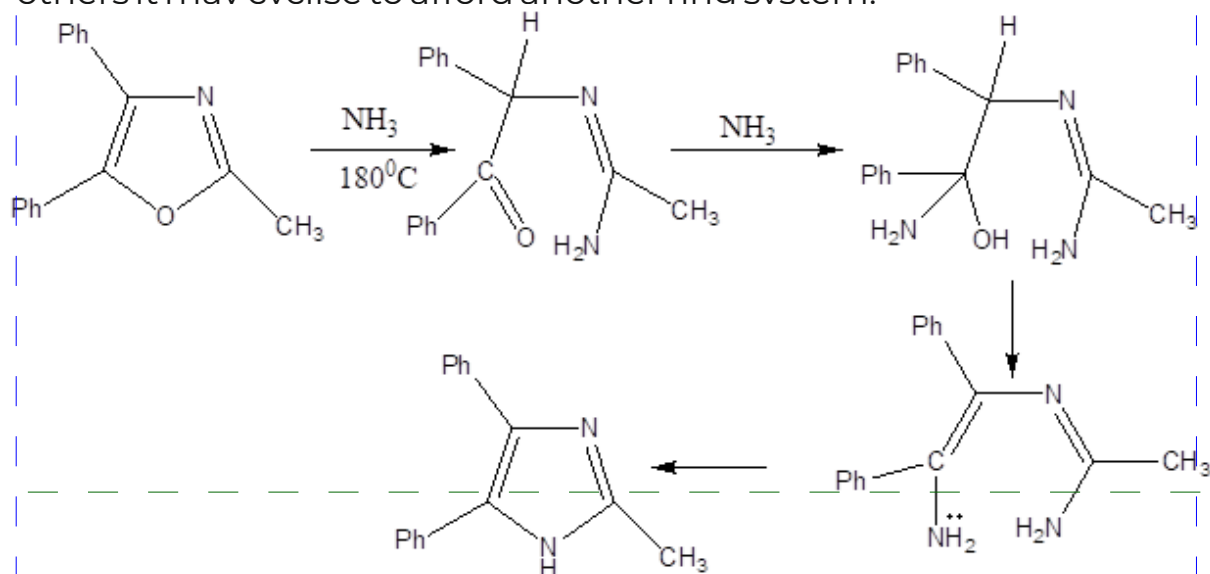
Nitration and sulphonation on oxazole are difficult because of the presence of a pyridine-type nitrogen atom.



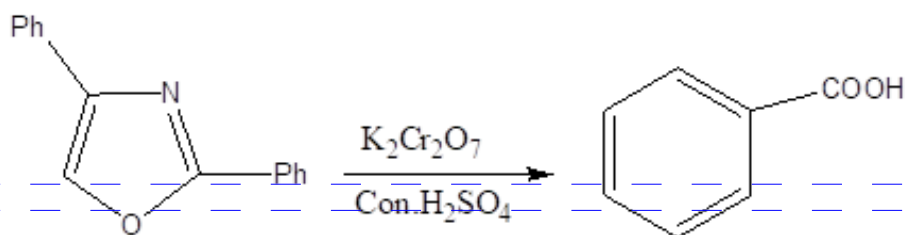
3. Diels – Alder Reaction: the introduction of a second heteroatom (nitrogen) of furan does not affect the diene nature in oxazole. Therefore, oxazole behaves similar to furan in Diels-Alder Reaction. The adduct so obtained on reaction with oxazole and different dienophiles are important precursors for the preparation of pyridine or furan derivatives by the loss of appropriate fragment.



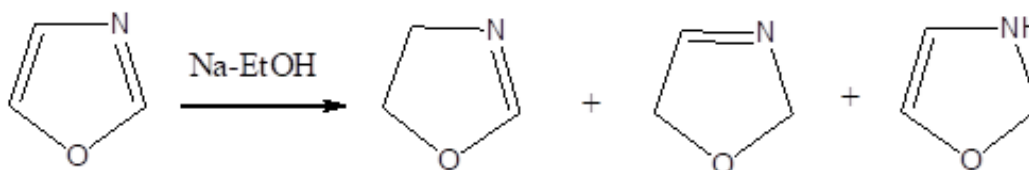
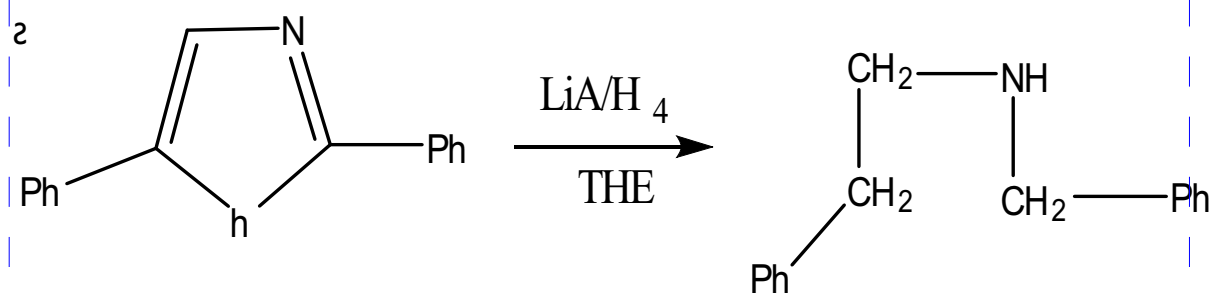
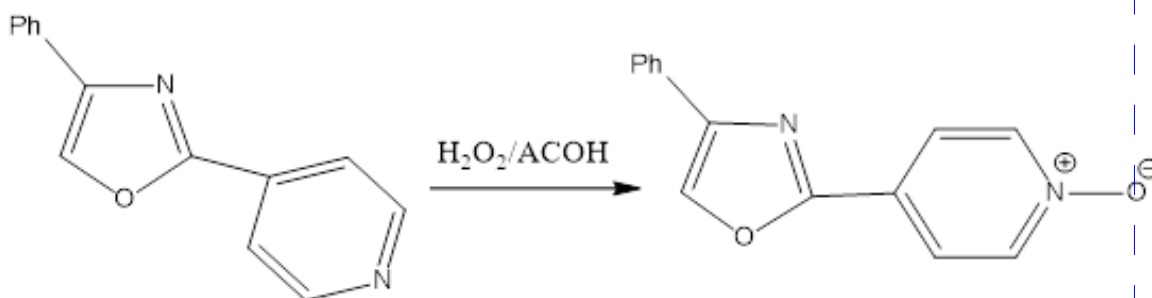
4. Reaction with Nucleophilic Reagents: Nucleophilic substitution reactions on the oxazole ring are uncommon. The ease of displacement of halogens on the oxazole ring is C-2 is much more than C-4 and more than C-5. The cleavage of the oxazole ring by nucleophiles is more frequent reaction than nucleophilic substitution reactions. In some cases a cyclic intermediate may be isolated while in others it may cyclise to afford another ring system.



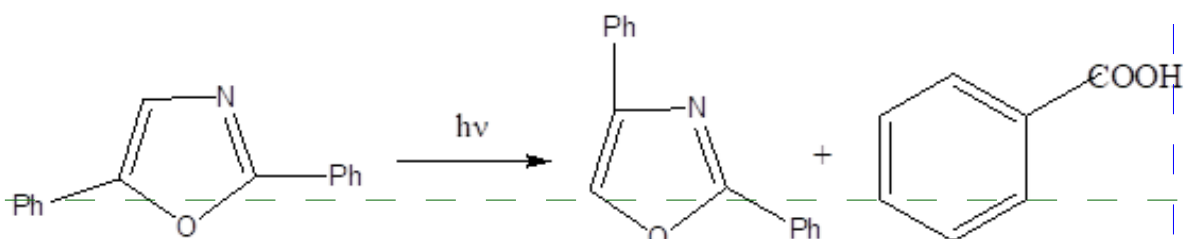
5. Reactions with oxidizing \square Reducing Reagents: The oxazole ring is not stable to oxidative additions, therefore, ring is opened by the action of oxidizing agents such as cold potassium permanganate, ozone etc.



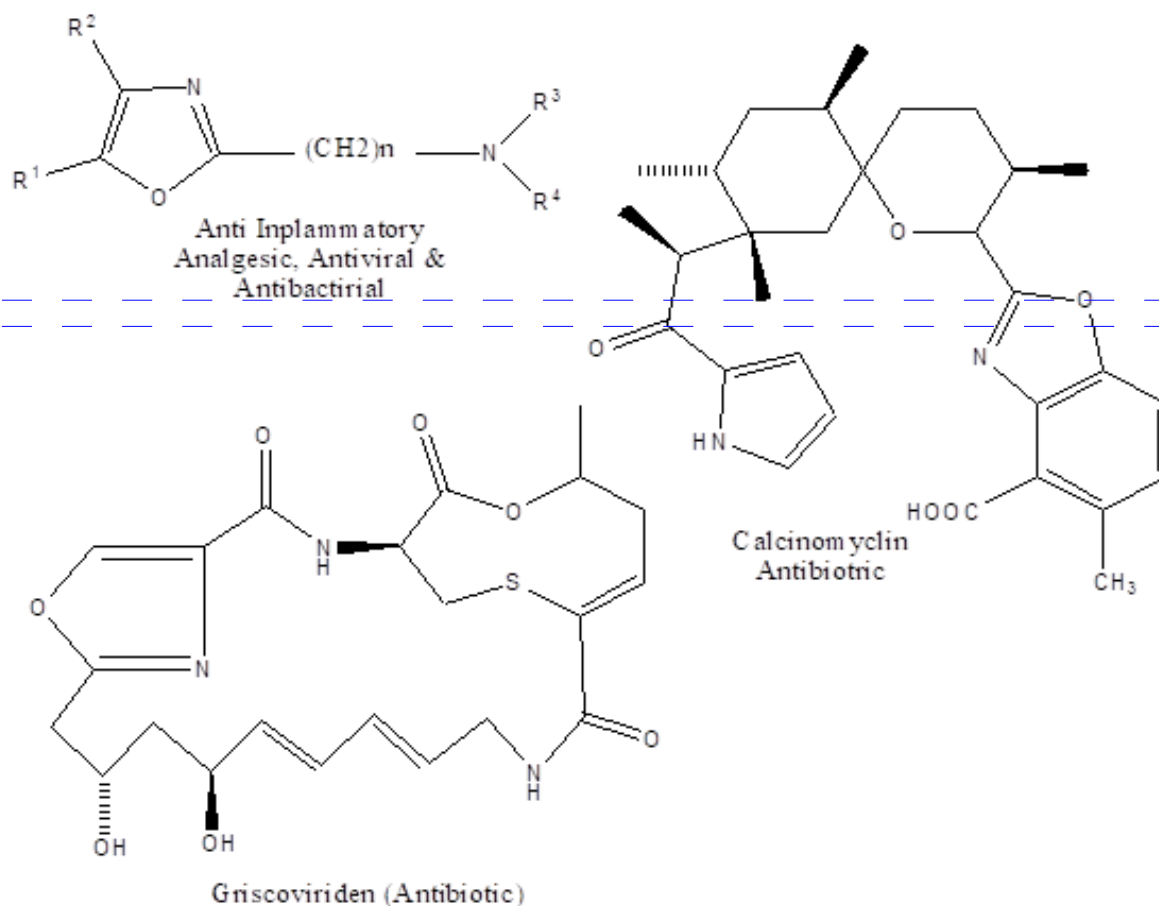
Oxazoles are remarkably stable towards a variety of reducing agents.



Photochemical Reactions: The light induced reaction of oxazole is more complex.

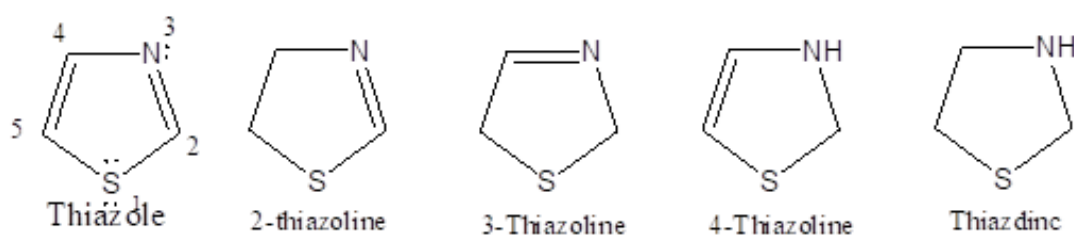


Biologically active Oxazole derivatives:



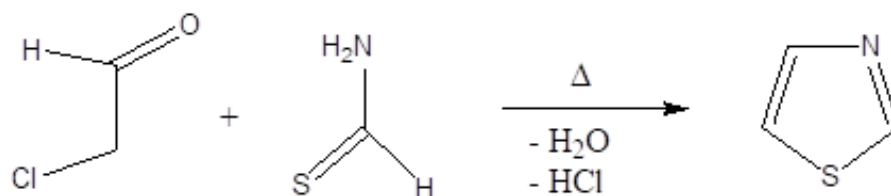
Thiazole:

Thiazole is structurally related to thiophene and pyridine but in most of its properties it resembles pyridine. The numbering in thiazole starts from sulphur atom. The partially reduced thiazoles are called thiazolines.

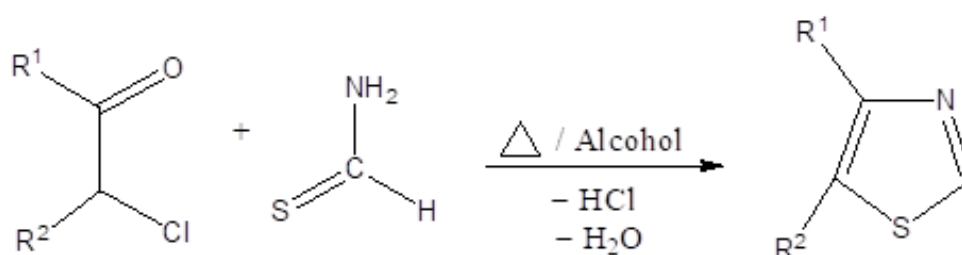
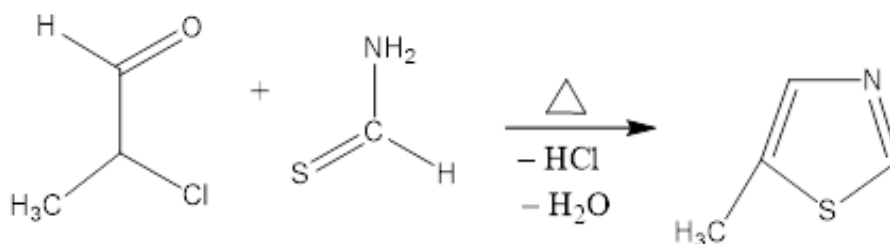


Synthesis:

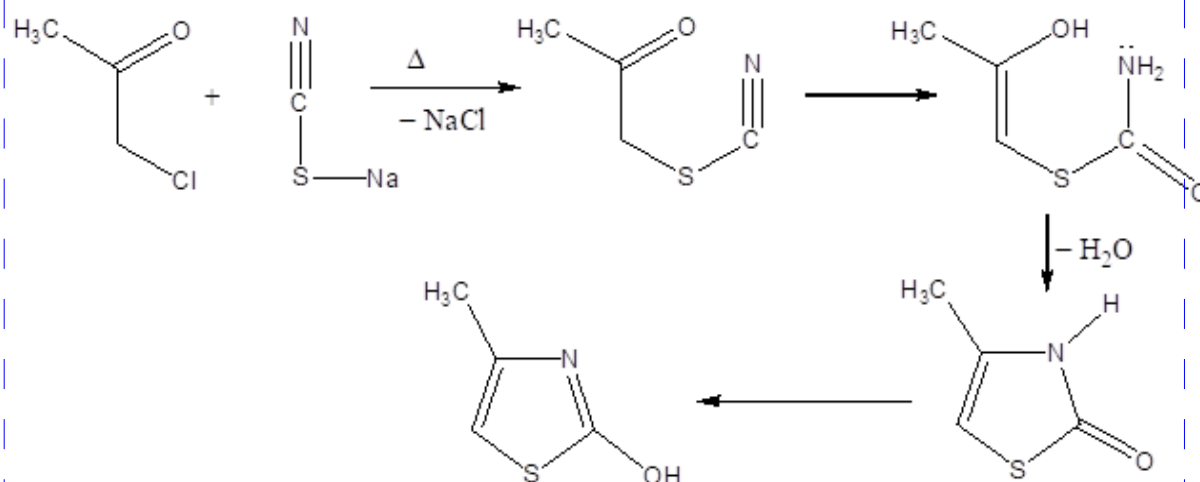
1. From α -halo carbonyl compounds: Chloro acetaldehyde and thioformamide on pyrolysis yields the thiazole



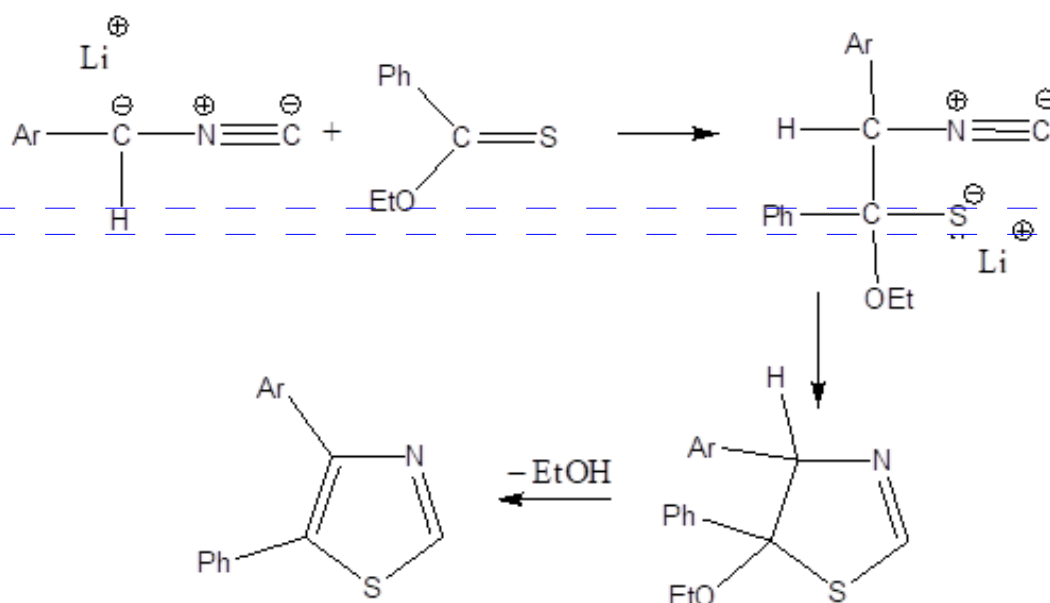
b. Substituted chloro acetaldehyde and thioformamide on pyrolysis yields the thiazole derivatives.



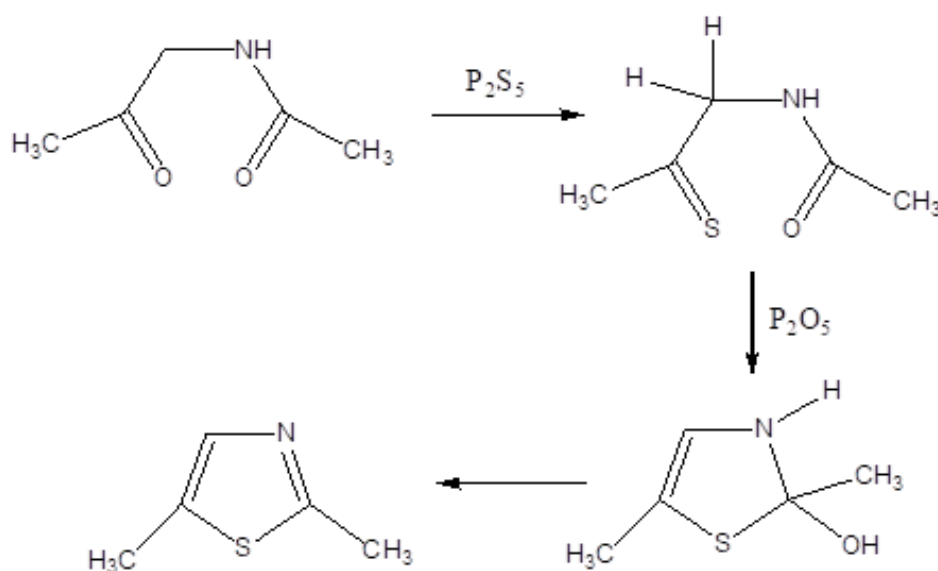
From thiocyanato ketones: α -thiocyanato ketones on cyclisation yields the thiazole derivatives.



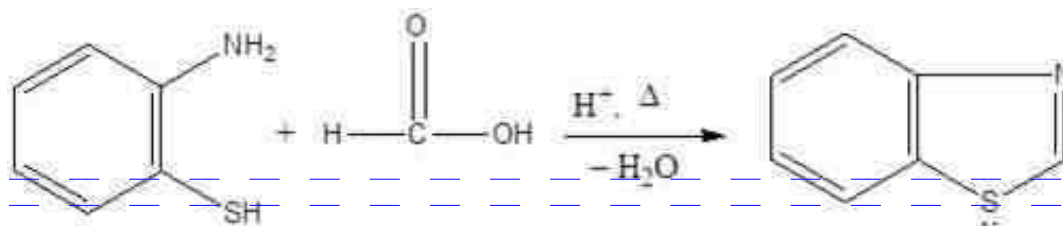
3. From α -metallated Isocyanides: α -metallated Isocyanides with thioketones in presence of base yields the thiazole derivatives.



4. The Gabriel Synthesis: Acyl amino compounds on treatment with the phosphorous pentasulphide cyclises to yield the thiazole derivative.

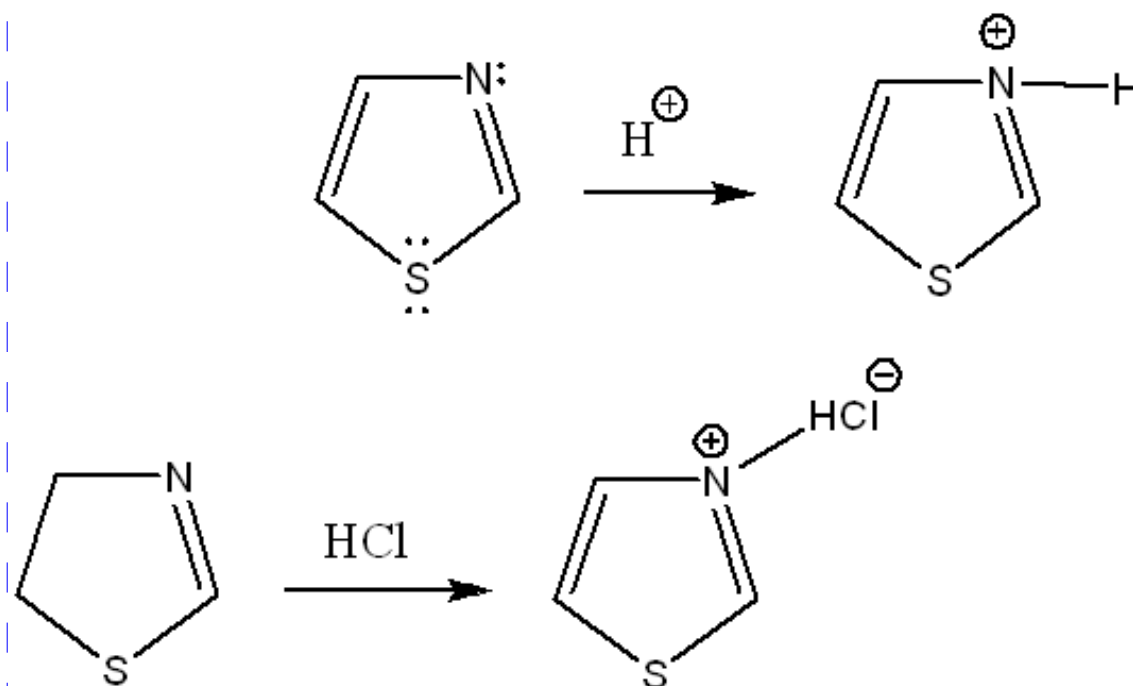


5. Synthesis of Benzthiazole: Amino substituted thiophenols reacts with the formamide in presence of acid to afford the benzthiazole.

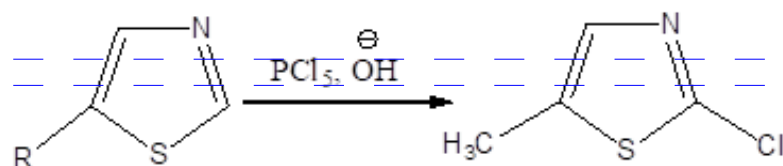
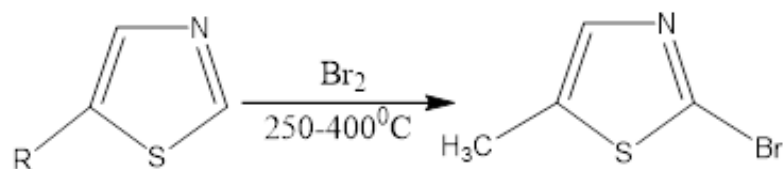


Reactivity: Thiazole is an aromatic molecule. The chemical shifts in NMR are correlated to the occurrence of a ring current effect, which explains that it has pseudo aromatic character.

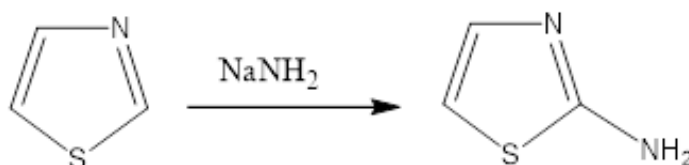
1. Reaction with acids: The lone pair present on the azomethine nitrogen of thiazole is not involved in the aromatic delocalization. Therefore, it is available for protonation (or) quaternisation. Thiazole forms stable crystalline salts with strong acids.



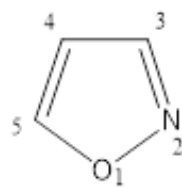
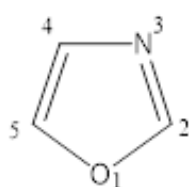
2. Electrophilic substitution Reactions: The reactivity of thiazole towards electrophile is intermediate between the pyridine and thiophene but it is less reactive than imidazole. The electrophilic substitution preferably takes place at 5th position. However, if electron releasing groups at 2nd & 4th position then bromination is achieved easily. 2-Bromo thiazole can be obtained by treating thiazole with bromine in presence of base.



3. Nucleophilic substitution Reactions: Thiazole reacts with sodamide to yield the 2-aminothiazole.

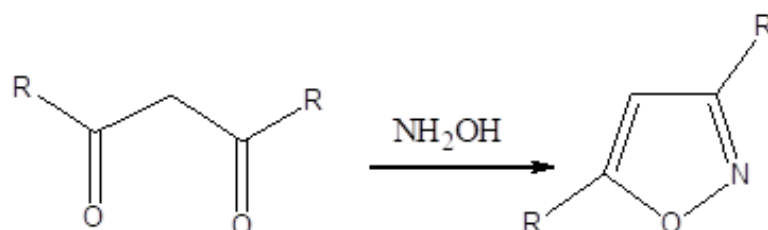


Isoxazole:

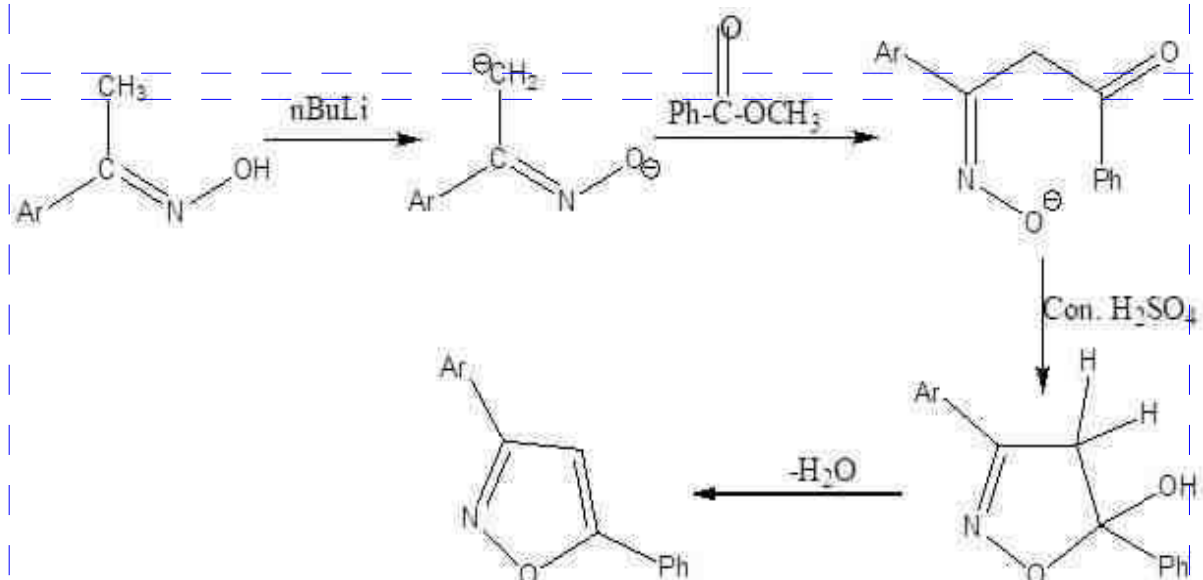


Synthesis:

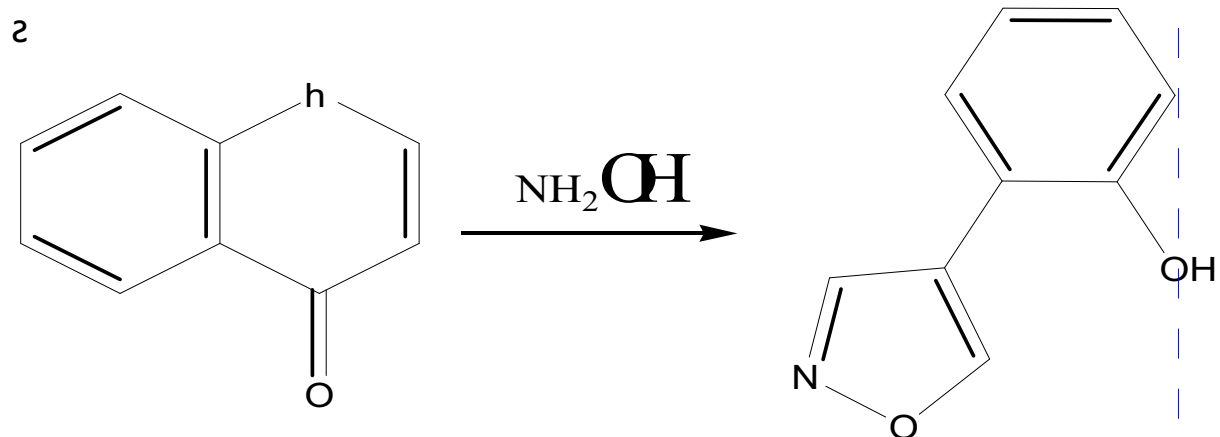
1. From diketones: Diketones on treatment with the hydroxylamine hydrochloride gives the isoxazole.



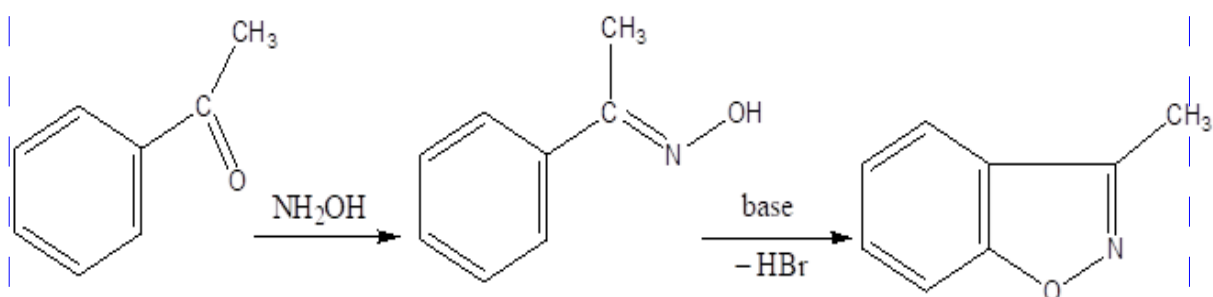
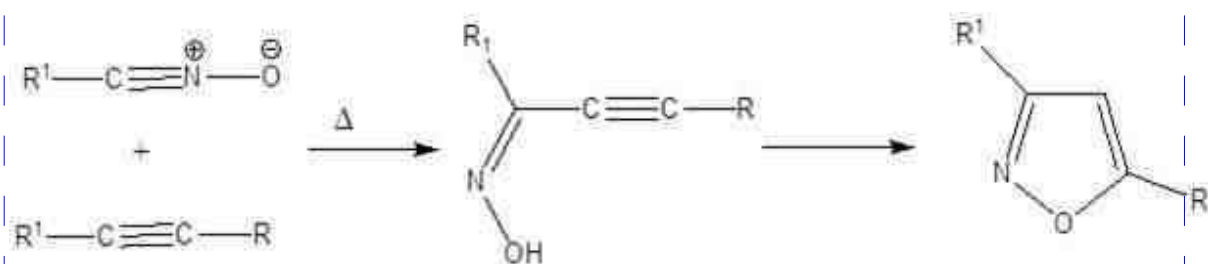
2. From ketoximes: Ketoximes when treated with n-butyl lithium followed by the methyl benzoate gives an intermediate compound, which on treatment with the sulphuric acid undergoes cyclisation to give the isoxazole.



3. From γ -pyrones: Chromones reacts with the hydroxylamine hydrochloride to yield the substituted isoxazoles.

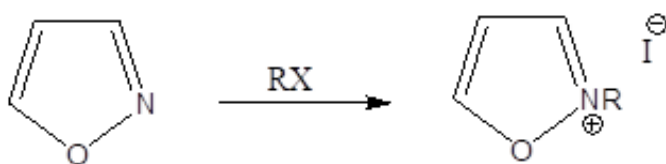


3. From Nitrile oxides: Nitrile oxides in presence of base give the corresponding isoxazoles.



Reactivity:

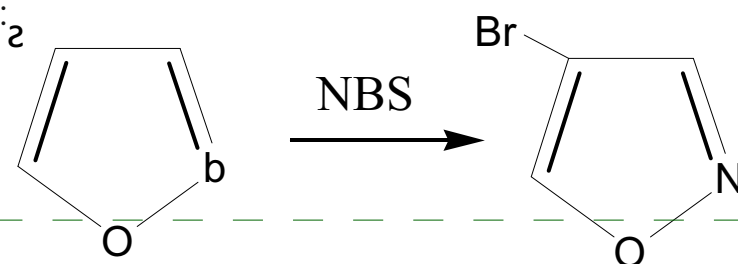
1. Alkylation / quaternisation: Isoxazole reacts with alkyl halide to give the quaternary salts.



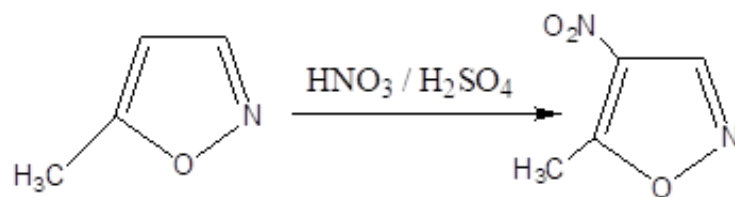
2. Electrophilic substitution Reactions:

1,2 azoles are generally less reactive than 1,3 azoles. Isoxazole is more reactive than isothiazole but less reactive than pyridine and it is also less reactive than pyrazole. The electrophilic attack occurs at C-4 as both the hetero atoms influence the rate of electrophilic substitution in isoxazole ring. Because of the electron withdrawing nature of the nitrogen atom, the electrophilic attack is retarded as in pyridine. The electron donating property of oxygen atom, on the other hand facilitates the reaction.

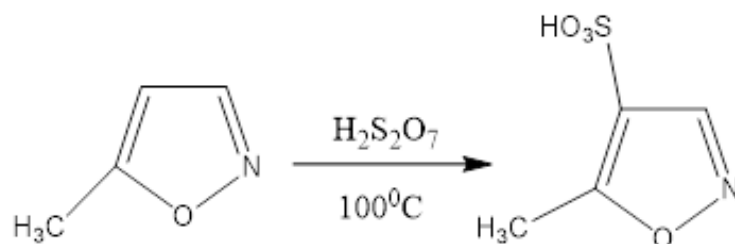
1). Bromination:



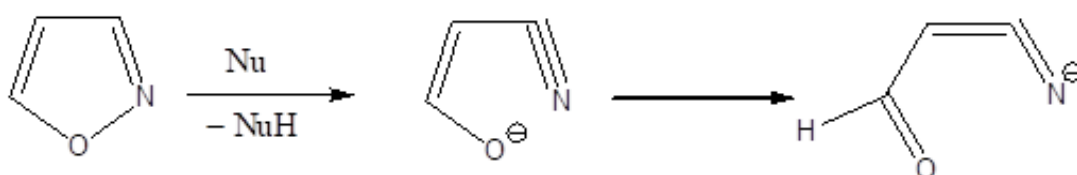
ii). Nitration:



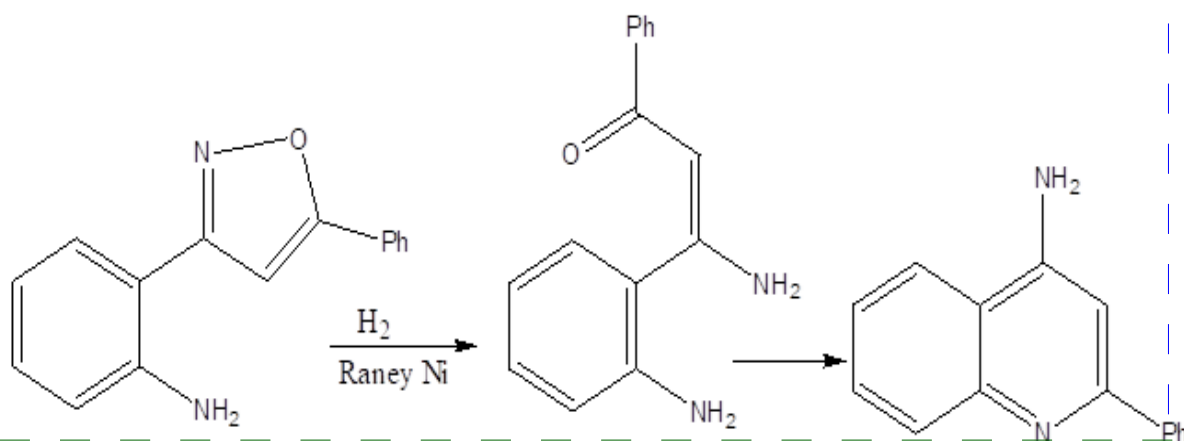
ii. Sulphonation:



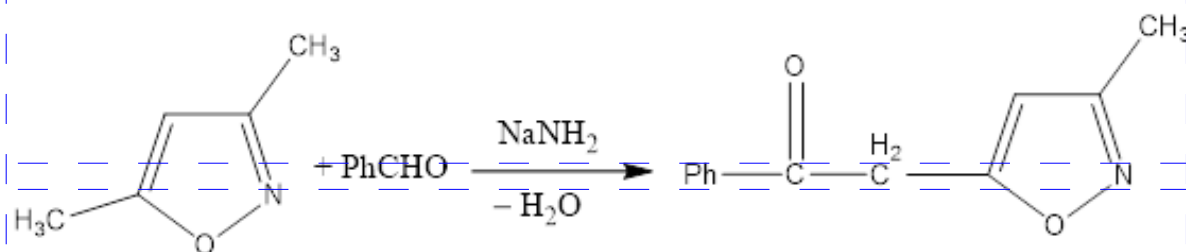
3. Ring cleavage Reactions/Reaction with Nucleophiles: In presence of nucleophile, the ring cleavage of isoxazole takes place.



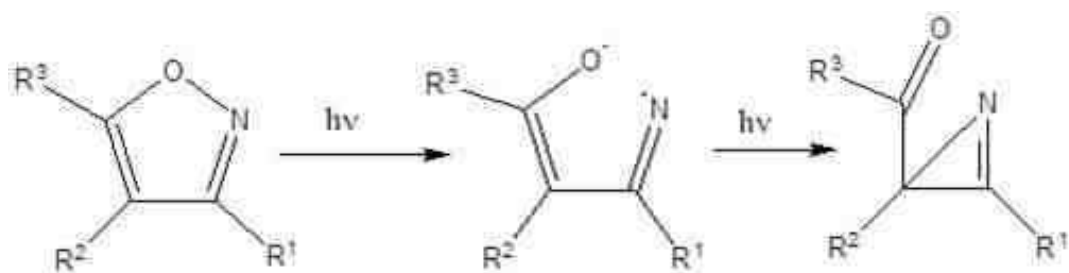
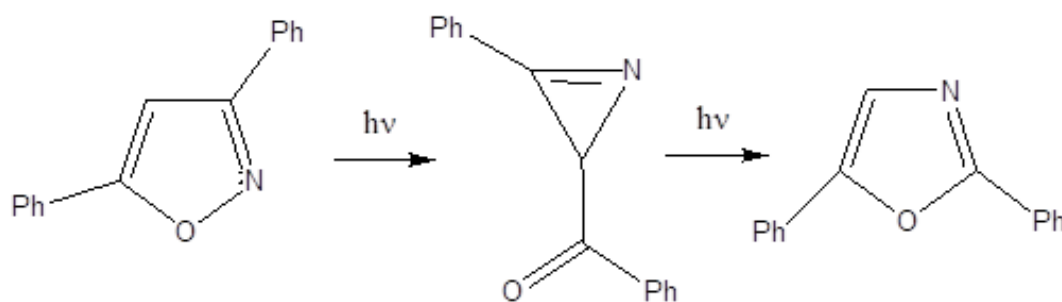
4. Reaction with oxidizing □ Reducing agents: Isoxazole derivatives undergoes reduction in presence of hydrogen with raney nickel as a catalyst, followed by the oxidation to give the pyridine derivatives.



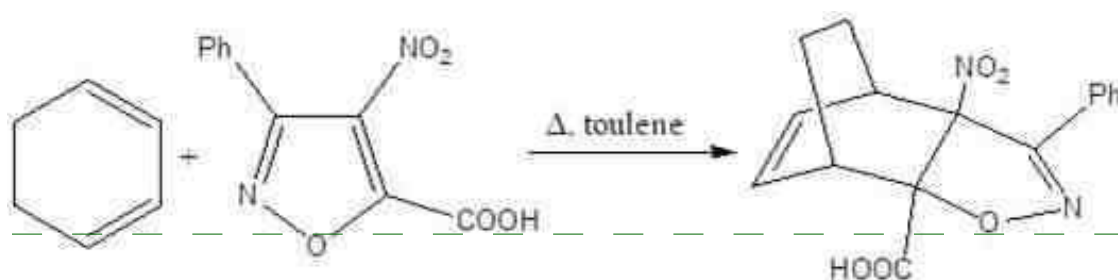
5. Condensation with Methyl group: Isoxazole molecules condensed with the benzaldehyde in presence of sodamide to yield the phenyl substituted isoxazoles.



6. Photochemical Reactions: On photochemical conditions isoxazoles yields the azirene derivative which rearranges itself to yield the oxazole derivatives.

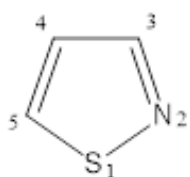


7. Cyclo addition Reactions: Isoxazole derivatives undergo Diel's Alder reaction as a dienophile with a cyclohexadiene as a diene to a cyclic adducts.

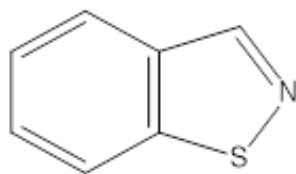


Isothiazole:

Isothiazole is a pale yellow liquid with b.pt 112oC. It is weakly basic in nature.

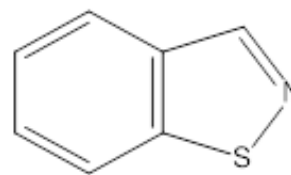


Isothiazole



1,2-Benzisothiazole

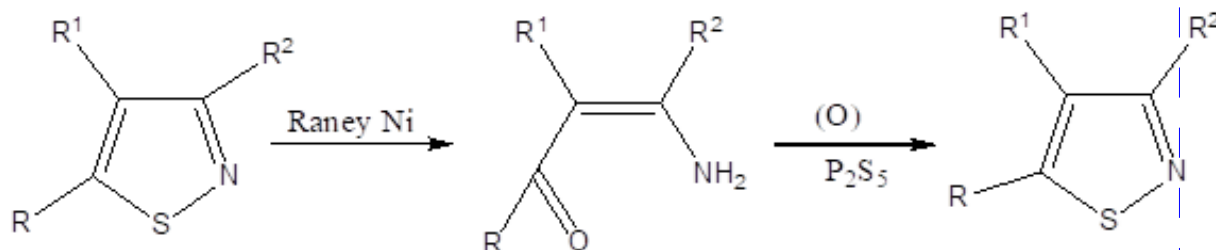
(or)



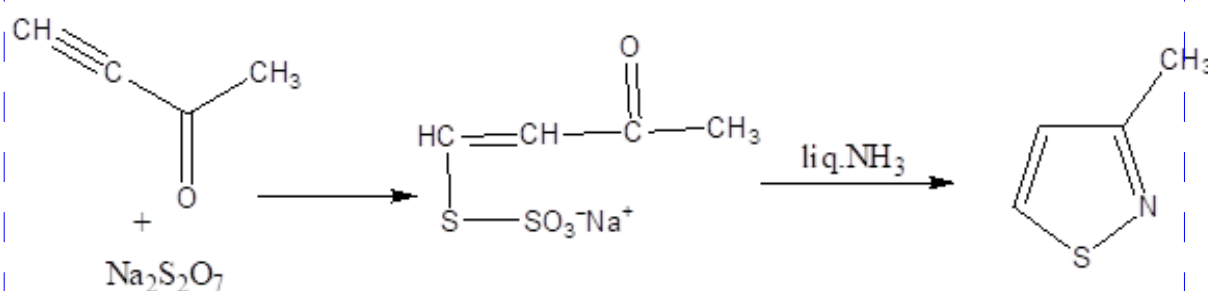
2,1-Benzisothiazole

Synthesis:

1. From Nitro sulphides: Nitrile sulphides generated by the thermolysis of 1,3,4-oxathiazol-2-one add to alkenic or alkynic esters such as dimethylacetylene dicarboxylate (DMAD) to give 3-substituted
2. From oxazoles: Oxazoles are reduced to enamino ketones which subsequently treated with phosphorous pentasulphide and chloranil to effect cyclisation to Isothiazoles.

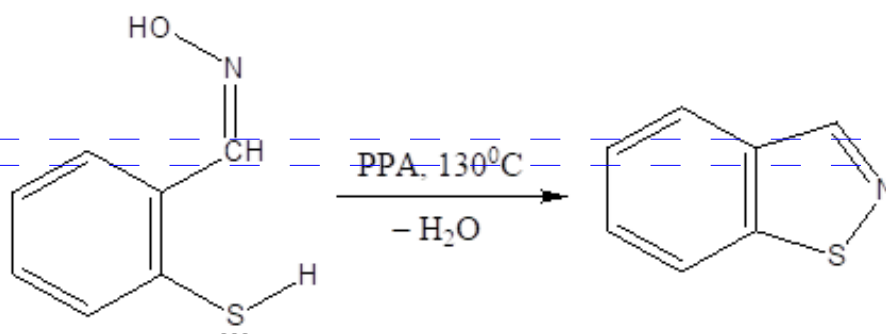


3. From Acetylenes: Acylacetylene with sodium sulphate gives the intermediate which is cyclised in presence of liquid ammonia to give 3-substituted isothiazoles.

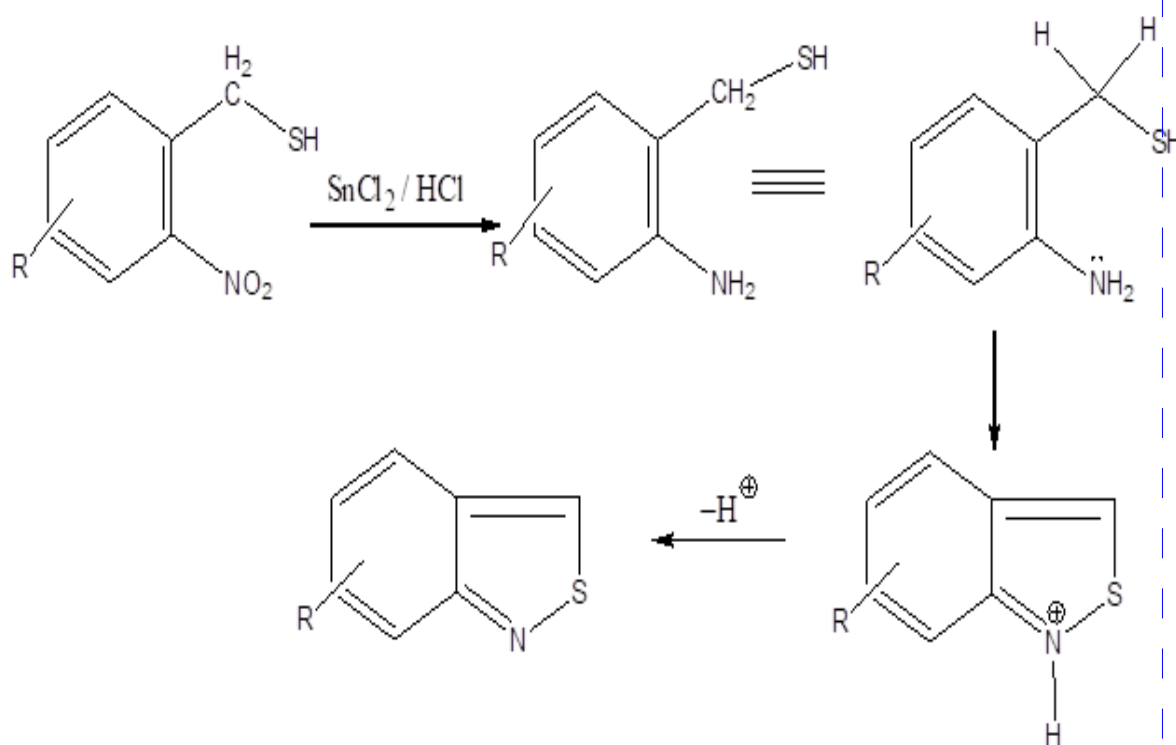


4. Synthesis of Benzoisothrazoles:

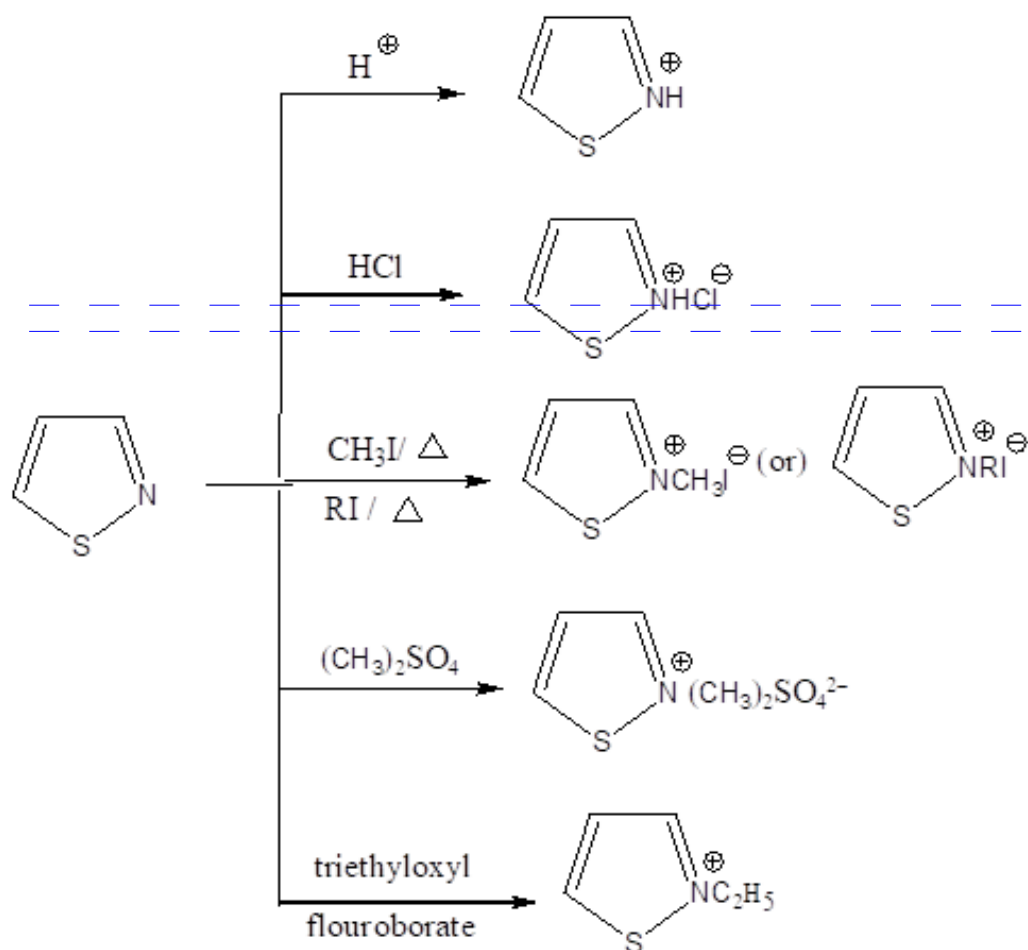
i). 1, 2 benzoisothiazole are often prepared from O-mercapto benzalaloximes on cyclisation with poly phosphoric acid.



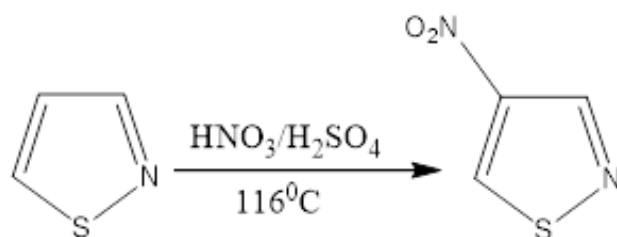
ii). 1, 2 benzoisothiazoles can be prepared by reductive cyclisation of ortho-nitrobenzylthio alcohol with stannous chloride and hydrochloric acid.


Reactivity:

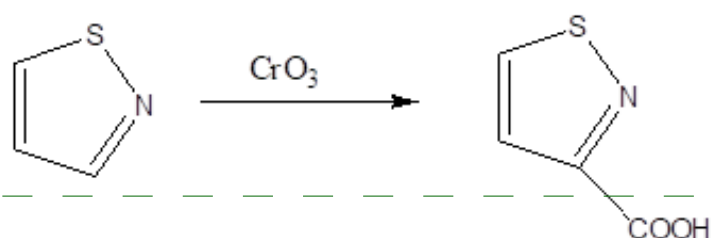
1. Reaction with Acids/Quarternisation: Isothiazoles forms salts with strong acids or lewis acids etc.



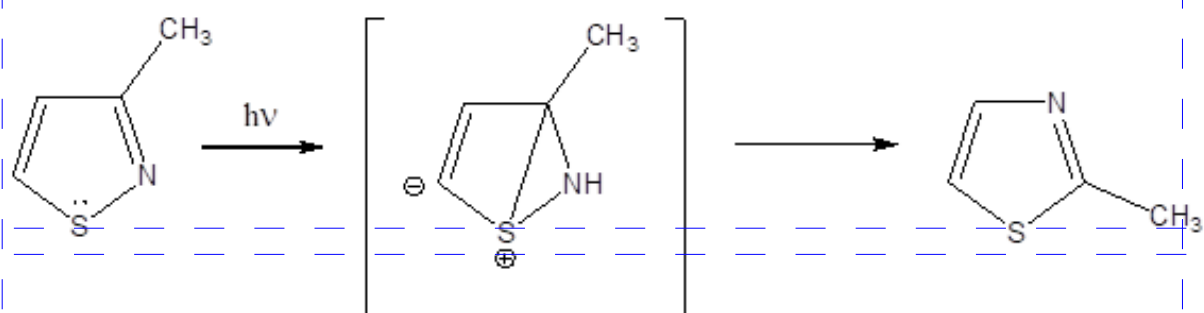
2. Electrophilic Substitution Reactions: Isothiazole is the least reactive towards the electrophilic attack as compared to pyrazole and isoxazole. The C-4 is susceptible to electrophilic attack.



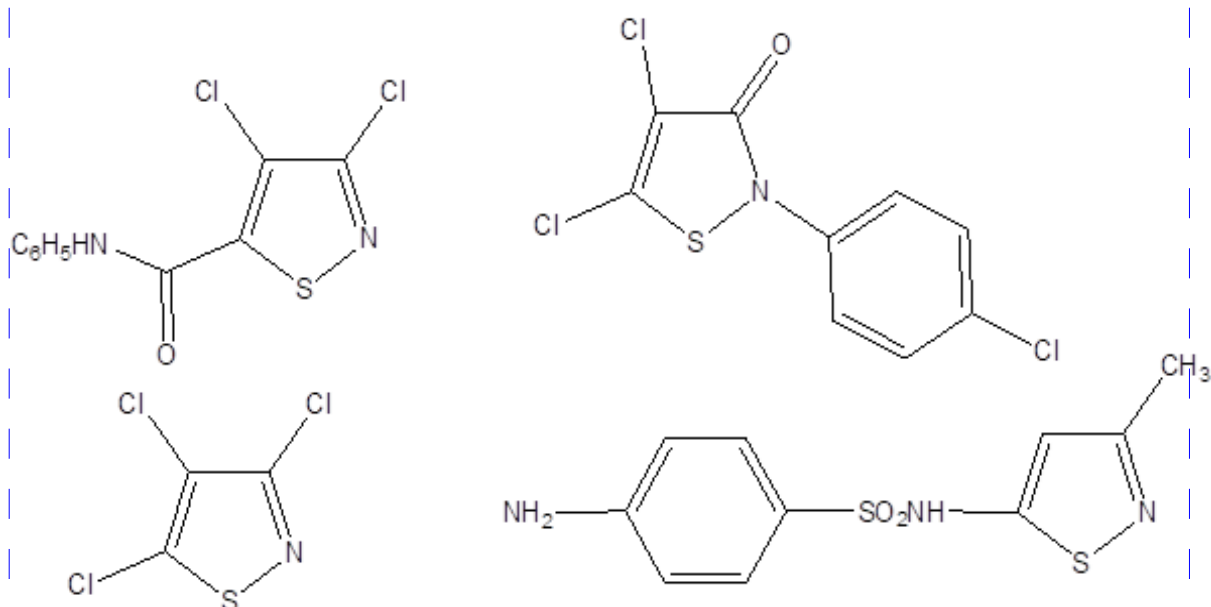
3. Reaction with oxidizing agents: Isothiazole reacts with the chromic trioxide to give the isothiazole carboxylic acid.



4. Photochemical Reactions: Isothiazole on photolytic conditions rearranges itself to yield the thiazoles.

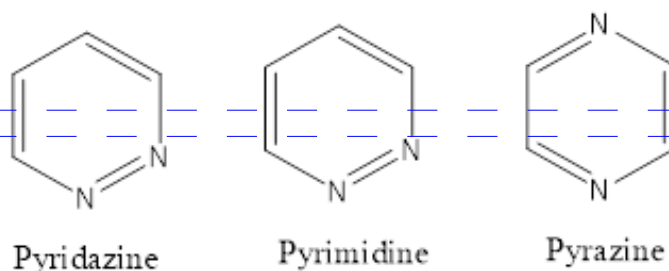


Naturally occurring & Biologically active compounds:



5

SIX MEMBER RING HETEROCYCLES WITH TWO HETEROATOMS

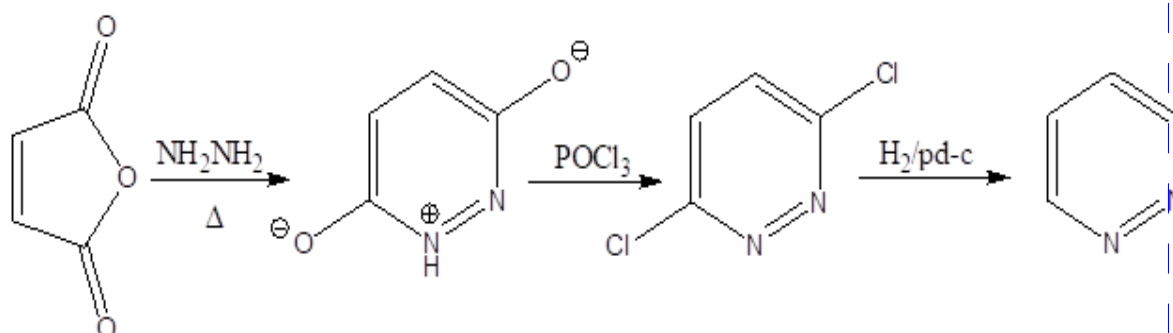


Pyridazine:

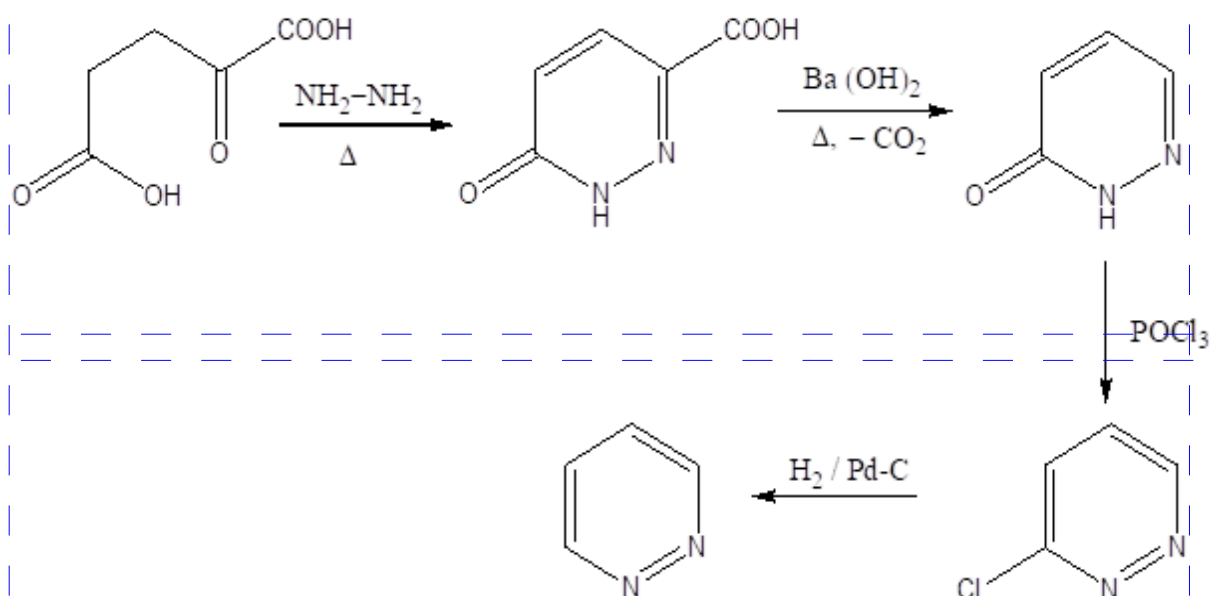


Synthesis:

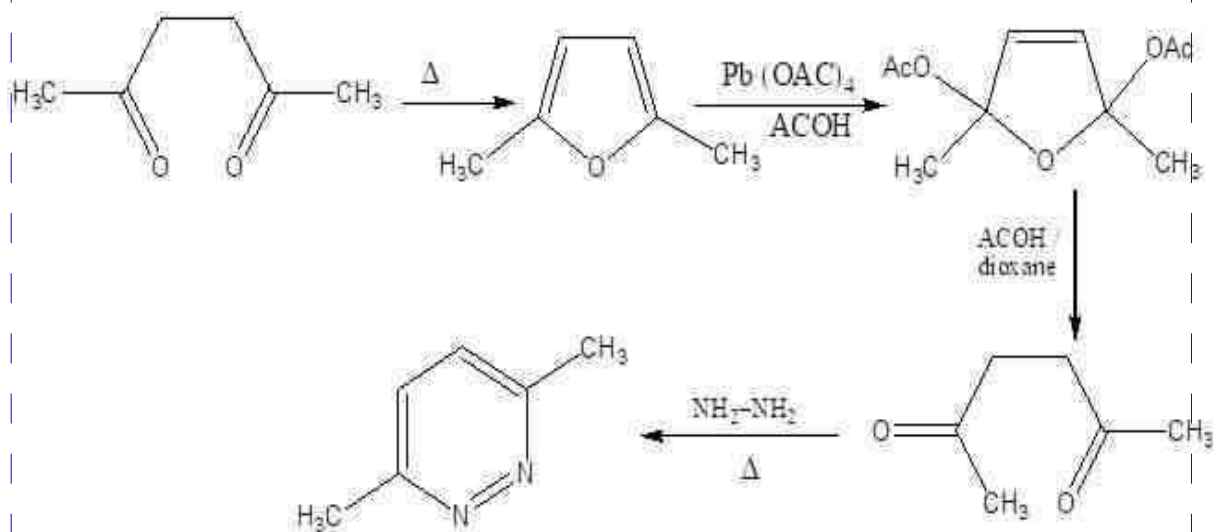
1. From Maleic anhydride: Maleic anhydride reacts with hydrazine in thermal conditions followed by the condensation gives 3,6-dichloropyridazine which is subjected for the dehydrogenation over palladium in charcoal to yield simple pyridazine molecule



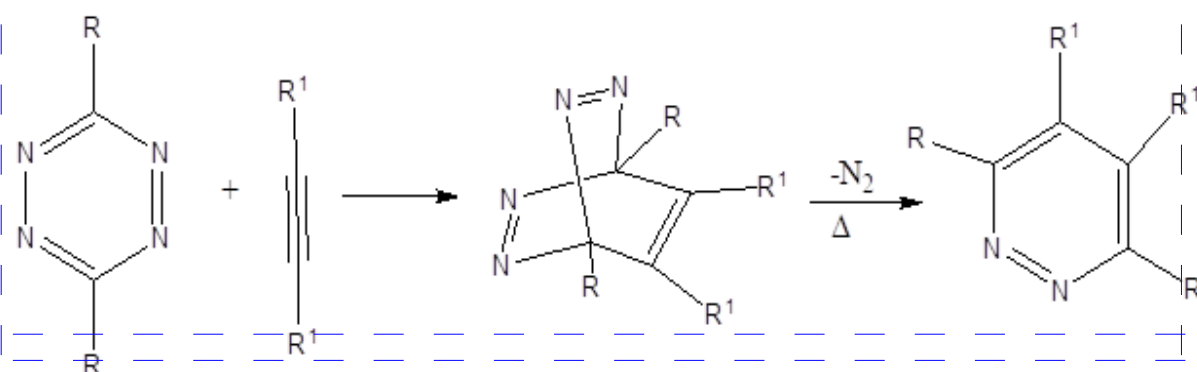
2. From γ -keto acids: γ -keto acid on treatment with hydrazine gives a pyridazole derivative which on elimination of carbon dioxide give pyridazole molecule which on treatment with phosphorous oxychloride gives 6-chloropyridazine which on dehydrogenation gives pyridazine molecule.



3. From 1, 4 – dicarbonyl compounds: 1, 4 dicarbonyl compounds on thermolysis gives furan molecule which on treatment with leadtetraacetate gives a diacetylfuran derivative which on treatment with acetic acid gives a 1, 4 dicarbonyl compound (where both the keto groups are oppositely oriented). This is treated with hydrazine to give 3,6-dimethylpyridazine molecule.

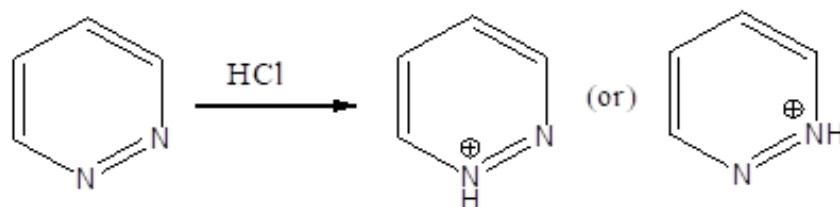


4. From 1, 2, 4, 5-tetrazines: 1, 2, 4, 5-tetrazine reacts with acetylene derivative to give adduct, which an elimination of nitrogen gives pyridazine derivative.

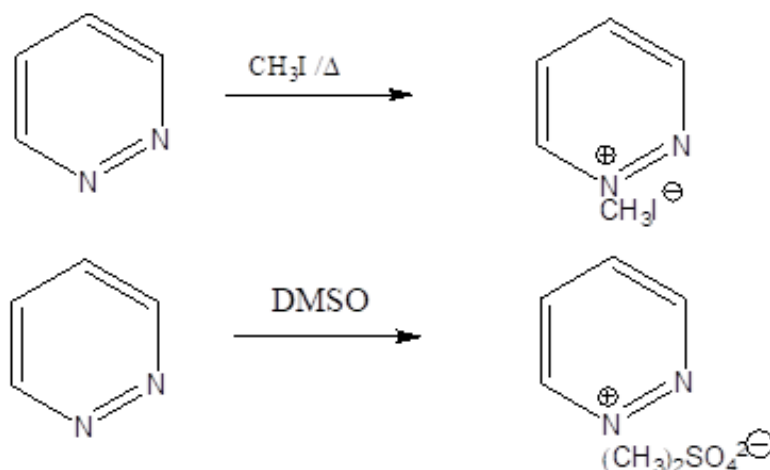


Reactivity:

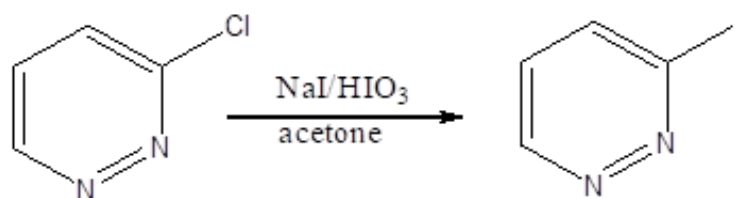
1. Reaction with Acids: The protonation of second nitrogen atom is difficult because of the high energy required generate the two positive charges on adjacent nitrogen atoms.



2. Quarternisation: Pyridazine ring reacts with alkyl halides (or dialkyl sulphate in presence of base) to afford mono quarternary salts. The position of monoalkylation is determined by the presence of alkyl groups on the ring, which directs alkylation to the N-position.

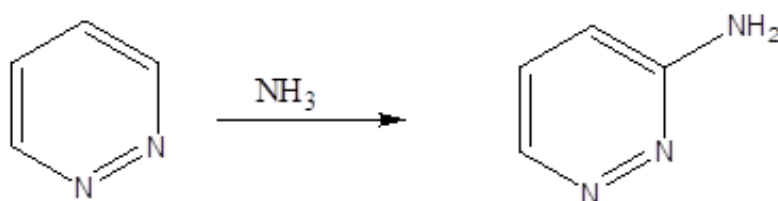


3. Electrophilic substitution Reactions: The 3-, 4-, 5-, and 6-positions in pyridazine nucleus are electron deficient due to the inductive effect of nitrogen atoms. Pyridazine itself is very resistant to electrophilic substitution and can undergo reaction only under drastic conditions.

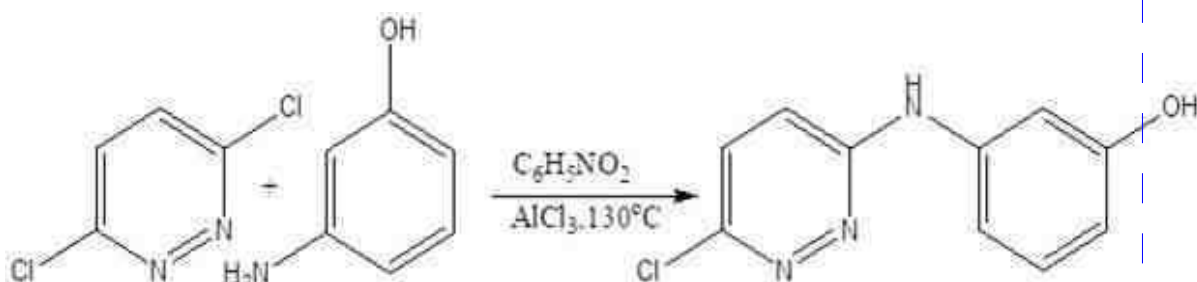


4. Reaction with Nucleophilic Reagents: The diazine is very susceptible to the action of nucleophilic reagents. The effect of the presence of a second nitrogen atom is to make the carbon atoms of the ring even more electron deficient than they are in pyridine.

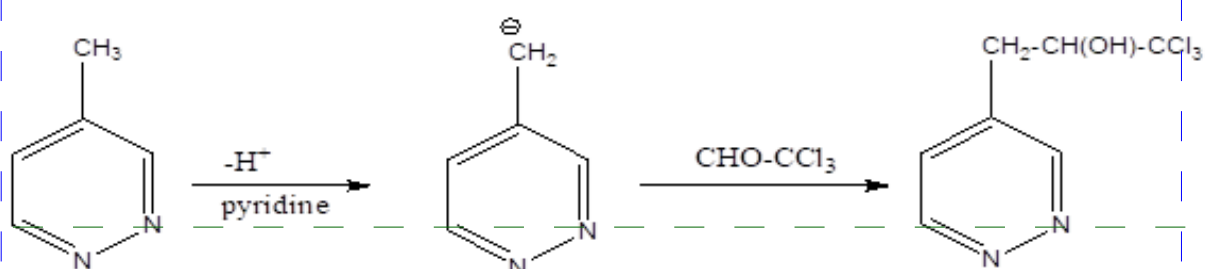
5. i). Aminopyridazines are prepared by the direct displacement of the halo group with concentrated ammonia or amines.



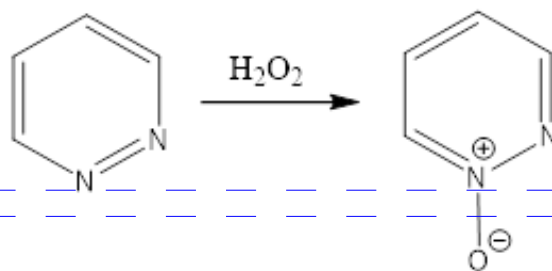
ii). Arylation of 3,6-dichloropyridazine takes place though with powerful aromatic nucleophiles such as 3-aminophenol to yield 3-chloro-6-(3-hydroxyamino)-pyridazine.



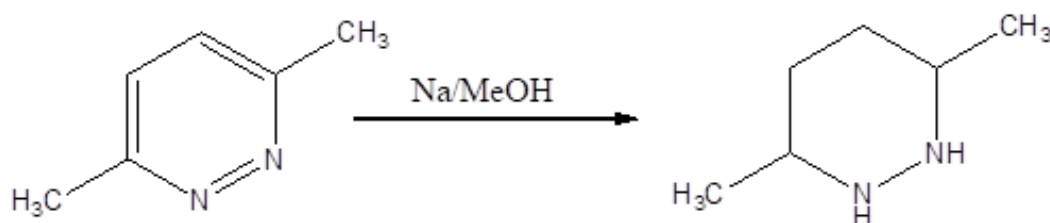
iii). Alkylpyridazines undergo condensation reaction aided by weak bases



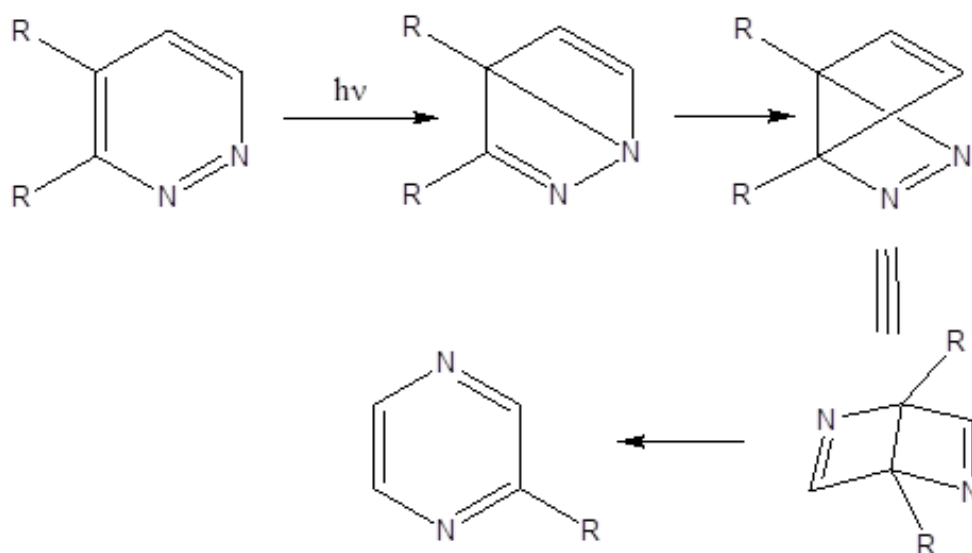
6. Reaction with oxidizing agent & Reducing agent: Pyridazine is also resistant to the attack of oxidizing agents because of electron deficiency in the ring with hydrogenperoxide



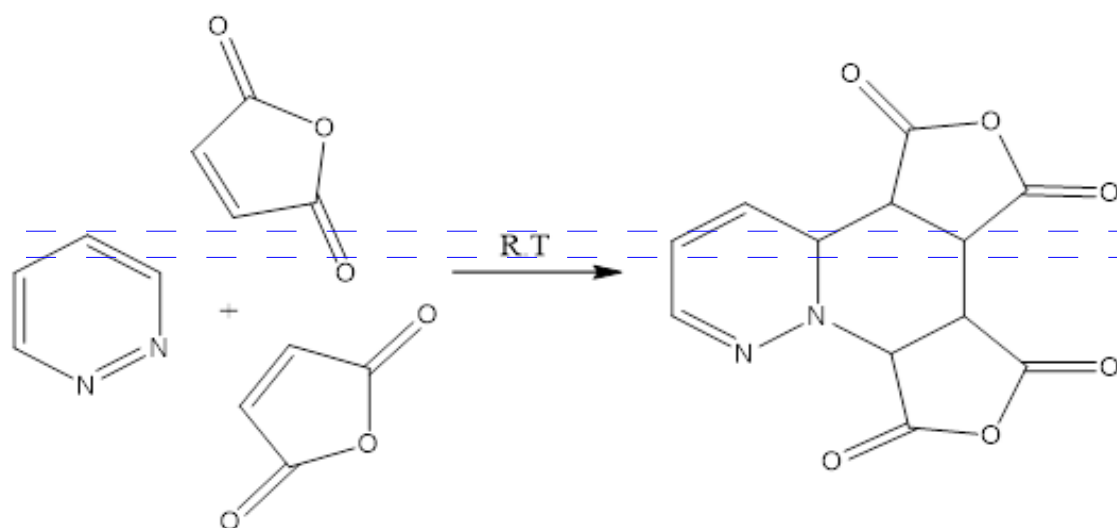
The ring can be completely reduced with sodium in presence of methyl alcohol.



7. Photochemical Reactions: Pyridazine is rearranged to pyrazine on irradiation according to the mechanism given below:

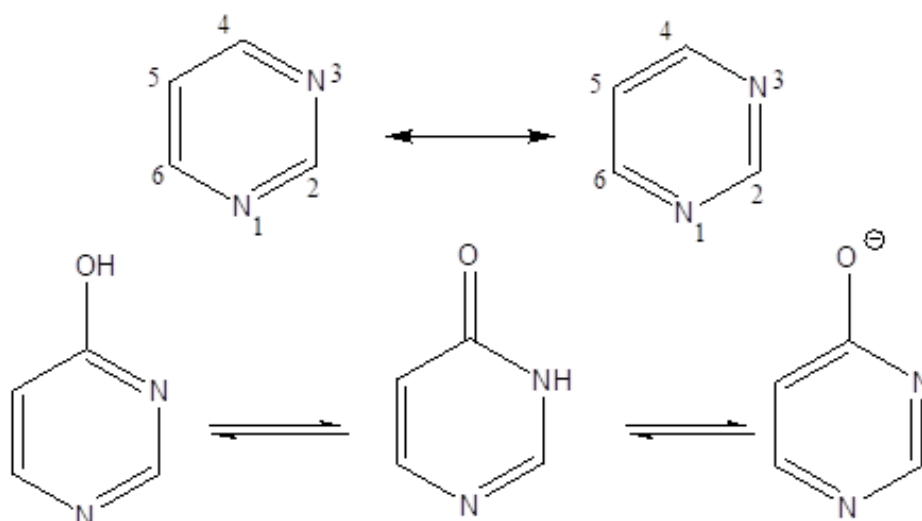


8. Cycloaddition Reactions: Pyridazine with malice anhydride forms a 1:2 adduct at room temperature.



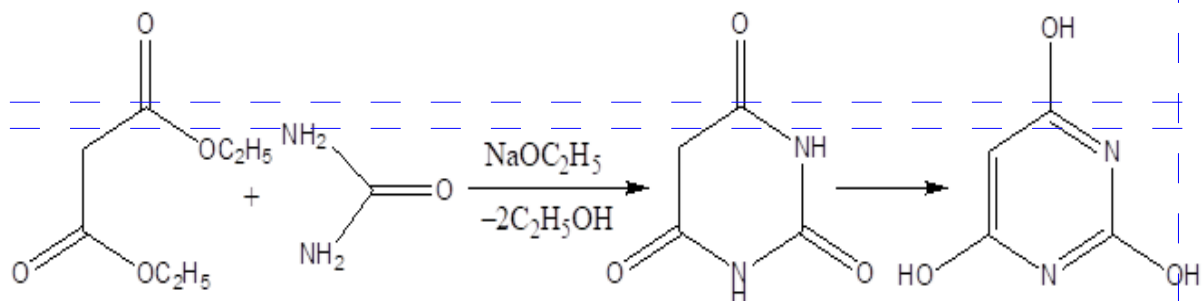
Pyrimidine:

Pyrimidine is the most important member of all the diazines as this ring system occurs widely in living organisms. Purines, uric acid, alkoxan, barbituric acid and a mixture of anti-malarial and anti-bacterials also contain the pyrimidine ring. Pyrimidine was first isolated by Gabriel and Colmann in 1899. Pyrimidine is a colorless compound, m.pt. 2250C and b.pt. 1240C. It is weakly basic as compared to pyridine (pka 5.2) or imidazole (pka 7.2).

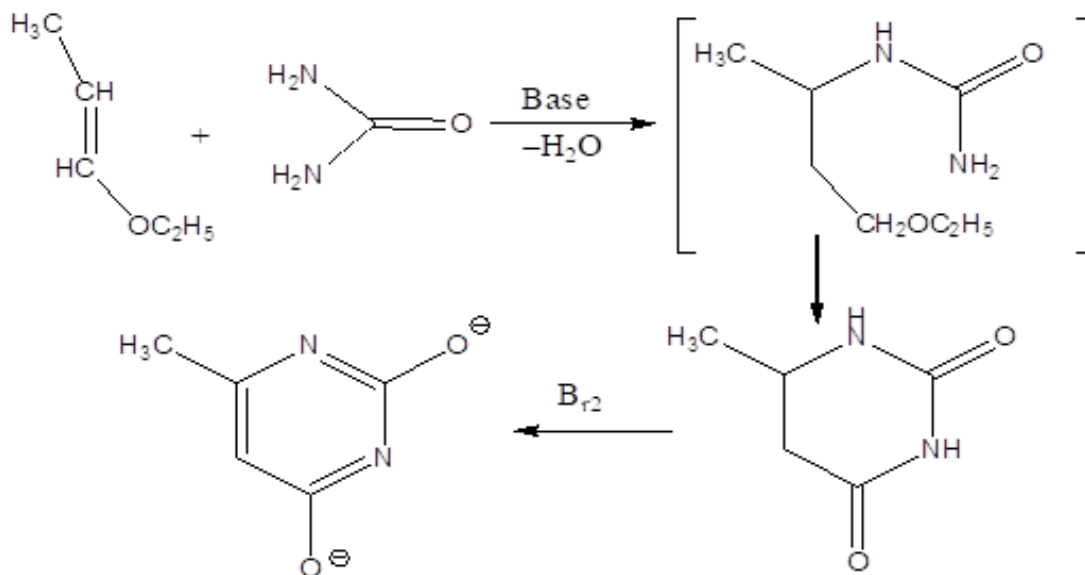


Synthesis:

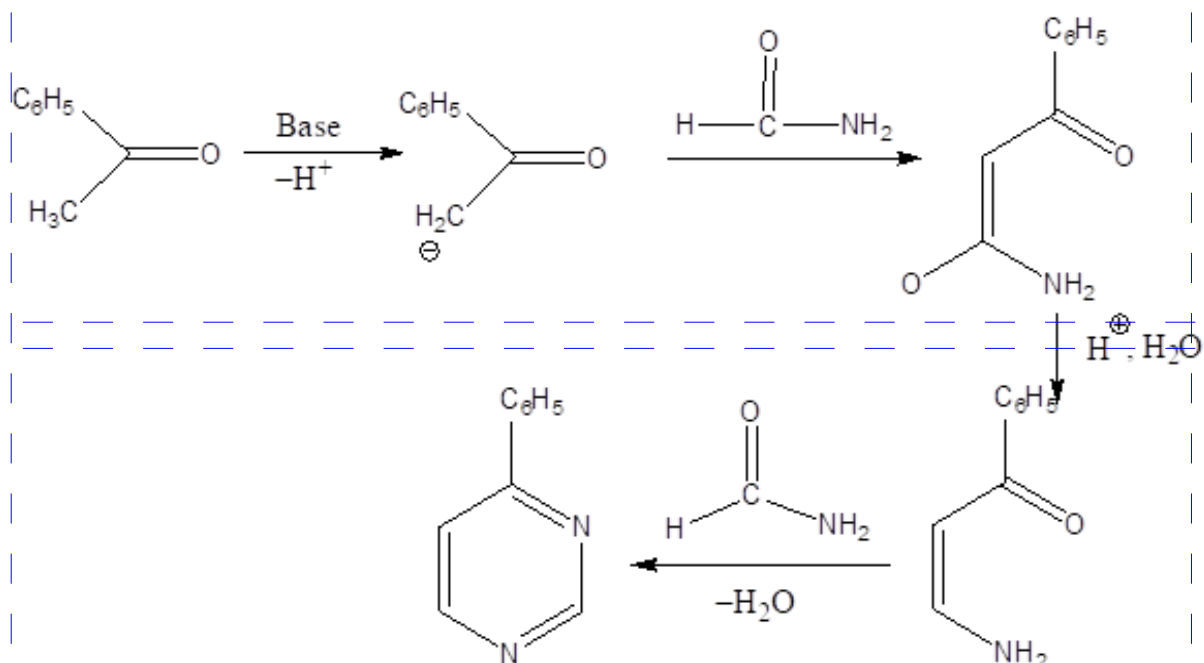
1. From Malonic esters: A simple synthesis of pyrimidine ring involves a condensation between a malonic ester and urea in the presence of base to give the pyrimidine.



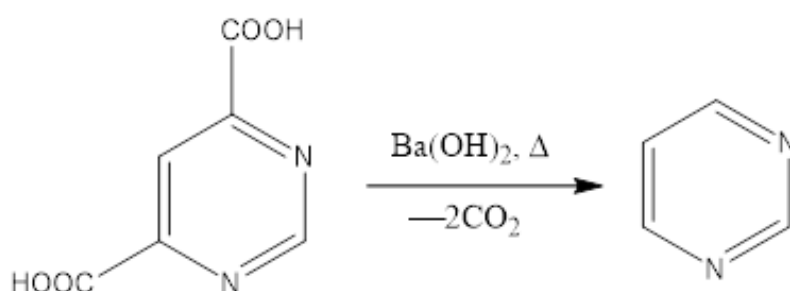
2. From ethyl crotonate: The condensation of amidines or urea with unsaturated compounds such as ethyl crotonate in presence of base. A dihydro pyrimidine is the initial product which is readily oxidized to the corresponding pyrimidine



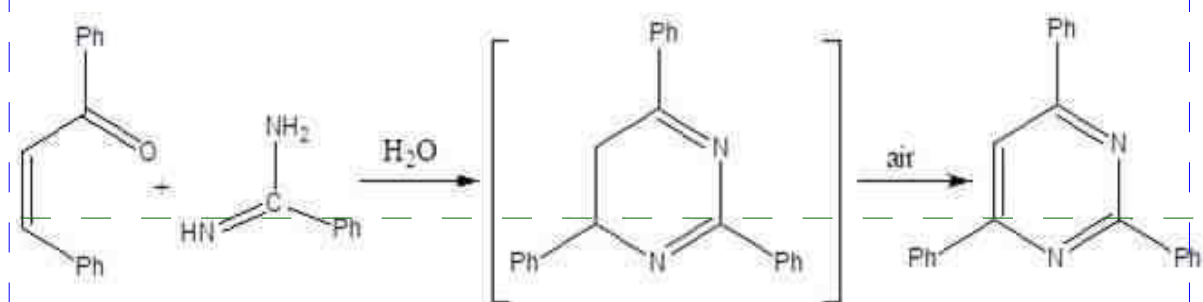
3. From carbonyl compounds: Formamide reacts with compounds containing active methylene group in a way to form β -enaminoketones. With excess of formamide, the β -enaminoketones cyclises to form pyrimidines.



4. Pyrimidine itself can be obtained by the decarboxylation of pyrimidine-4,6-dicarboxylic acid.

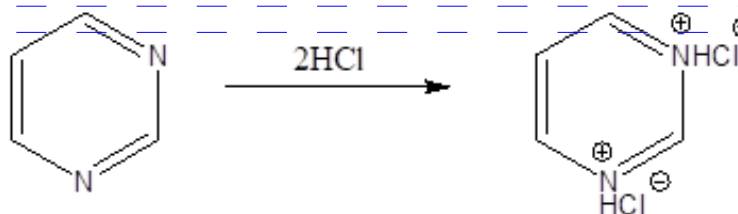


5. From α, β-unsaturated ketones: Simple α, β-unsaturated ketones with amidines to give pyrimidines. The initial product of this reaction is probably a dihydropyrimidine which is readily oxidized by a stream of air to give pyrimidine derivative.

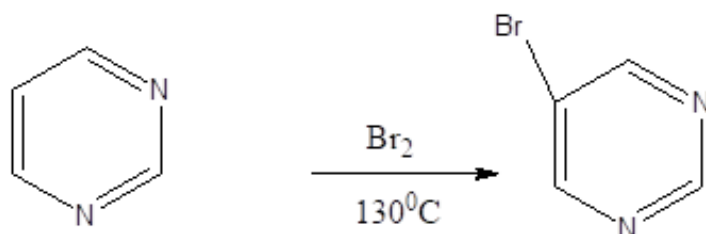


Reactivity:

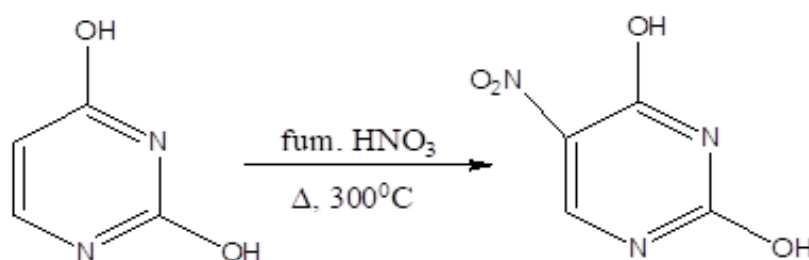
1. Reaction with Acids / Quarternisation: Pyrimidine though a weak base can be protonated in the presence of acids. Diprotonation unlike pyridine takes place in strong acids. Diprotonation is possible because the nitrogen atoms are not present in adjacent positions as in the pyridazine molecule.



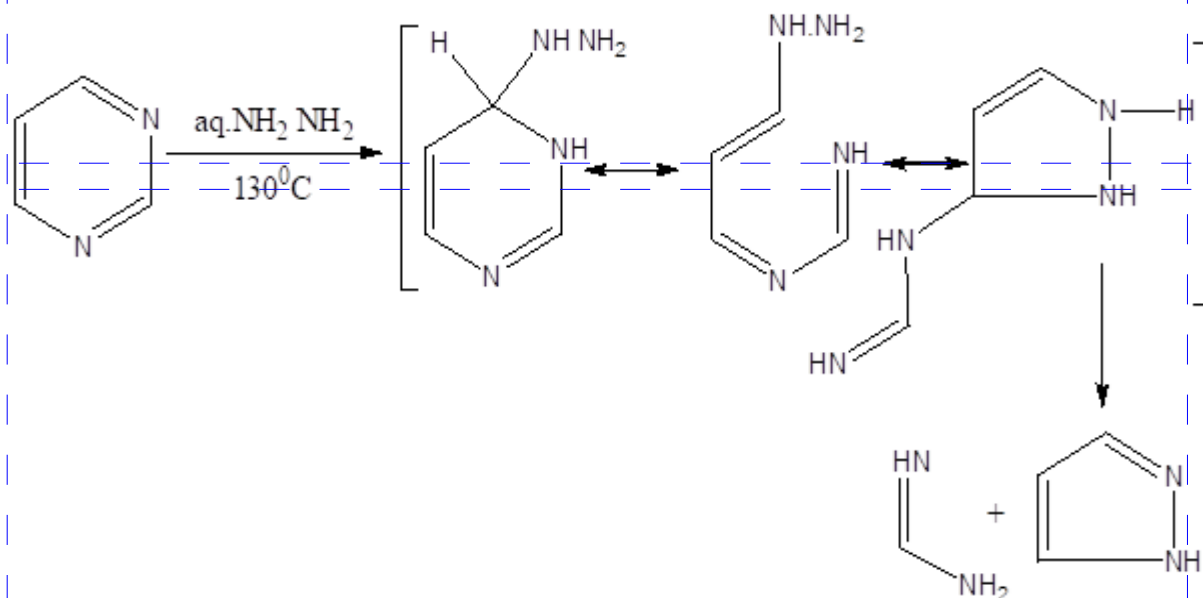
2. Electrophilic Substitution Reactions: Pyrimidine is also resistant towards electrophilic substitution reactions. The attack at 2-, 4-, 6-position is particularly retarded because of the electron deficiency at these positions. The position 5- is also difficult to attack as it is influenced by the inductive effect of two nitrogen atoms and this resembles position 3- in pyridine. Electrophilic substitution at position 5- is easy if one or more electron releasing groups are present on the ring



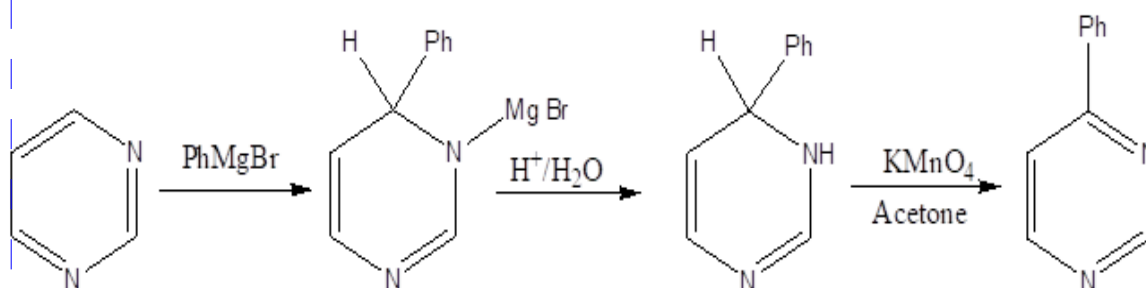
2- or 4-hydroxypyrimidine does not nitrate but 2,4-dihydroxypyrimidine (uracil) does so in boiling in fuming nitric acid.



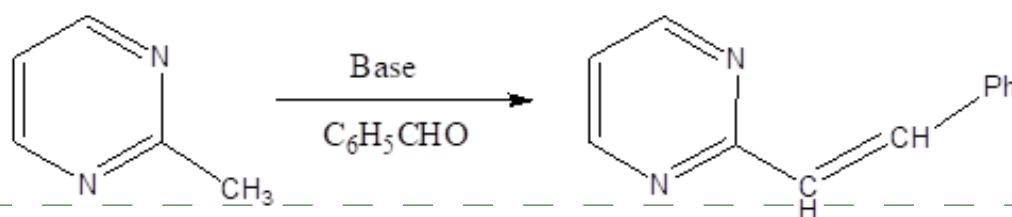
3. Reaction with Nucleophilic Reagent: Pyrimidine is stable in cold alkali but in boiling hydrazine it rearranges to pyrazole through the ring opening.



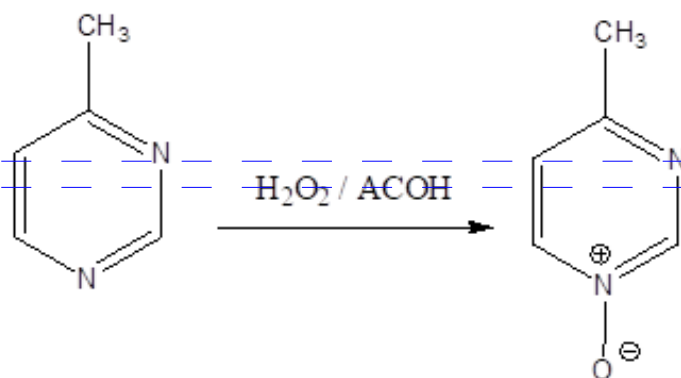
4. Reaction with organo metallic Reagents: Grignard and organo metallic reagents readily add to the 3, 4 bond of pyrimidines. The intermediate on hydrolysis at subsequent oxidation of dihydro pyrimidine with potassium permanganate in acetone gives 4-phenyl pyrimidine.



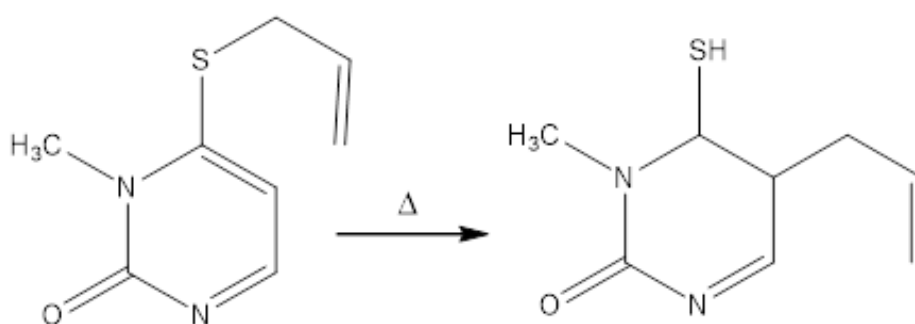
Methyl groups in the 2-, 4- and 6-positions of pyrimidine behave as active methylene groups and can be converted to styryl derivatives by condensation with benzaldehyde.



5. Reaction with oxidizing agent □ Reducing agent: Pyrimidine gives a low yield of N-oxide. On oxidation with a peracid, the ring is largely destroyed during N-oxide formation.

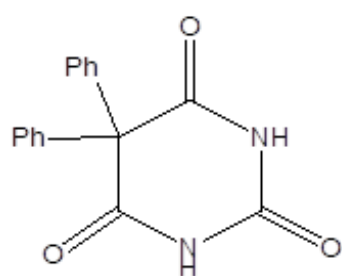


1. Thio-Claisen Rearrangement: Certain substituted thiopyrimidines undergo the familiar thio claisen rearrangement. Thus, 3-methyl-4-allylthiopyrimidin-2-one on heating gives 5-allyl-3-methyl-4-thiouracil.

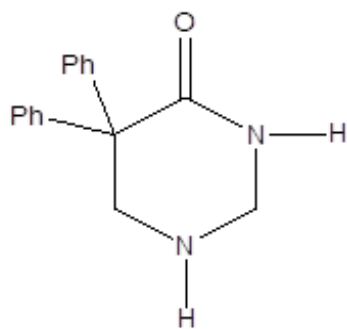


Naturally occurring & biologically active compounds:

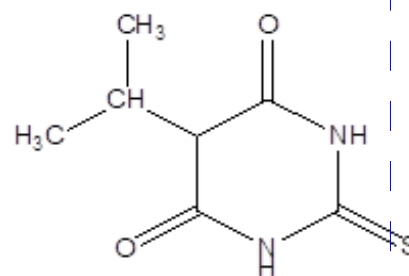
Hypnotic drugs & Anaesthetic drugs:



Verinol

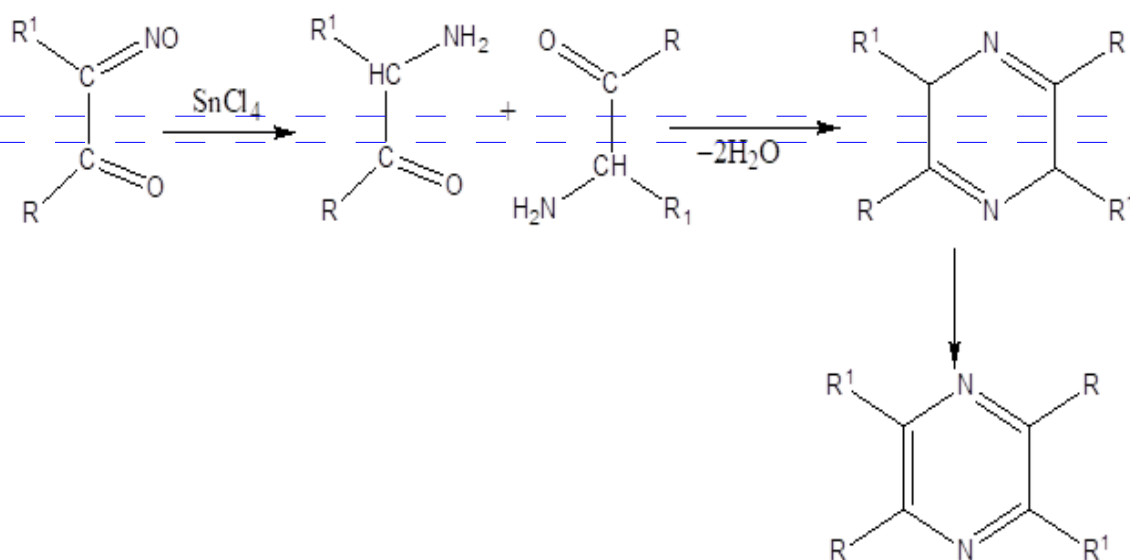


Luminal

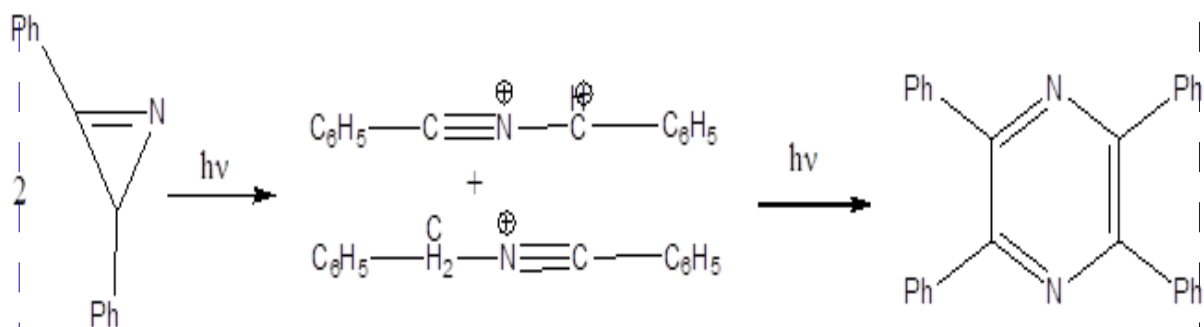


Pentothal

2. From α -amino carbonyl compounds: This method involves a self condensation of two molecules of α -amino carbonyl compounds to give 2,5-dihydropyrazine. Subsequent oxidation gives pyrazine.



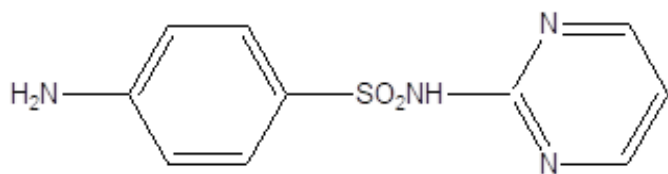
3. From Azprine: derivations: Diphenylazirines on rearrangement gives 2,3,4,5-tetraphenylpyrazine.



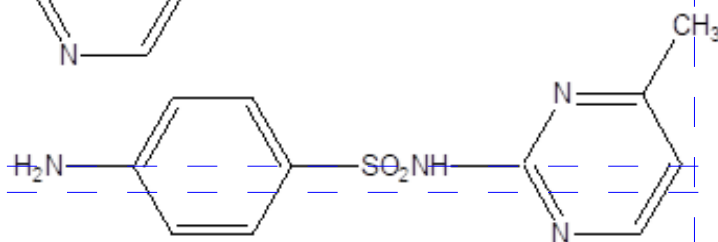
Reactivity

1. Reaction with acids: Pyrazine is a monobasic compound and it is protonated at N-1. Diprotonation is possible only in the presence of strong acids.

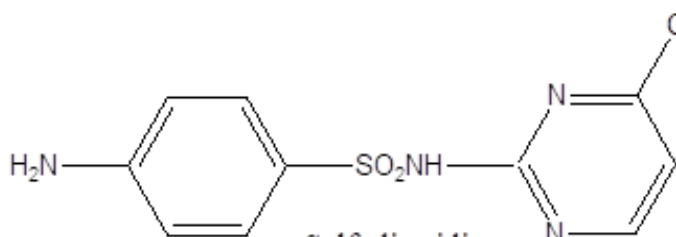
Sulfa drugs:



Sulfadiazine



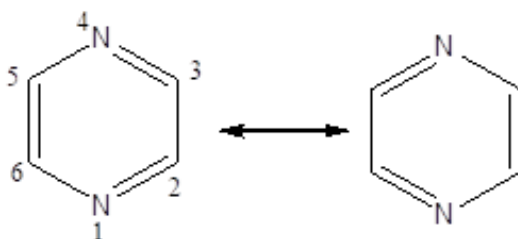
Sulfamerazine



Sulfodiamidine

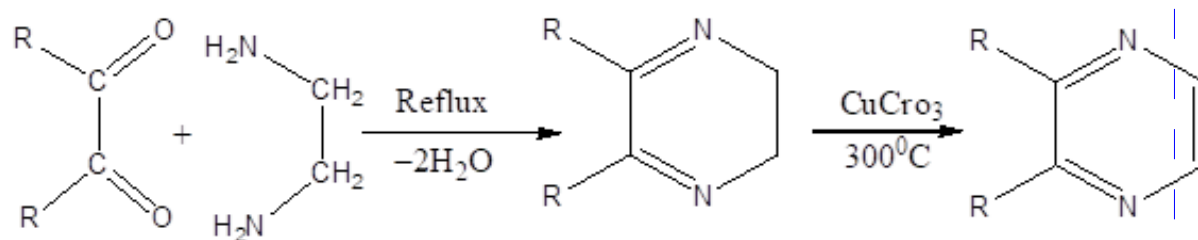
Pyrazines:

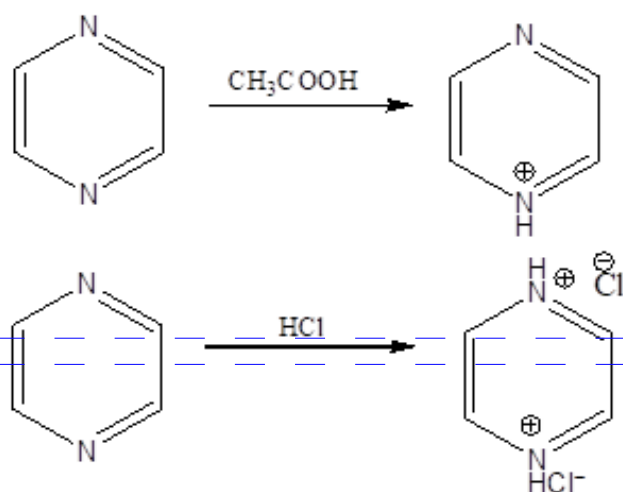
Pyrazines Or 1,4-diazines is a symmetrical molecule as the nitrogen atoms occupy the 1,4-positions. Pyrazine is a colorless solid with m.pt 54°C.



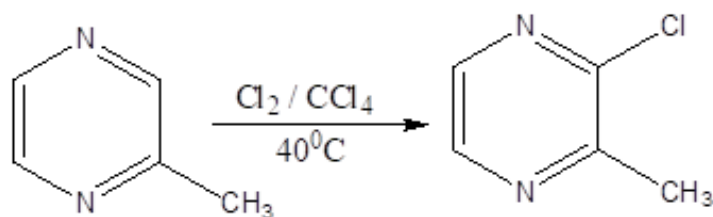
Synthesis:

1. From 1,2 – diketones: 1,2 diketones undergo condensation with 1,2 diamines to yield an intermediate dihydropyrazine. Subsequent dehydrogenation to the corresponding pyrazine is carried out over copper chromite at 300°C.

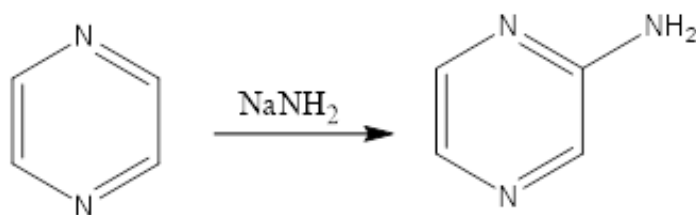




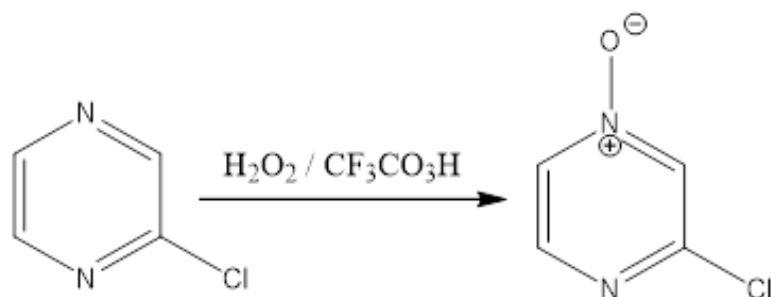
2. Electrophilic substitution Reaction: The presence of two nitrogen atoms deactivates the ring towards electrophilic attack. Presence of electron donating groups facilitates the electrophilic attack. This is evident by the chlorination of 2-methylpyrazine under milder conditions.



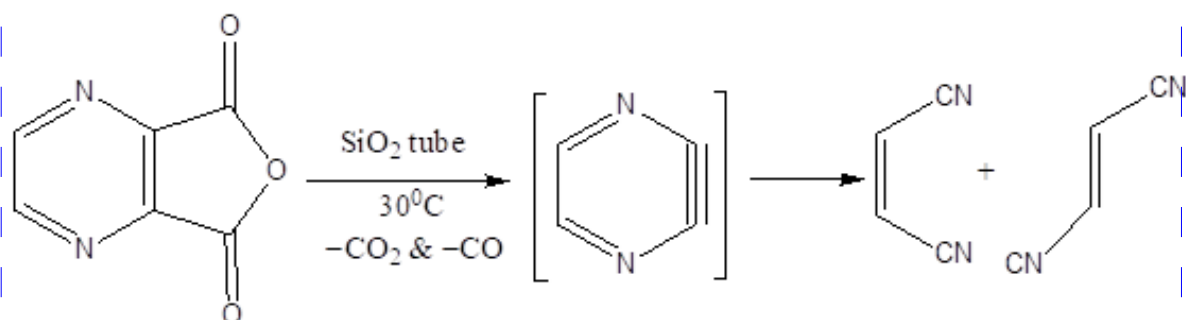
3. Reaction with Nucleophilic reagents: Pyrazine reacts with sodamide in a similar manner to the chichibabin reaction.



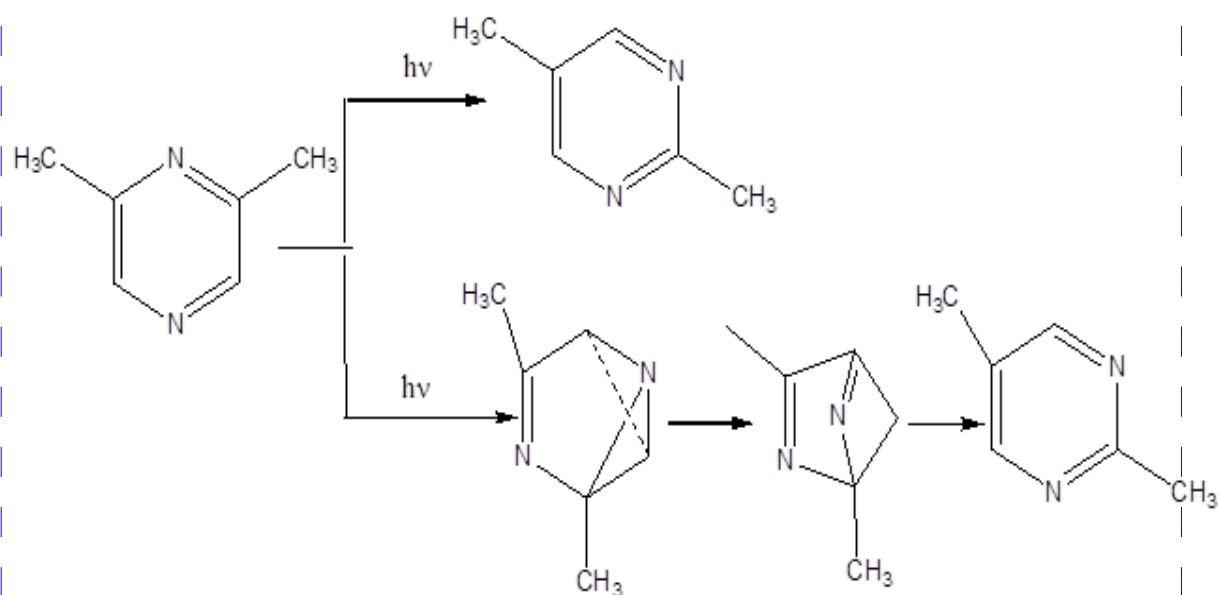
4. Reaction with Oxidising Agents: The pyrazine ring system is reasonably stable to the action of oxidising agents. The alkyl group present on the ring can be oxidized to the carbonyl group. Pyrazine itself has been converted to di-N-oxide with trifluoroacetic acid directly.



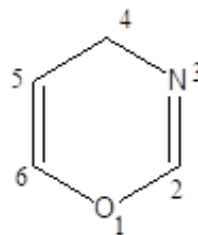
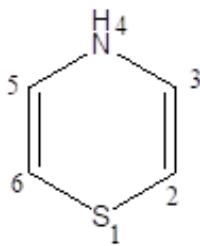
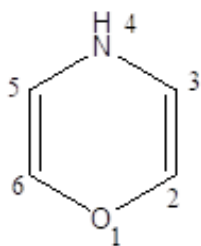
5. Formation of 2,3 Pyrazine: Pyrolysis of pyrazine-2,3-dicarboxylic anhydride gives maleonitrile & fumaronitrile isomeric compounds with an intermediate pyrazine.



6. Photochemical Reactions: Pyrazine is isomerised to other diazine under photolytic conditions.

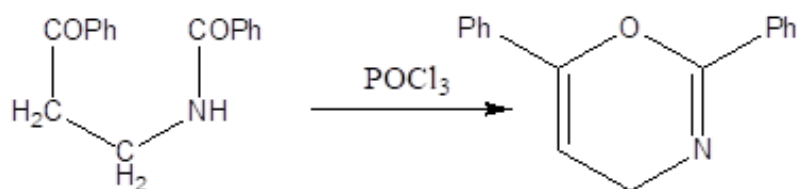


Oxazine Thiazines:



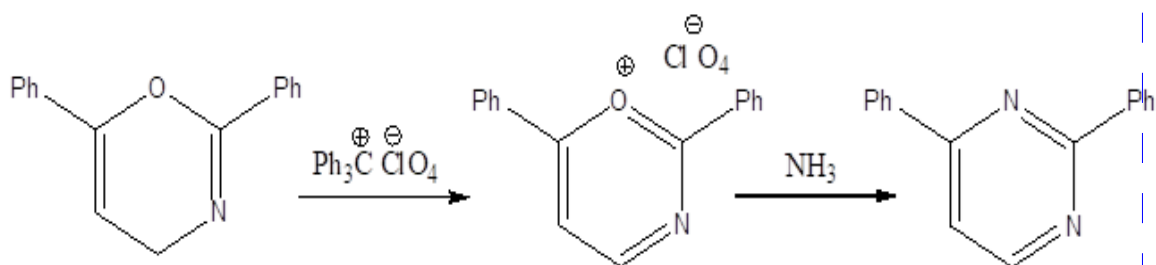
Synthesis:

1. 4[H]-1,3-oxazines can be obtained from acylated α -amino ketones by treatment with phosphorous oxychloride.

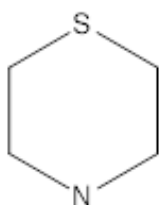


Reactivity:

They are oxidisable to 1,3-oxazinium salts like pyridilinium salts.

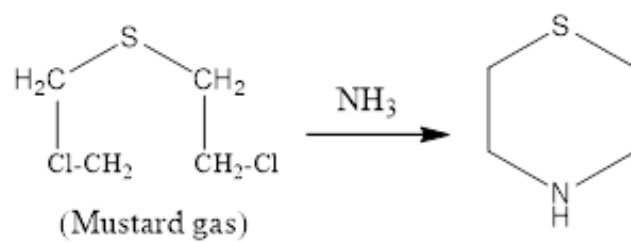


Thiamorpholine



2,3,4,5,6 [H] – Thiazine (Thiamorphotine)

Thiomorpholine is obtained from mustard gas and ammonia.



6

FIVE MEMBER HETEROCYCLES WITH MORE THAN TWO HETERO ATOMS

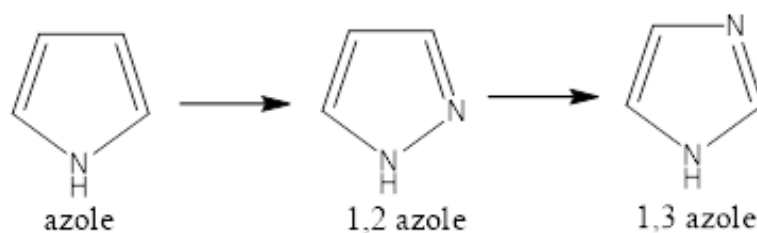
Introduction:

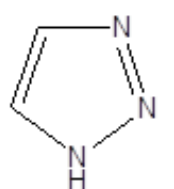
Five membered heterocycles with more than two heteroatoms are considered to be derived from corresponding five member compound pyrrole, furan & thiophene by the replacement of methine groups (-CH=) by pyridine type of nitrogen (-N=) from the different positions.

The basic strength decreases with increasing the number of nitrogen atoms because of inductively electron withdrawing effect of the pyridine type of nitrogen atoms. So tetrazoles are weaker bases when compared to triazoles. The acidity of the ring system increases with the number of nitrogen atoms as tetrazoles are more acidic than triazoles. The position of nitrogen atoms (orientation) do not affect the acidic strength as 1,2,3-triazole is slightly more acidic than 1, 2, 4 triazole. But the effect of orientation on acidity is much less than the effect of the total number of nitrogen atoms.

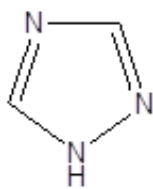
The tendency of the ring system towards electrophilic attack decreases with the introduction of pyridine type Nitrogen atom. Triazoles,, oxadiazoles and thiadiazoles are resistant towards the electrophilic attack and undergo electrophilic substitutions only if powerful electron releasing substituents are present.

Pyridine type Nitrogen atoms also affect the ease of quarternisations and therefore require stronger reagents and reaction conditions.

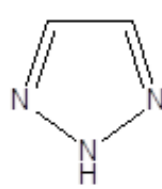




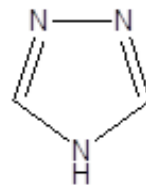
1,2,3 triazole



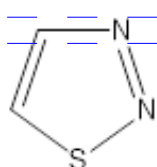
1,2,4 triazole



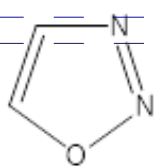
1,2,5 triazole



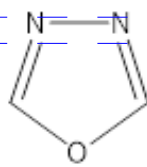
1,3,4 triazole



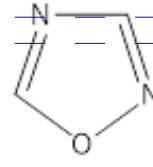
Thiadiazole



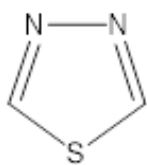
Oxadiazole



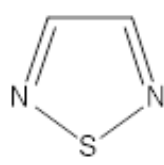
1-oxa-3,4 diazole



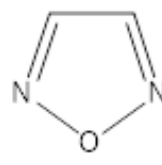
1-oxa-2,4 diazole



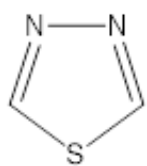
1-Thia-3,4 diazole



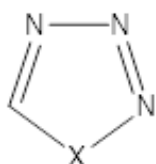
1-Thia-2,5 diazole



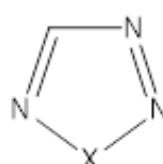
1-oxa-2,5 diazole



1-Thia-2,4 diazole



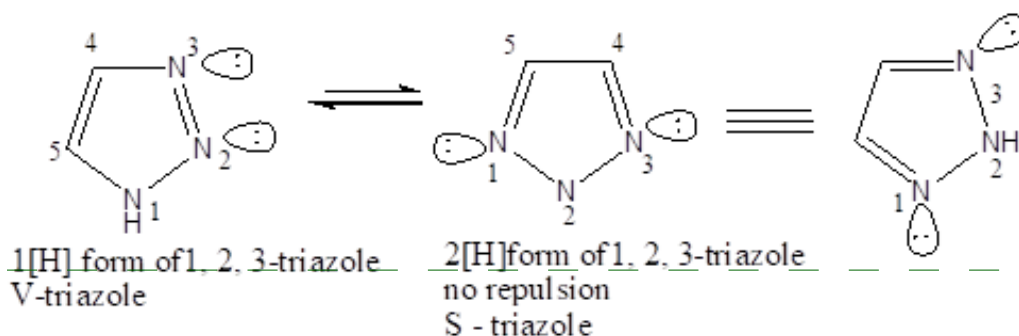
X= -NH, -O, -S
1, 2, 3, 4-tetrazole



X= -NH, -O, -S
1, 2, 3, 5-tetrazole

1,2,3-Triazole:

Aromatic character and Importance:

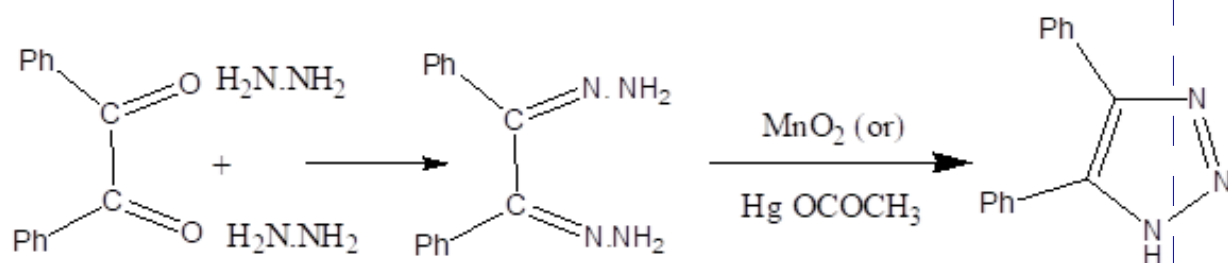


1,2,3-triazole is a planar five membered heterocyclic system with two carbon and three nitrogen atoms (one- pyrrole type and two pyridine) in the 1,2 and 3-positions. 1[H] is named as v-triazole (v stands for vicinal) to distinguish it from s-triazole (s stand for symmetrical). 1,2,3-triazole exists in two tautomeric forms i.e 1[H] & 2[H] forms. The spectral studies have confirmed the predominance of symmetrical 2[H] form. The destabilization of 1[H] form is considered to be due to repulsive forces between the nonbonding electron pairs on the nitrogen atoms at position 2-and 3-.

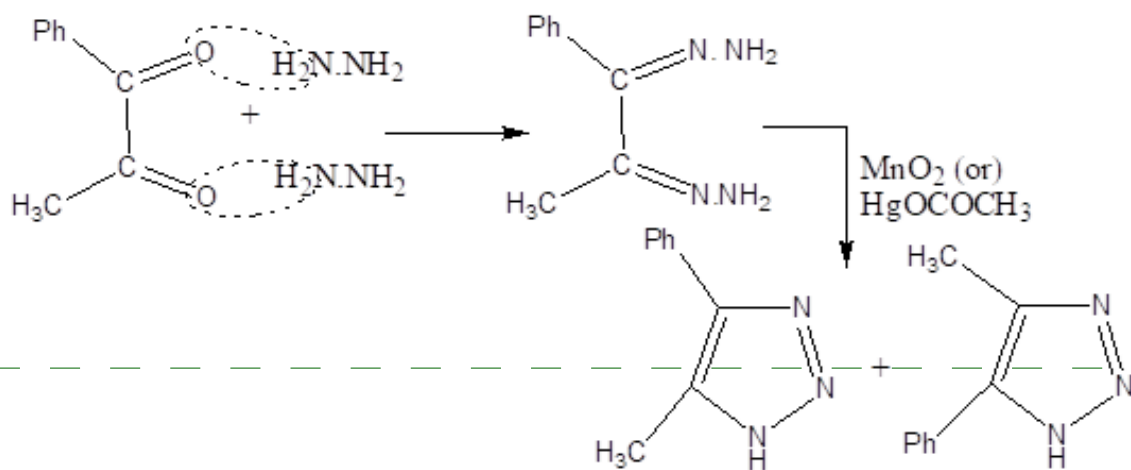
1,2,3-triazoles are used as sedatives, Anti inflammatory, Analgesics etc., & in agriculture as herbicides, fungicides and anti bacterial agents. The Industrial application of 1,2,3-tiazoles uses as fluorescent whietner's, light stabilizers and optical brightners.

Synthesis:

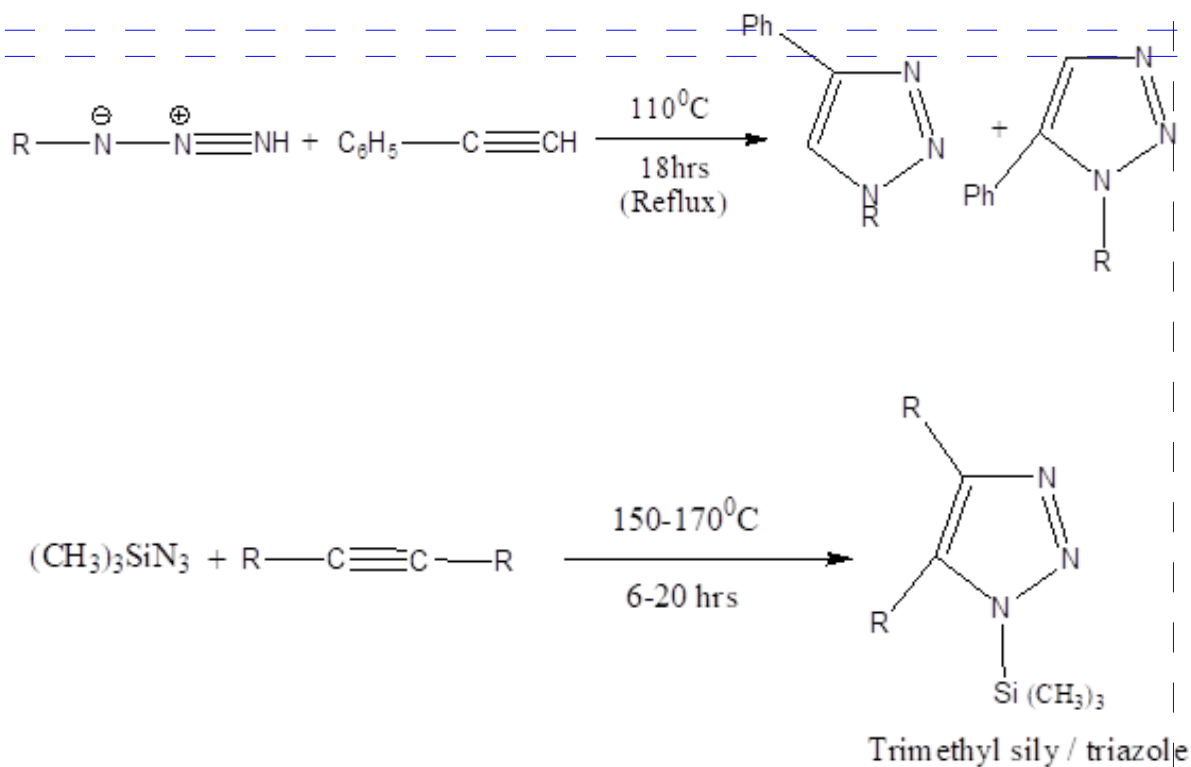
1. Oxidative cyclisation of bis-hydrazones of α -diketones: Bis – hydrazones of α -diketones undergo cyclisation with mercury acetate or Manganese dioxide to provide 1,2,3-triazoles.



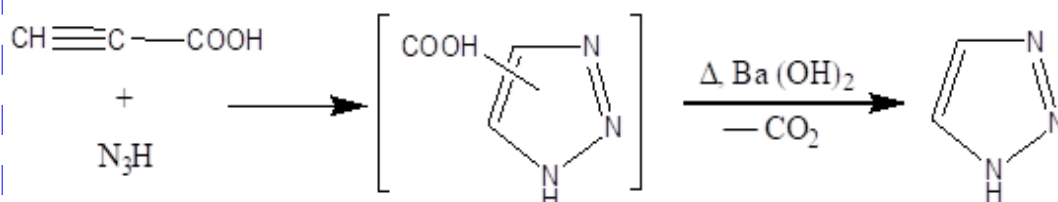
With unsymmetrical bis hydrazone, two products are formed.



2. Cycloaddition of Azides with Alkynes: 1H-1, 2, 3-triazole formation involves thermal 1, 3 dipolar cycloaddition of a wide variety of organic azides with alkynes with the formation of C5-N1 and C4-N3. The cycloaddition of trimethyl silyl azides to alkynes at higher temperature produces N-trimethyl silyl 1, 2, 3-triazoles. The silyl group removed to obtain 1H-1,2,3-triazoles.

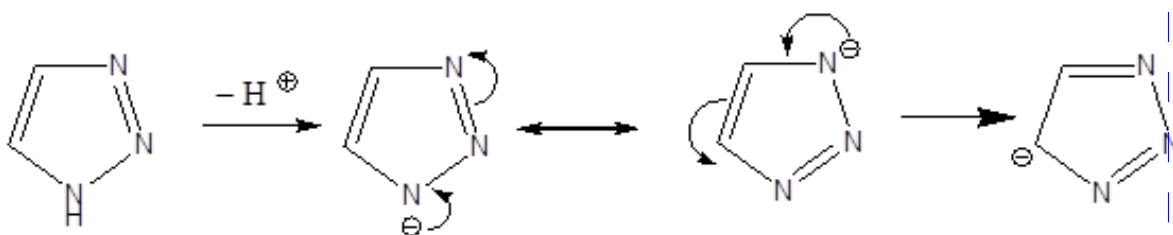
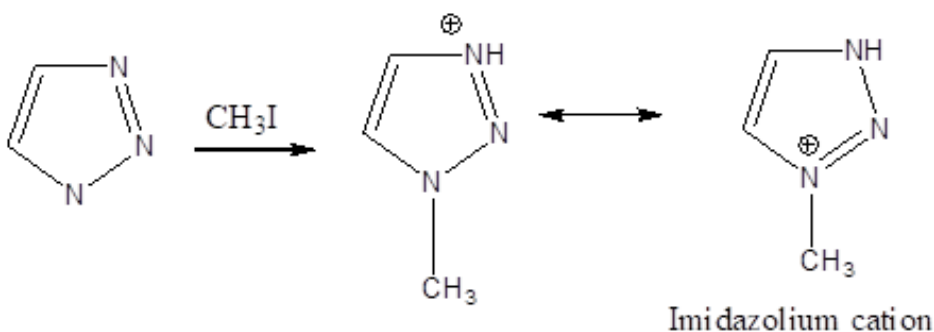
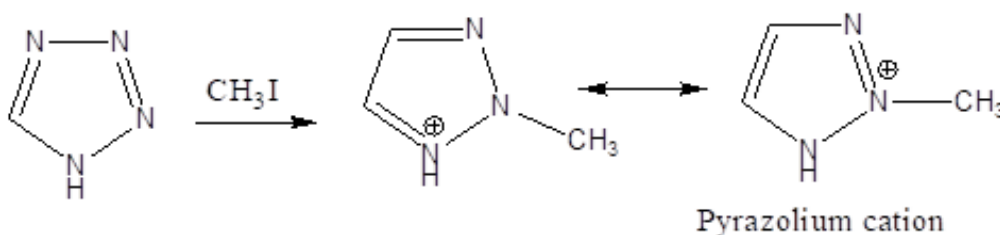


From Alkynes: The direct addition of hydrazoic acid to alkynes substituted with an electron withdrawing group such as carboxylic acid gives 1,2,3-triazoles.



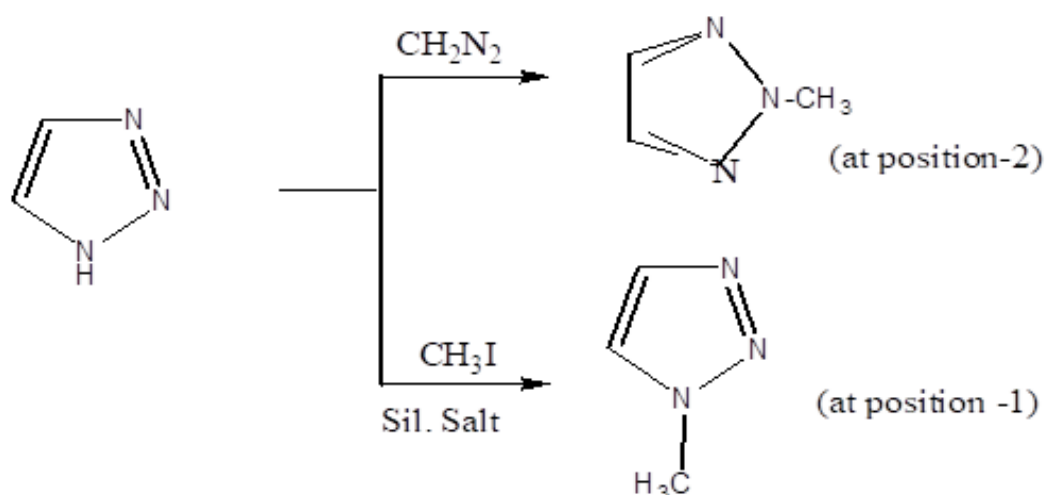
Reactivity:

1, 2, 3 – triazole is a weak base but it can also behaves as a weak acid comparable to phenol. The presence of methyl group at the position-1 does not affect base strength. But the methyl group at the position-2, basicity is decreased. The base weakening effect of methyl group in 2-methyl-1,2,3-triazole can be explained by the formation of pyrazolium type cation while very weak base strengthening effect of the methyl group in 1-methyl-1,2,3-triazole is attributed to the formation of imidazolium type cation.

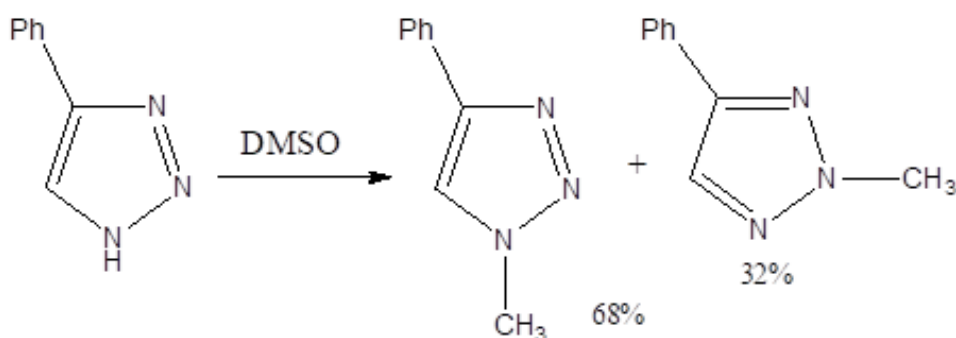


Electrophilic substitution Reaction: 1, 2, 3 – triazole undergoes electrophilic substitution reaction at ring carbon or at a ring nitrogen as three hydrogens are available (2H atoms on ring carbons and 1H atom on N) for the electrophilic replacement. In unsymmetrical 1,2,3-triazole, N-H is present at three different positions due to tautomerism and therefore three different N-substitutions are possible with the formation of three possible isomers. In symmetrical 1,2,3-triazole, two N-H position result in two different N-substitutions with the formation of two isomeric N-Substituted derivatives.

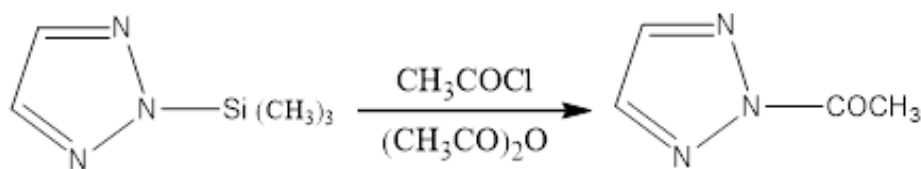
1. Alkylation Reaction: 1,2,3-triazoles undergo N-alkylation with a variety of alkylating agents. The ratio of isomers depends upon the nature of alkylating agents and the reaction conditions. Methylation of 1,2,3-triazole with diazomethane occurs preferentially at N-2 position with the formation of 2-methyl-2H-1,2,3-triazole. But methylation with methyl iodide in the presence of silinium salts takes place preferentially at the position-1.



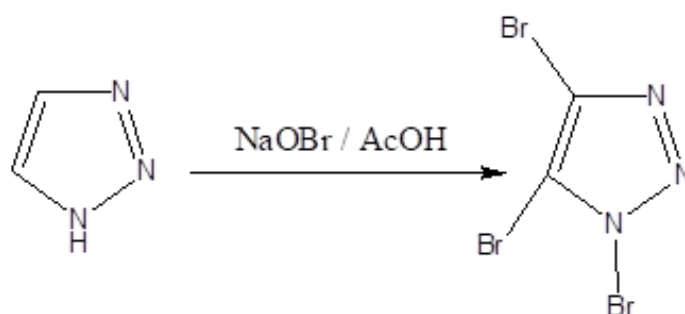
The steric effects of the substituents also affect the formation of products. Methylation of 4-phenyl-1H-1,2,3-triazole with dimethylsulphate occurs at N-1 and N-2 to provide 1-methyl- and 2-methyl- is 68% and 32% but sterically hindered 1-methyl-5-phenyl derivative is not formed.



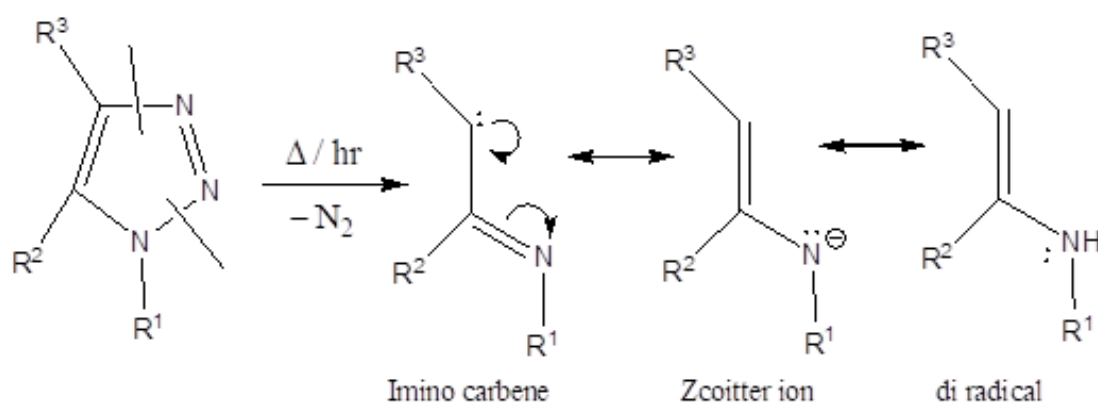
2. Acylation: Acylation 1,2,3-triazole with acyl halides or acid anhydrides occurs initially at the position-1, but in some cases acyl group may migrate from the position-1 to position-2 when 1-acyl derivative is heated above 1200C or treated with a base.



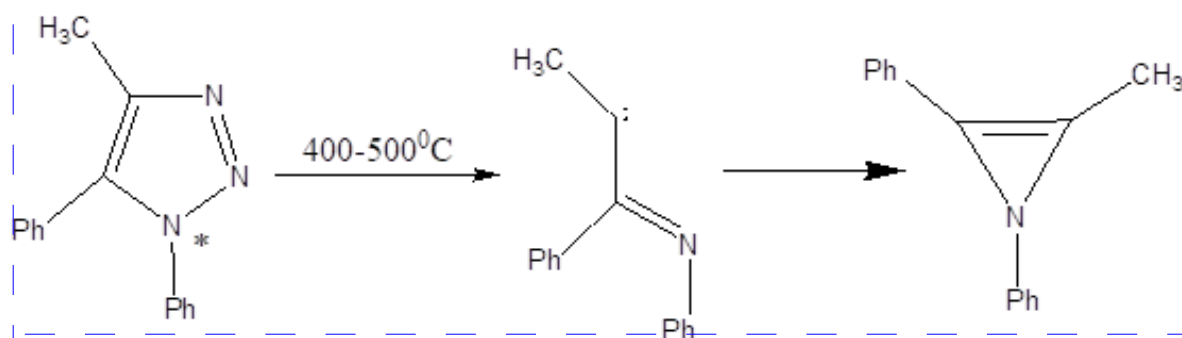
3. Bromination: Bromination of 1,2,3-triazole with bromine occurs at the positions -4 and -5 with the formation of 4,5-dibromo-1,2,3-triazole. Reactivity of 1,2,3-triazole towards bromination is due to the pyrrole type of nitrogen.



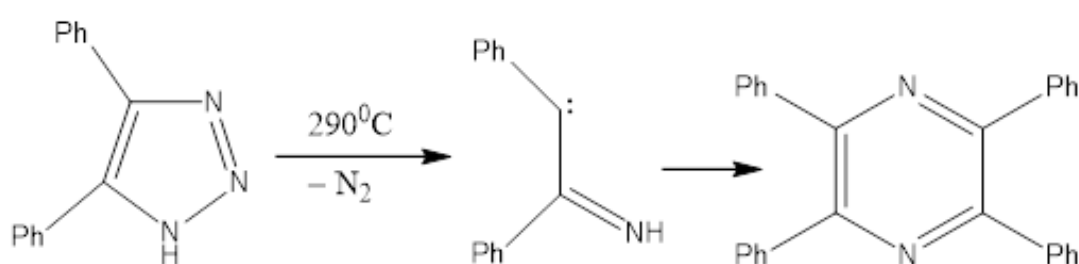
4. Thermal & Photochemical Reactions: 1,2,3-triazoles undergo thermal and photochemical reaction under forcing conditions with the elimination of nitrogen. The reactions proceed with the involvement of an intermediate in any one of the mesomeric forms imino carbene, Zwitter ion or diradical ion depending on the nature of the substituent's and the reaction conditions.



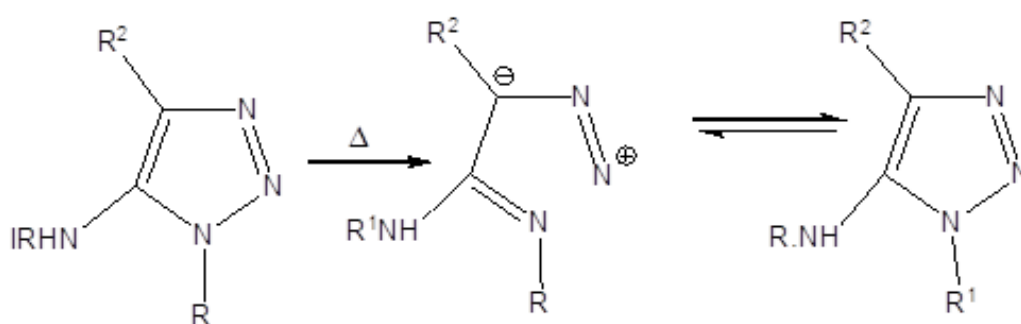
Vapour phase pyrolysis of unsymmetrically substituted 1,2,3-triazoles proceeds through iminocarbene intermediates with the formation of 1H-azirine derivative which rearranges to two isomeric 2H-azirines.



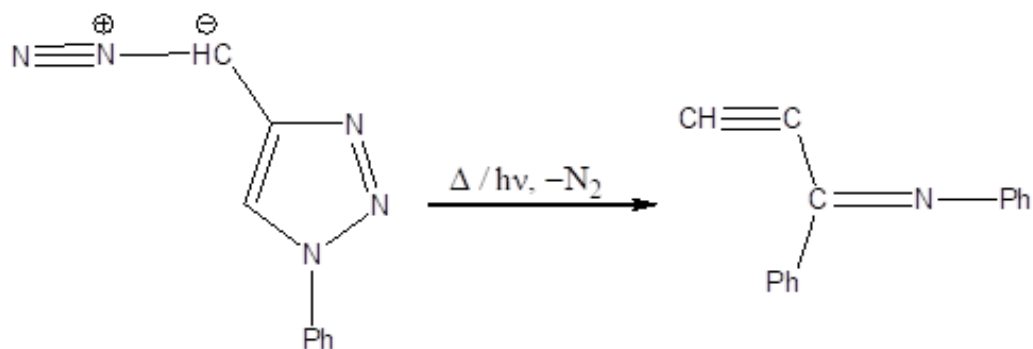
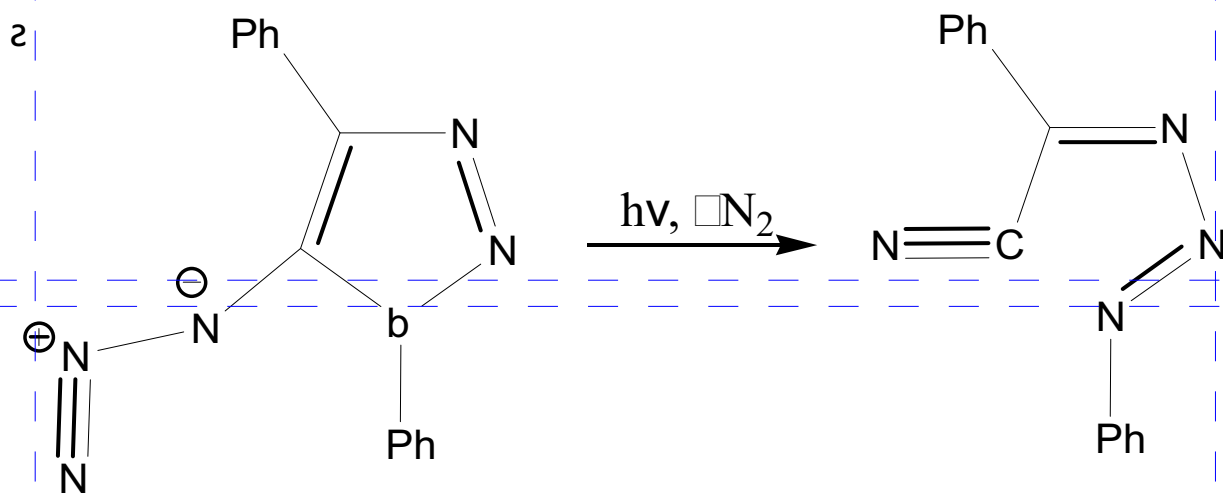
Pyrolysis of 4,5-diphenyl-1,2,3-triazole also proceeds through iminocarbene with the elimination of nitrogen to provide 2,3,5,6-tetra-phenyl pyrazine.



5. Dimoth Rearrangement: 5-amino-1, 2, 3 – triazoles undergoes Dimoth rearrangement in which ring nitrogen and its attached substituent is exchanged with an imino group at an α -position. The rearrangement proceeds to involve ring opening by cleavage of the N-N bond and subsequent cyclisation through diazoimine intermediates.

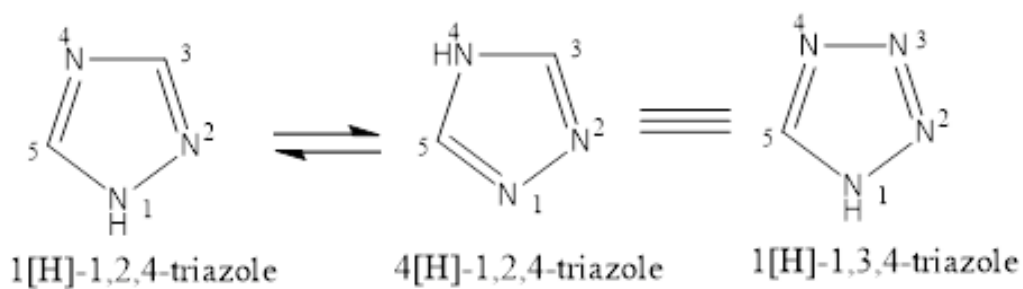


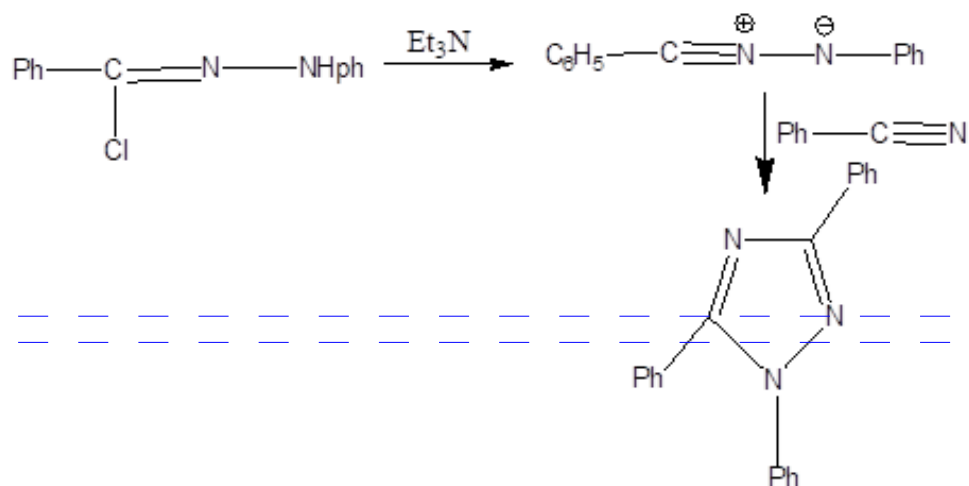
6. Ring cleavage Reactions: Amino-, azido- and diazomethyl-1,2,3-triazoles undergoes ring cleavage reactions with the evolution of nitrogen under photochemical conditions as well as thermal conditions at elevated temperatures.



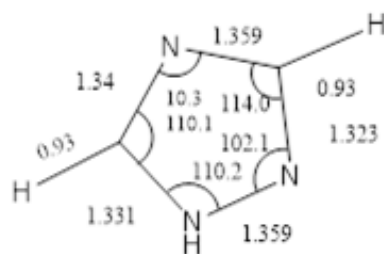
1,2,4-triazole:

1,2,4-triazoles are cyclic hydrazidines with hydrogen atom (or substituent) on either hydrazide nitrogen or an amide nitrogen. Parent 1,2,4-triazole (1H-form) is in tautomeric equilibrium with 1,3,4-triazole (4H-form).



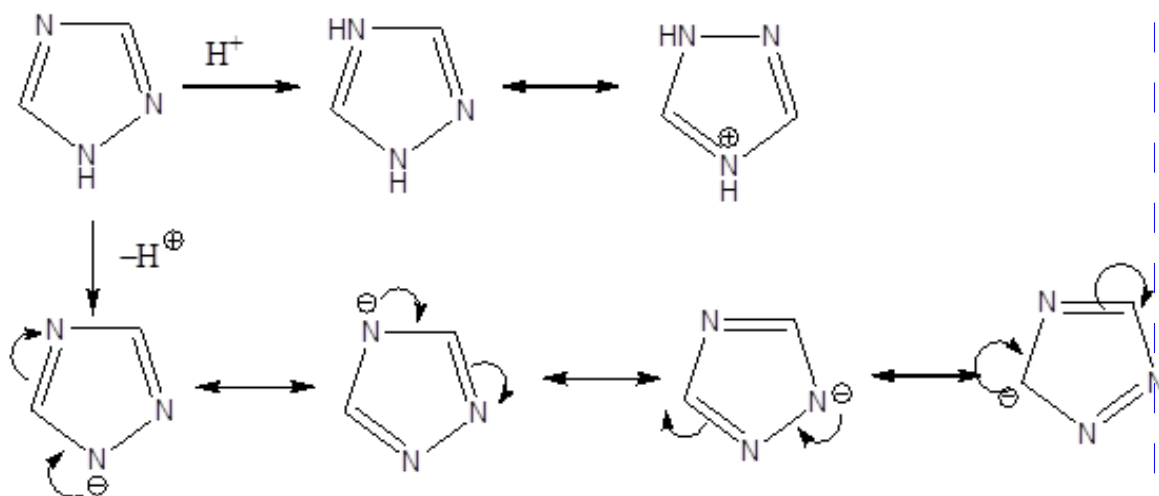


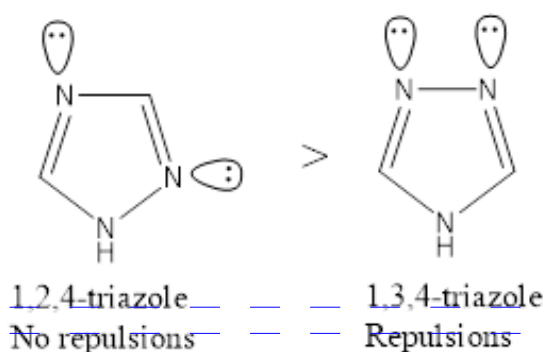
Structure



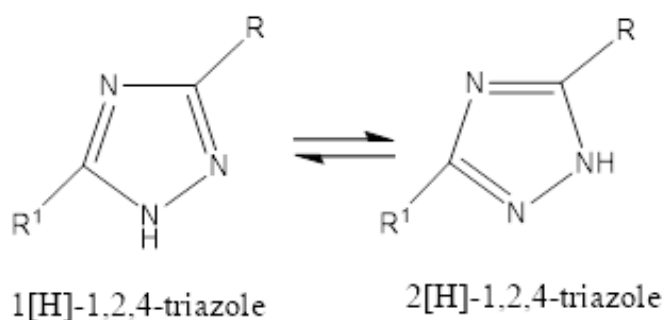
Chemical Reactivity:

1. **Acidity & Basicity:** 1,2,4-triazole is slightly less acidic but more basic than 1,2,3-triazole. The basicity of 1,2,4-triazole is attributed to the mesomeric stabilization of the of the imidazolium type of cation formed on protonation and the maximum separation of protonated nitrogens.



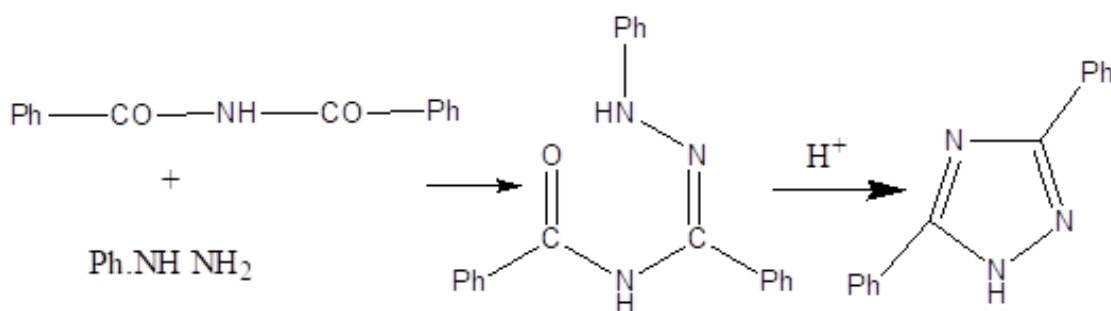


The interconversion is possible at room temp. The 4[H]-triazole can be rotated implane to 1[H]-1,3,4-triazole. Substitutions at C3 & C5 of 1,2,4-triazoles shows two forms i.e. 1[H] & 2[H].



Synthesis:

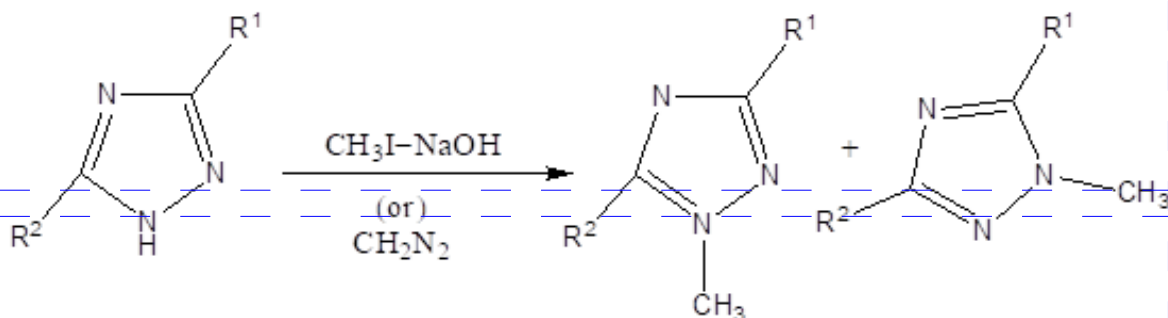
1. Einhorn – Bruner synthesis: The reaction involves the condensation of diacylamines with Mono substituted hydrazines in the presence of weak acid and proceeds through an amidrazone intermediate to give 1,2,4-triazole.



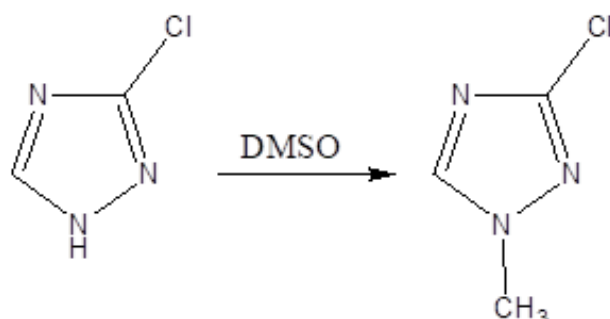
2. From Nitrilimines: 1,3 dipolar cyclo addition of nitrilimines obtained by dehydrohalogenation of *c*-halo benzylidene phenylhydrazones with nitriles gives 1,2,4-triazole.

2. Electrophilic Substitution Reaction at N atom:

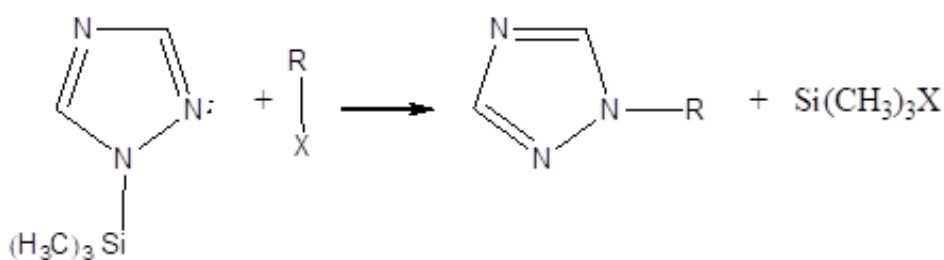
i. Electrophilic attack at nitrogen: Alkylation of N-unsubstituted 1,2,4-triazoles occurs at N-1 rather than at N-4.



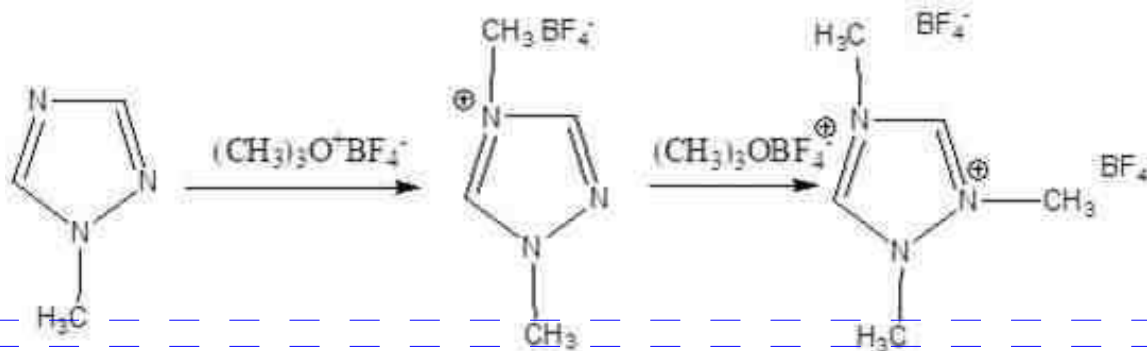
ii. Alkylation of 3-halo-1,2,4-triazoles with DMSO in the absence of a base occurs at N-1, N-2 and N-4.



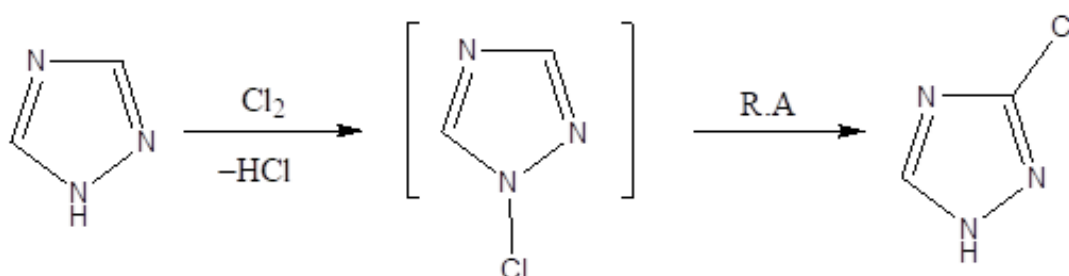
iii. If trimethyl silyl group is present at N-1, the alkylation occurs selectively at N-2 with the removal of trimethylsilyl group.



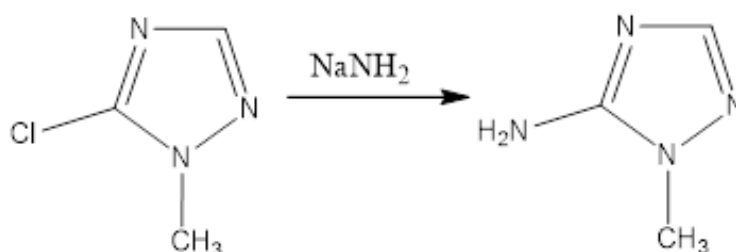
3. Quaternisation : 1,2,4-triazoles substituted with alkyl, aryl or acyl substitutions at N-1 or N-4 undergoes quaternisation when treated with powerful quaternising agents such as trialkyl oxonium tetrafluoro borates. The quaternisation occurs at N-4 & then at N-2.



4. Electrophilic attack at 'C' atom: Halogenation of 1,2,4-triazoles is considered to proceed through N-halo-1,2,4-triazole with the formation of 3-halo-1,2,4-triazole.

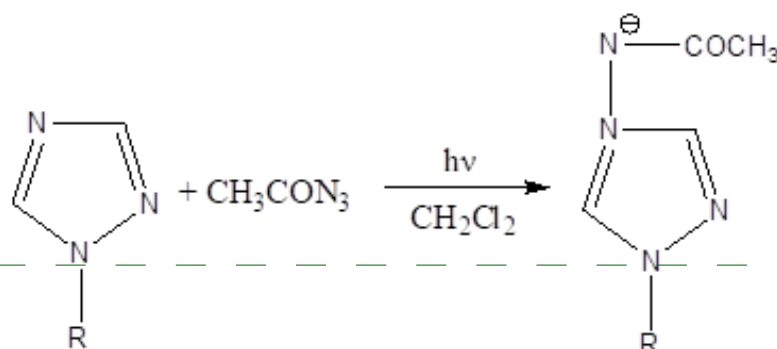


5. Reaction with Nucleophiles: 1,2,4-triazoles substituted with halogen at the position 3- or 5- undergoes nucleophilic substitution reactions.

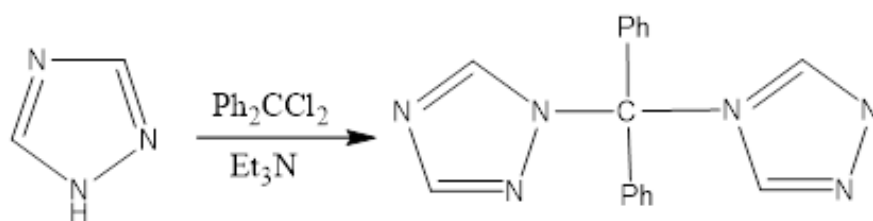
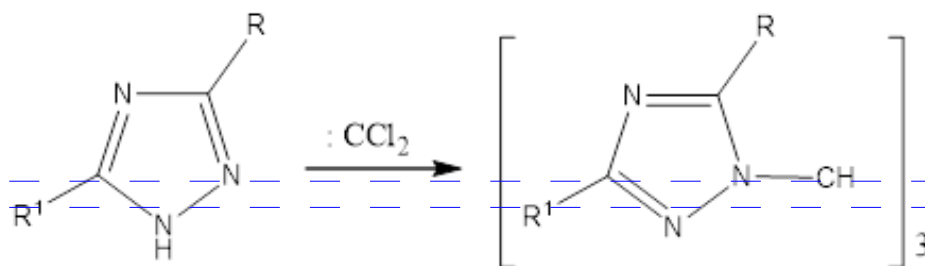


6. Reaction with Electron deficient species:

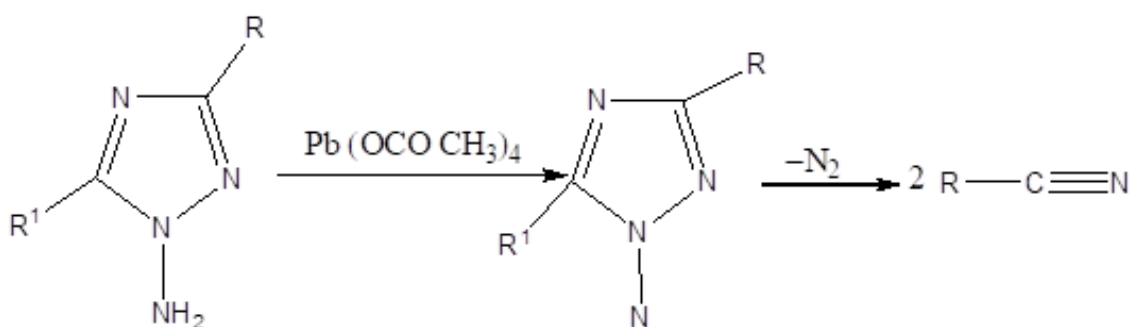
i. Reaction with Nitrenes: The reaction of 1-alkyl-1,2,4-triazoles with nitrenes generated by irradiation of azides results in the formation of N-Imines.



ii. Reaction with carbenes: The reaction of 1,2,4-triazoles with carbene dichloride does not proceed with the ring expansion as in pyrazole and imidazole but results in the formation of bis- and tri-1,2,4-triazoles.



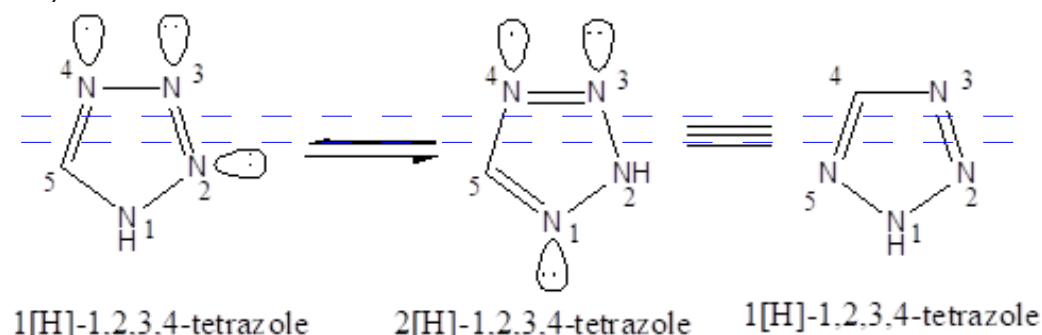
7. Oxidation: 1,2,4-triazole ring is resistant to oxidation but N-amino triazoles undergo oxidative fragmentation through a nitrene intermediate when treated with lead tetra acetate. The formation of nitrene intermediate from N-amino triazoles causes the destabilization of triazole ring, with the elimination of nitrogen molecule gives Nitriles.



8. Thermal and photochemical reactions: 1,2,4-triazole ring is thermally stable, whereas mesoionic 1,2,4-triazolium-3-olates undergo photochemical fragmentations.

Tetrazoles:

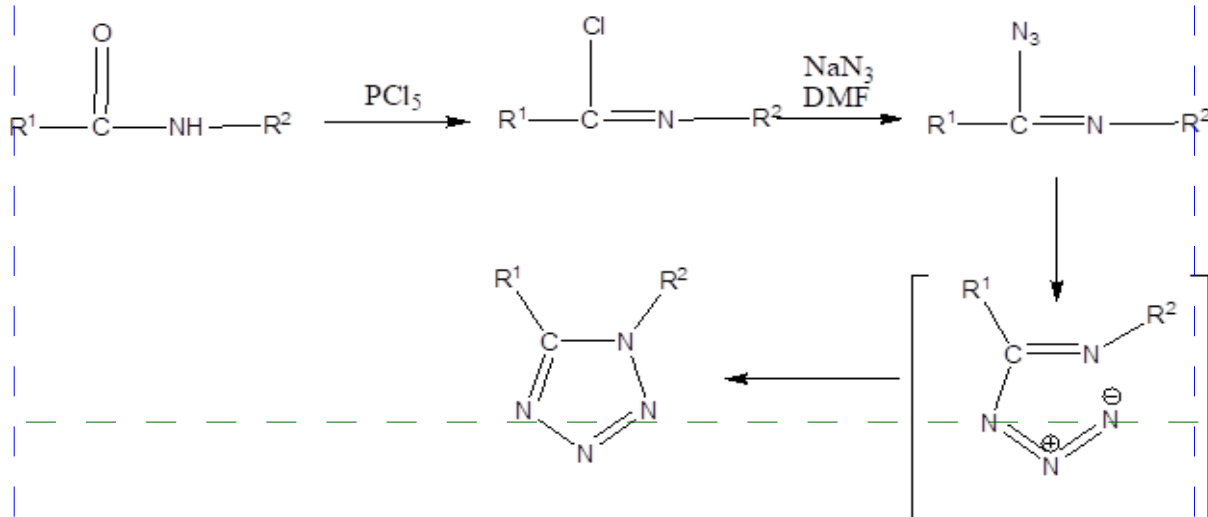
Tetrazole is a 6 π electron heteroaromatic system that contains three pyridine-type and one pyrrole-type of nitrogen atoms. Tetrazole exists in two tautomeric forms, 1,2,3,4-tetrazole (1H form) and 1,2,3,5-tetrazole (2H form).



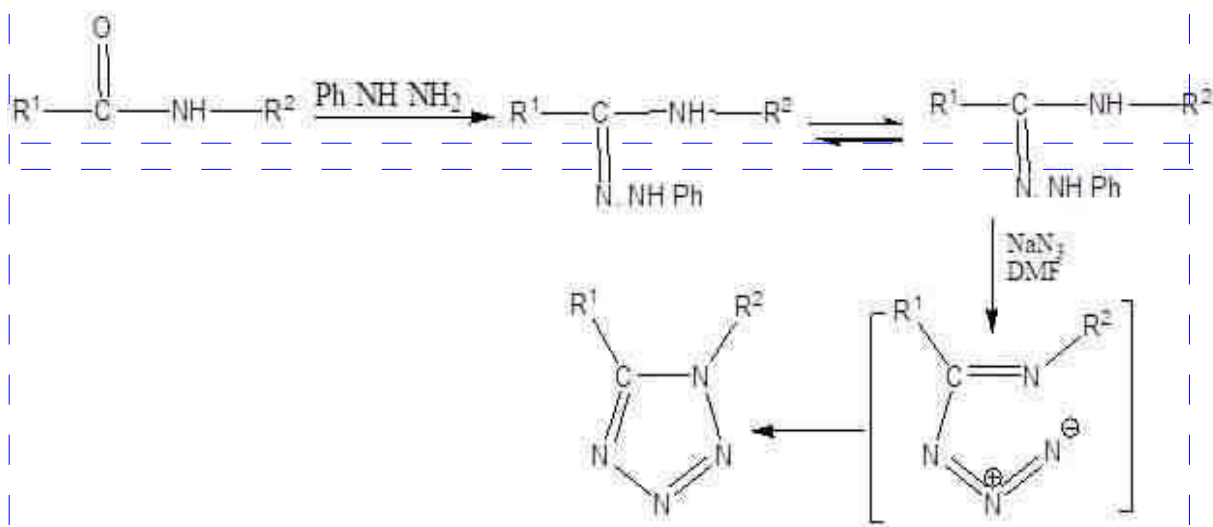
Tetrazole exhibits good biological activity because of being tetrazole ring isosteric with carboxylic acid \square metabolically more stable than the carboxylic acid group. The replacement of carboxylic acid group in the benzoic acid compounds by the tetrazole ring and therefore, produces more tetrazole derivatives. Tetrazole analogues of amino acids, aminotetrazolic acids, with comparable benzoic acid have been synthesized and exist similarly in the zwitterionic form.

Synthesis:

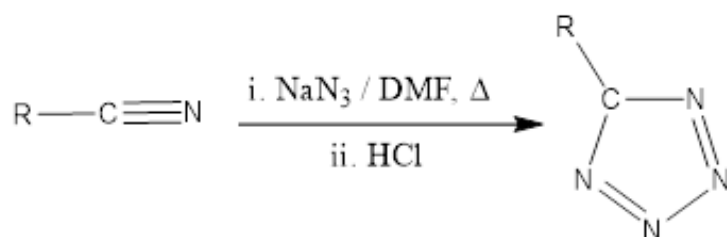
1. From Imidoyl chlorides: The reaction of Imidoyl chloride with Azides in the presence of dimethylformamide produces Imidoyl Azides which undergo 1,5-heteroelectro cyclisation to give 1,5-disubstituted tetrazoles. The cyclisation of imidoyl azides occurs through an activated complex with the movement of imino lone pair towards azido terminal nitrogen and at the same time the shifting of π electrons of azido terminal π -bond to the central azido nitrogen as a lone pair



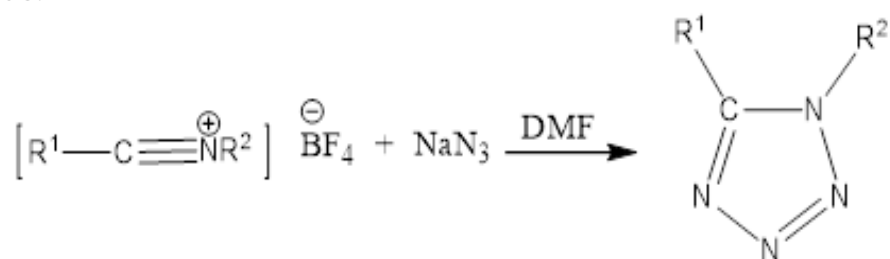
2. From Amidrazones: The reaction of amidrazones through the hydrazine form with nitrous acid results in imidoylazides which undergoes cyclisation immediately with the formation of 1,5-disubstituted tetrazoles



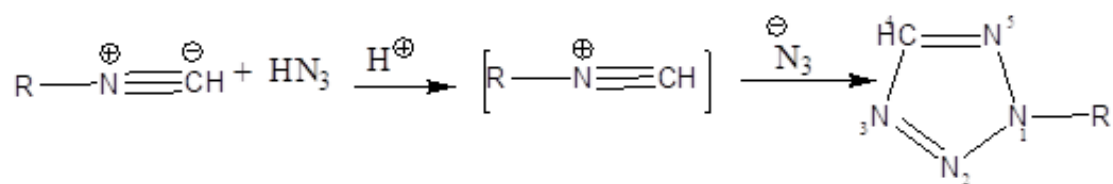
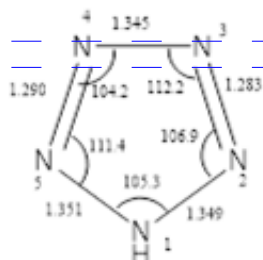
From Nitriles: Reaction of nitriles with sodiumazide in presence of dimethylformamide to provide 5-substituted tetrazoles.



3. From Nitrilium salts: The reaction of nitrilium salts with sodium azide in presence of dimethylformamide gives 1,5-disubstituted tetrazoles.

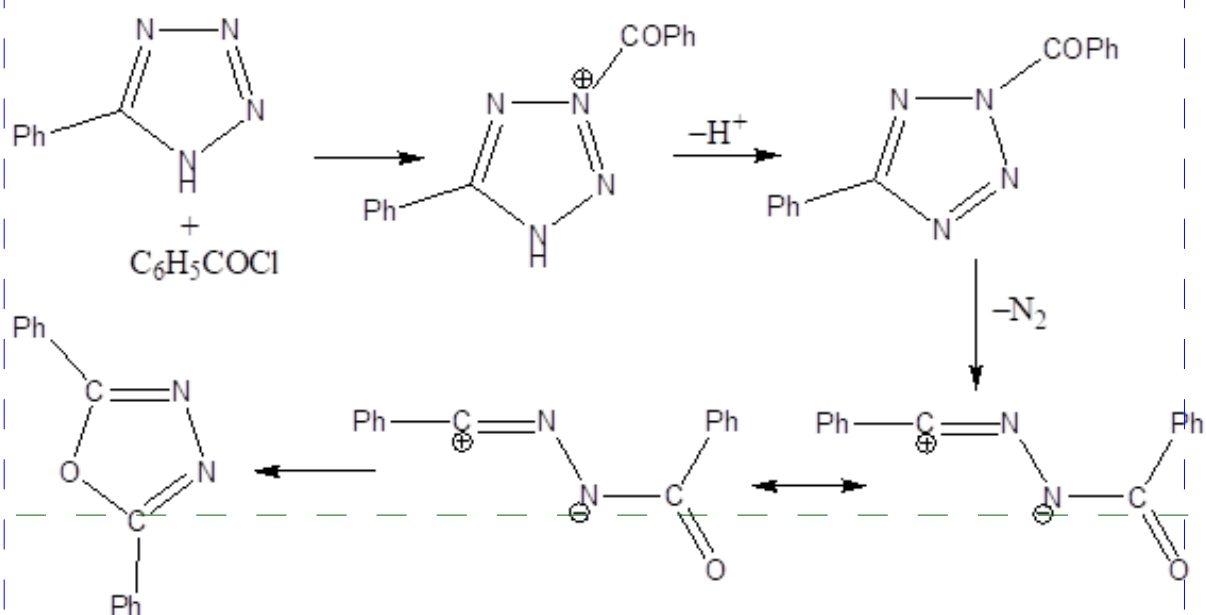


4. From Isonitriles: The acid catalysed reaction of isonitriles with hydrazoic acid affords 1 substituted tetrazoles. The reaction proceeds to involve the protonated isonitrile followed by the attack of azide ion,


Structure:


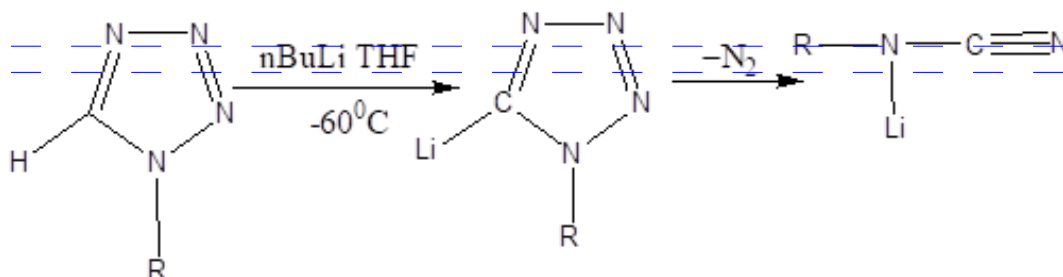
Reactivity: Tetrazole ring contains both types of nitrogen atoms, one pyrrole type and three pyridine type. The pyrrole type nitrogen exerts electron releasing effect and thus activating effect, while pyridine type nitrogen exerts electron withdrawing effect and thus deactivating effect which makes the tetrazole ring π electron deficient. The π electron deficiency in tetrazole ring causes it to undergo reactions with nucleophiles readily. Electrophilic attack in the tetrazole ring generally occurs on the nitrogens and results in the ring fragmentation with the loss of nitrogen.

1. Reaction with Electrophiles: Tetrazole ring undergoes electrophilic substitution with the attack of electrophiles preferentially at N-2 which facilitates the fragmentation of the ring providing nitrilimines with the loss of nitrogen.

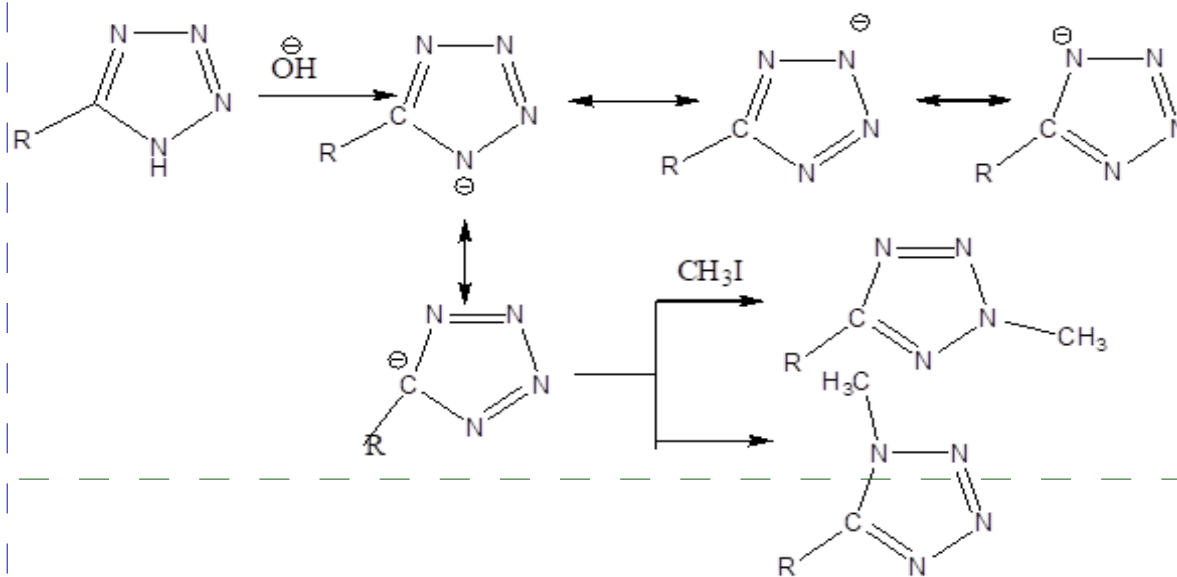


2. Reaction with Nucleophiles:

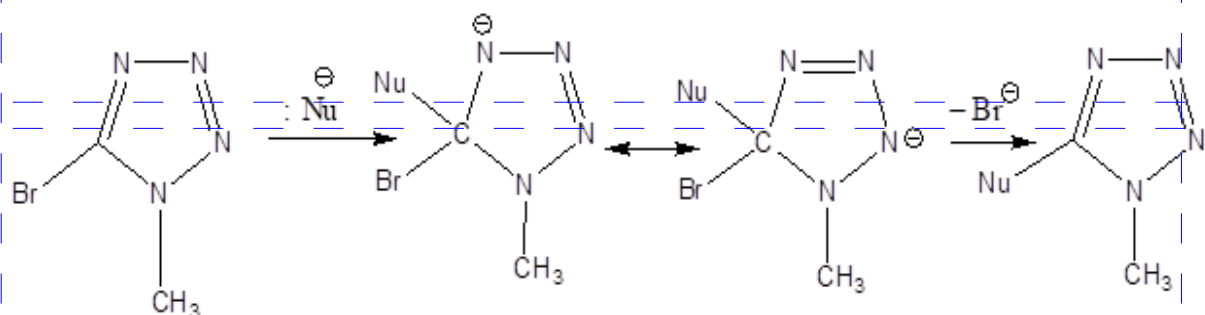
i. Metallation: The reaction of substituted tetrazoles with n-butyllithium in the presence of tetrahydrofuran at -60°C results in C-lithiation at the position-5 with the formation of 5-lithio derivative which undergoes ring cleavage at higher temperature giving the corresponding lithium cyanamides with the loss of nitrogen.



ii. Acidity: The tetrazole ring is considered as the nitrogen analogue of the carboxylic acid group. In general, 5-substituted tetrazoles represent nitrogen analogues of the carboxylic acids and are called as the tetrazolic acids. But 5-phenyltetrazole is relatively more acidic than benzoic acid because of the enhanced resonance stabilization and greater solvation of the tetrazolate anion than the carboxylate anion. The nature of the substituents at C-5 influences the acidity of the tetrazole ring. The acidity of the tetrazole ring is increased with the substitution of electron withdrawing substituents at C-5, while electron releasing substituents cause decrease in acidity. 5-substituted tetrazoles form stable tetrazolate anions when treated with bases. The tetrazolate anions exhibit ambident character and therefore can react at N-1 or N-2. The alkylation of the tetrazolate anion with alkyl halides produces 1-alkyl or 2-alkyltetrazole depending on the reaction conditions and the nature of the substituent at C-5.

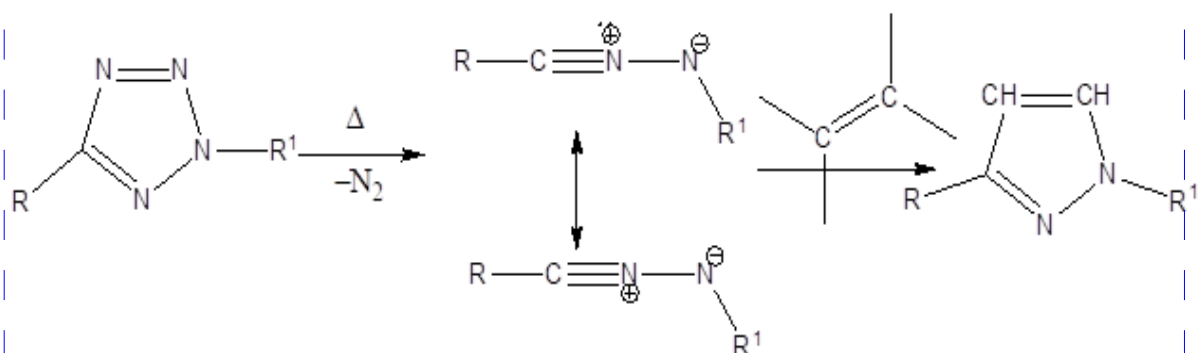


iii. Nucleophile attack at C-5: Because of the π -deficient deactivated nature of the tetrazole ring, 5-halotetrazoles undergo nucleophilic substitutions with the replacement of halogen atom from the position-5.

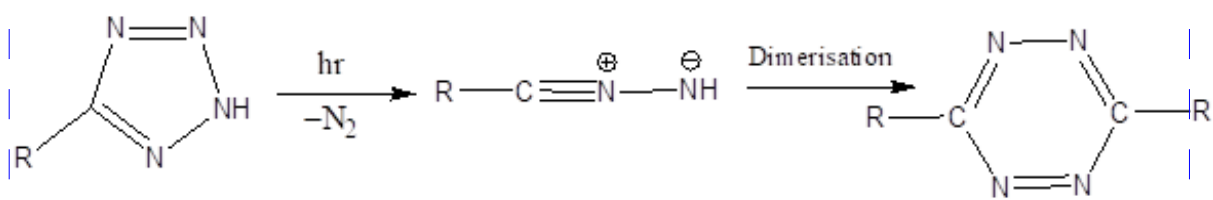


iv. Thermal & Photochemical Reactions:

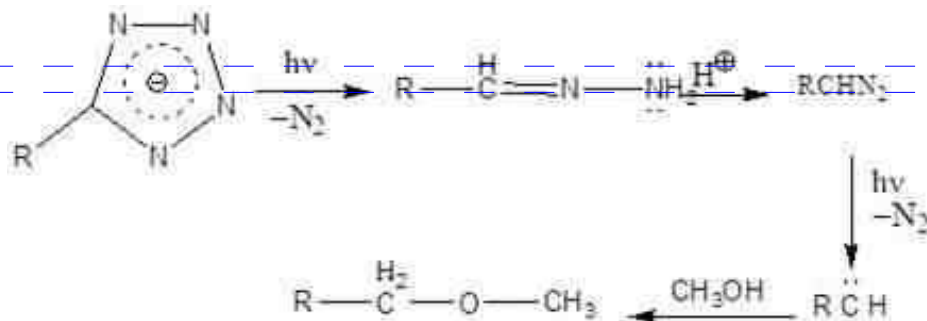
i. Reaction Involving the Nitrilimine Intermediate: 2,5-disubstituted tetrazoles undergo thermal fragmentation with the elimination of nitrogen and the formation of a reactive nitrilimine intermediate which can undergo 1,3-cycloaddition with alkenes, imines, alkynes and nitriles.



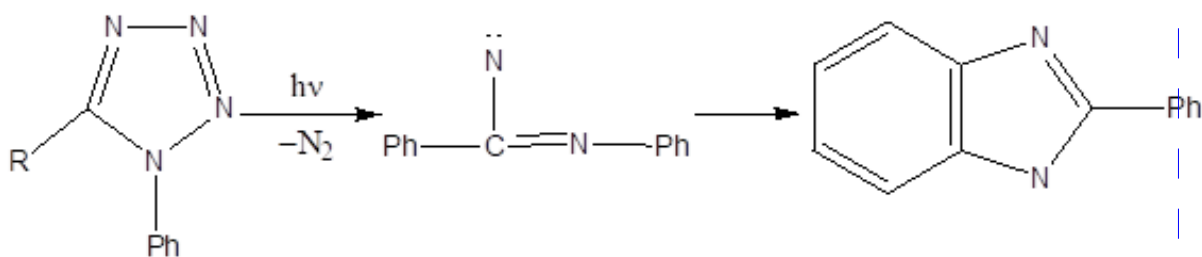
ii. Photochemical fragmentation of 5-substituted tetrazoles in tetrahydrofuran also proceeds to involve a nitrilimine intermediate with the elimination of nitrogen and leads to the formation of tetrazine derivative involving dimerisation of the nitrilimine derivative.



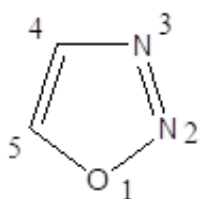
v. Reaction involving Carbene Intermediates: Photochemical fragmentation of 5-substituted tetrazolate anions involves photochemical excitation of the tetrazolate anion with the elimination of two molecules of nitrogen and generation of carbene intermediate which undergoes insertion reactions.



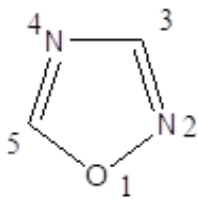
vi. Reaction involving Nitrene Intermediates: 1,5-disubstituted tetrazoles are photolysed with the loss of nitrogen molecule and the reaction proceeds to involve iminonitrene intermediate.



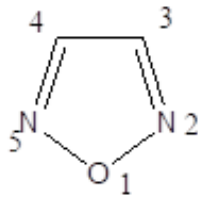
Oxadiazoles: Oxadiazoles are considered to be derived from furan by the replacement of two methine carbon atoms by two pyridine type of nitrogen atoms. There are four isomeric forms of oxadiazoles which are shown.



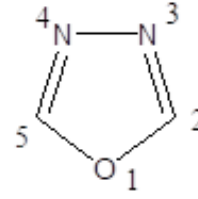
1,2,3-oxadiazole



1,2,4-oxadiazole



1,2,5-oxadiazole

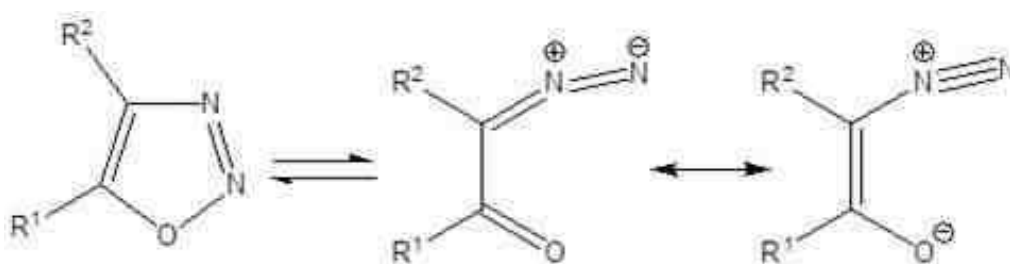


1,3,4-oxadiazole

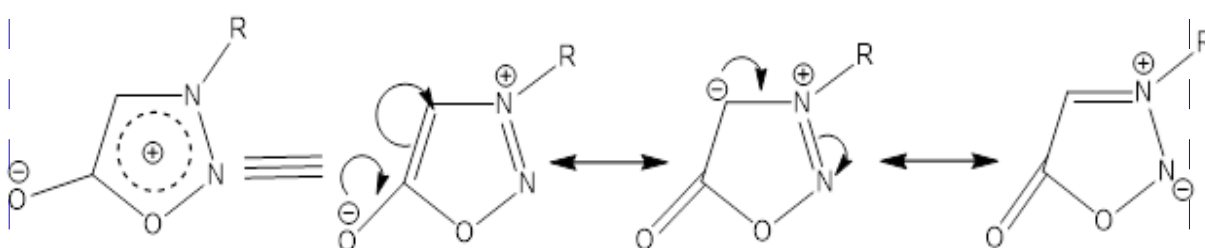
The replacement of two methine groups in furan by two pyridine type of nitrogen reduces the aromaticity of the resulting oxadiazole ring to such an extent that the oxadiazole ring exhibits character of the

conjugated diene. The electrophilic substitutions in oxadiazoles are extremely difficult at the carbon atoms because of relatively low electron density on the carbon atoms due to electron withdrawal effect of the pyridine type nitrogen atoms. The attack of electrophiles occurs at the nitrogens, if oxadiazoles is substituted with an electron releasing group. Oxadiazoles are resistant towards the Nucleophilic attack. Halo substituted oxadiazoles participate in Nucleophilic substitutions with the replacement of halogen atom by nucleophiles. Oxadiazoles undergo nucleophilic substitutions similarly as occurring at an aliphatic sp^2 hybridised carbon atoms but not as aromatic nucleophilic substitutions.

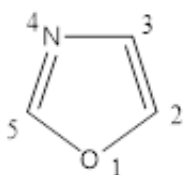
1,2,3 – oxadiazoles: 1,2,3-oxadiazoles are not known as these exist entirely in the diazoketone tautomeric form. 1,2,3-oxadiazoles occur only in the form of mesoionic heterocycles known as Sydnones.



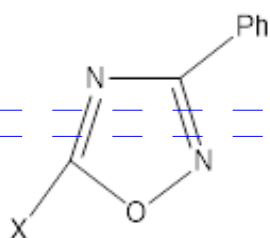
Sydnones of 1,2,3-oxadiazoles are stable as it shown by the resonance.



1,2,4 – oxadiazoles:



1,2,4 - oxadiazoles used as anaesthetics, analgesics, antispasmodics, antitussives, antihelminthics and anti-inflammatory drugs. Some of the 1,2,4 - oxadiazoles with their activity are as follows:



X = $-(CH_2)_2N(C_2H_5)_2$ - Anaesthetic, Anti-inflammatory

X = $-NH(CH_2)_2N(C_2H_5)$ - Anaesthetic

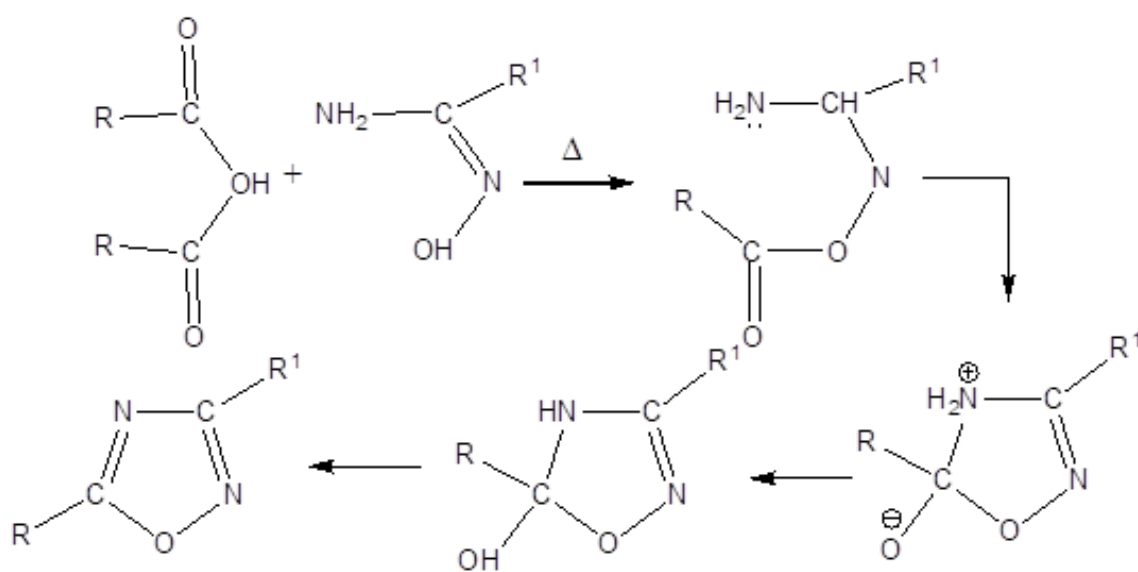
X = $-CH_2-N(C_2H_5)_2$ - Anaesthetic, Analgesic

X = $-(CH_2)_3NHC_5N_{10}$ - Anaesthetic, Anti-inflammatory

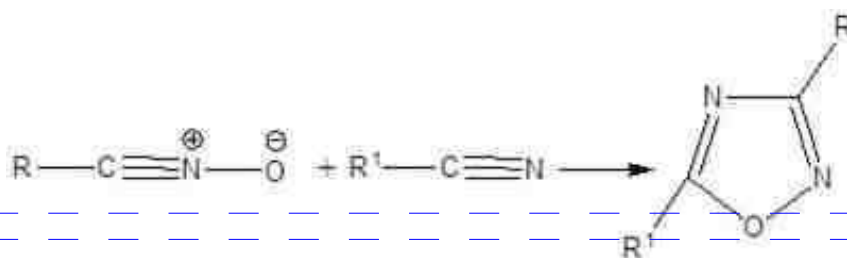
X = $-(CH_2)_2-N(C_4H_9)$ - Anaesthetic, Anti-inflammatory
Antispasmodic

Synthesis:

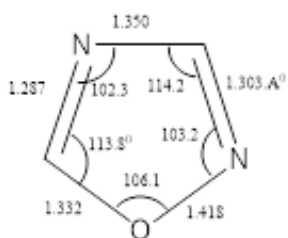
1. From Amidoximes: The reaction of amidoximes with an anhydride results in dehydrative cyclization providing 1,2,4 - oxadiazoles. The reaction proceeds to involve O-acylation in the first step and followed by dehydrative cyclisation in the second step to afford the corresponding 1,2,4-oxadiazoles in which C-5 carbon is furnished by an anhydride.



2. 1,3 cyclopolar addition: 1,3 dipolar cyclo addition of nitrile oxides to Nitriles gives 1,2,4-oxadiazoles.

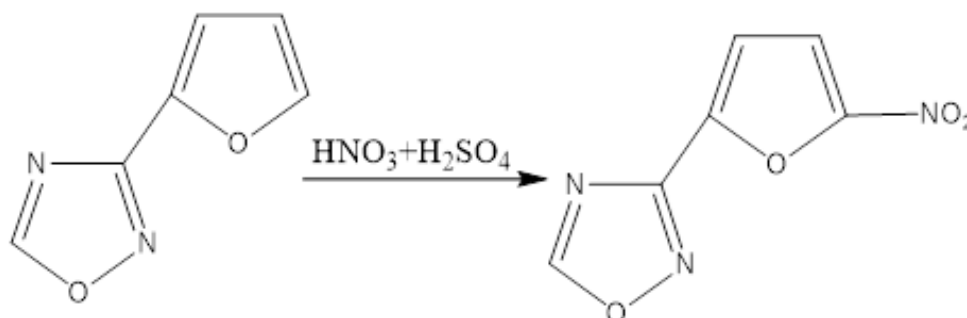


Structure:

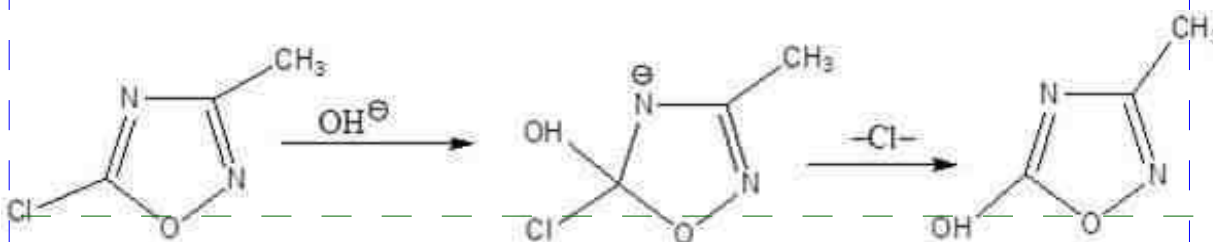


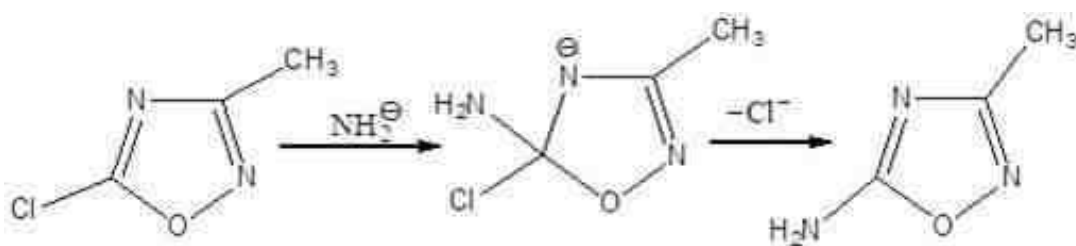
Reactivity:

1. Electrophilic substitution Reactions: 1,2,4-oxadiazole ring is less susceptible towards electrophilic attack. If 1,2,4-oxadiazole ring is substituted with an aromatic ring at C-3 or C-5, the oxadiazole ring behaves as an electron withdrawing group and directs the incoming electrophile to the meta position.

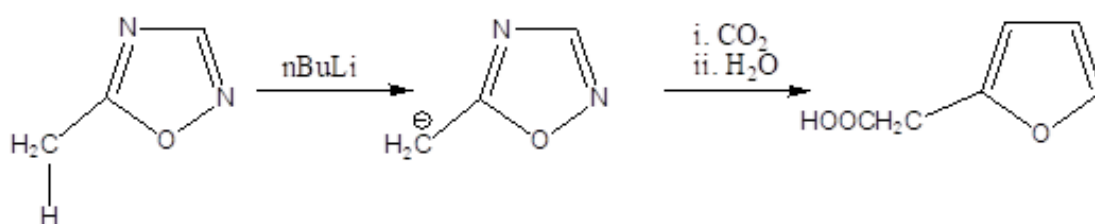


1. Nucleophilic Substitution Reactions: 1,2,4-oxadiazole undergo nucleophilic substitutions with the replacement of a halogen atom from C-5 involving nucleophilic addition-elimination mechanism.



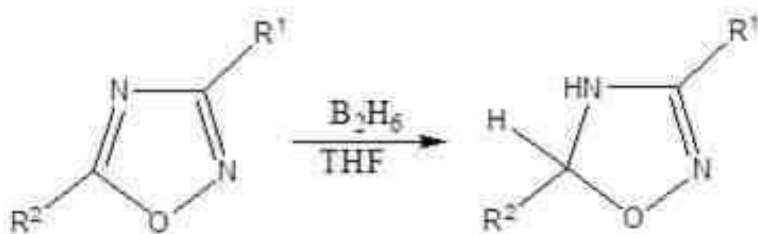


2. Reactions of substituent's: The methyl group at C-5 of the 1,2,4-oxadiazole ring is more reactive rather than the group at C-3. The greater reactivity of the methyl group is attributed to the greater stabilization of anion resulting from 1,2,4-oxadiazole with methyl group at C-5.

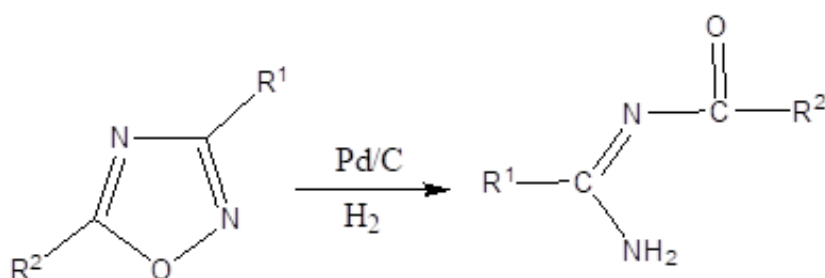


3. Reduction:

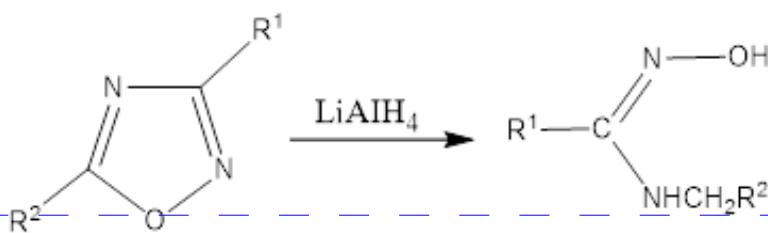
i. The reduction 1,2,4-oxadiazole with diborane in the presence of tetrahydrofuran leads to the formation of oxadiazoline.



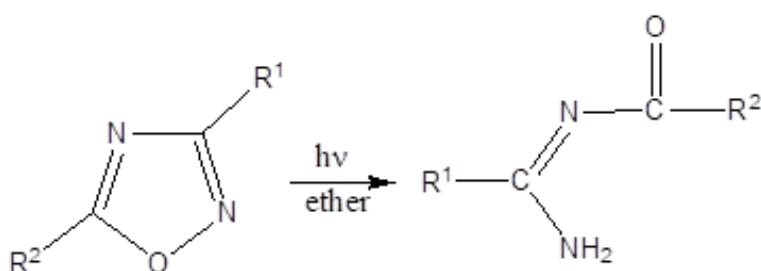
ii. Neutral Catalytic reduction of 1,2,4-oxadiazole with palladium-carbon occurs with the cleavage of N-O bond.



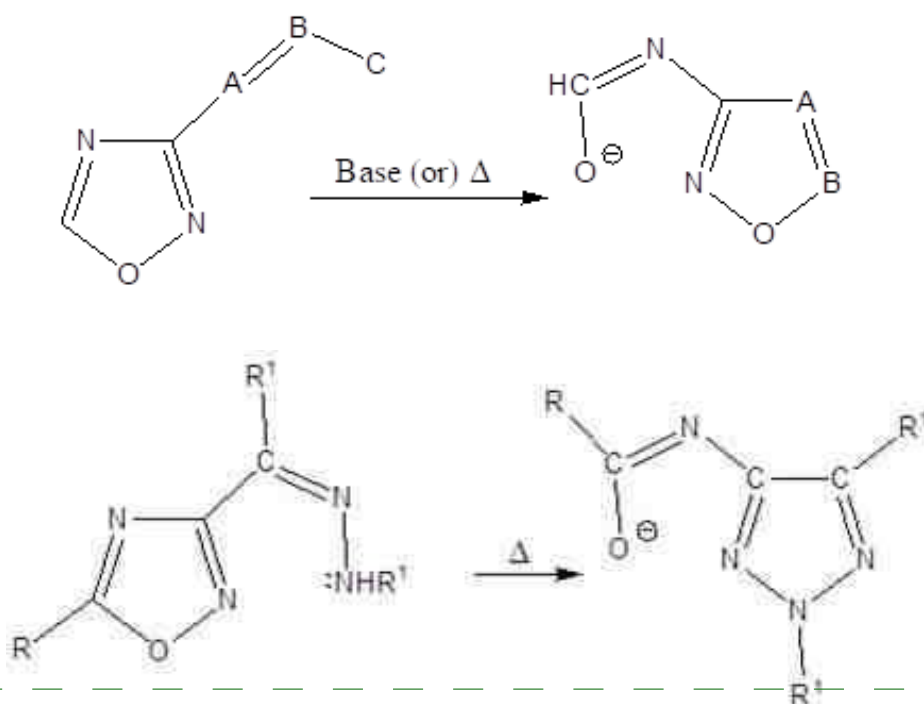
iii. Reduction with Lithium aluminium hydride, in contrast, proceeds with the cleavage of C-O bond to amidoximes.



4. Photochemical Reactions: Photolysis of 1,2,4-oxadiazoles involve the cleavage of N-O bond with the formation of product, in which extra hydrogen are taken from the solvent.



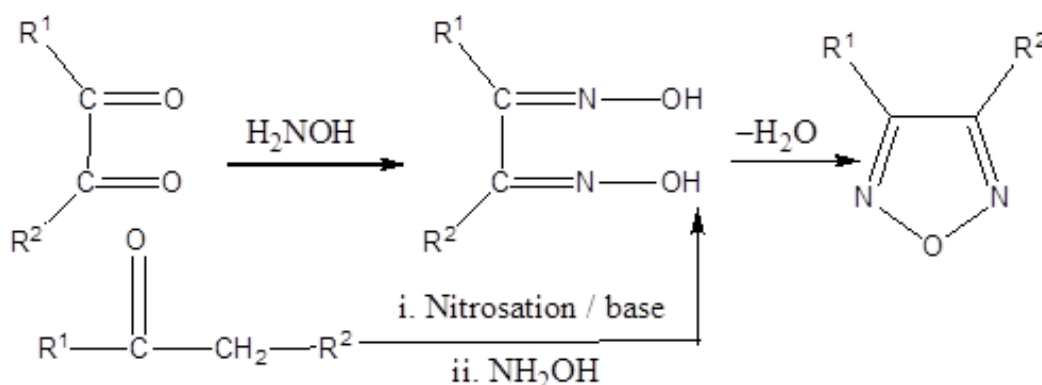
5. Rearrangement Reactions: 1,2,4-oxadiazoles containing a suitable side chain at an α -position to the pyridine type nitrogen undergo base catalysed or thermal rearrangement.



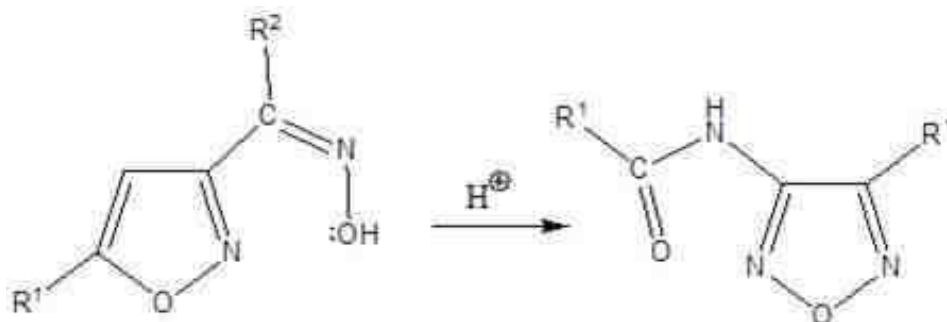
1,2,5 – oxadiazoles: 1,2,5-oxadiazoles and its oxide, 1,2,5-oxadiazole-2-oxide, are known by their trivial names furazan and furoxan respectively.

Furazans Synthesis:

1. Dehydration of α -Dioximes: Dehydration of suitably substituted α -dioximes which are obtained by oximation of 1,2 diketones or nitrosation-oximation of ketones.

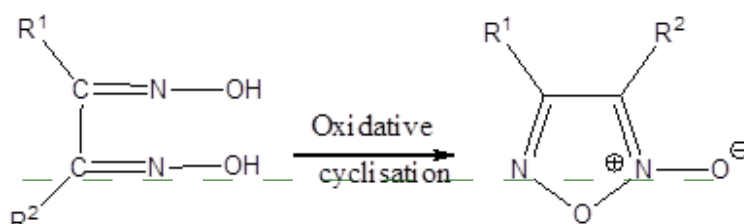


2. Ring Transformations: 1,2,4 – oxadiazoles containing an oxime side chain at the position-3 undergo a special type of heterocyclic rearrangement involving side chain when heated in hydrochloric acid and give 3-acyl-aminol,2,5-oxadiazoles.

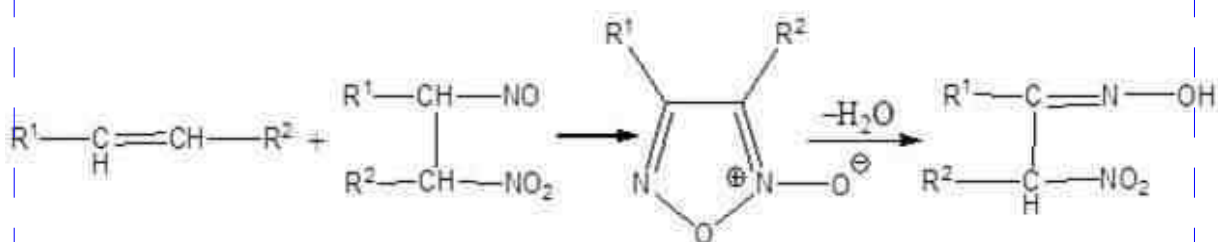


Furoxan synthesis:

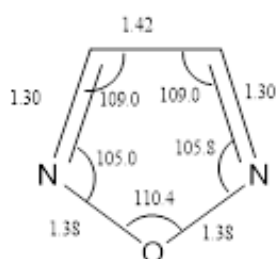
1. Oxidation of α -Dioximes: Oxidative cyclization of α -dioximes with oxidizing agent such as potassium ferricyanide, N-iodo succinamide, potassium tetraacetate and alkaline hypohalites and cerium-IV ion leads to the formation of furoxans.



2. Dehydration of α -Nitro ketone oximes: Dehydrative cyclization of α -Nitro ketone oximes with sulphuric acid or phosphoric acid at 110-1200C results in furoxans. α -Nitro ketone oximes are obtained by thermal isomerisation of nitro-nitroso adducts which in turn are prepared by treatment of alkenes with nitrogen trioxide. However, sulphur trioxide and chlorosulphonic acid in dimethylformamide are used as dehydrating agents for the preparation of furoxans which are thermally sensitive to the ring cleavage.

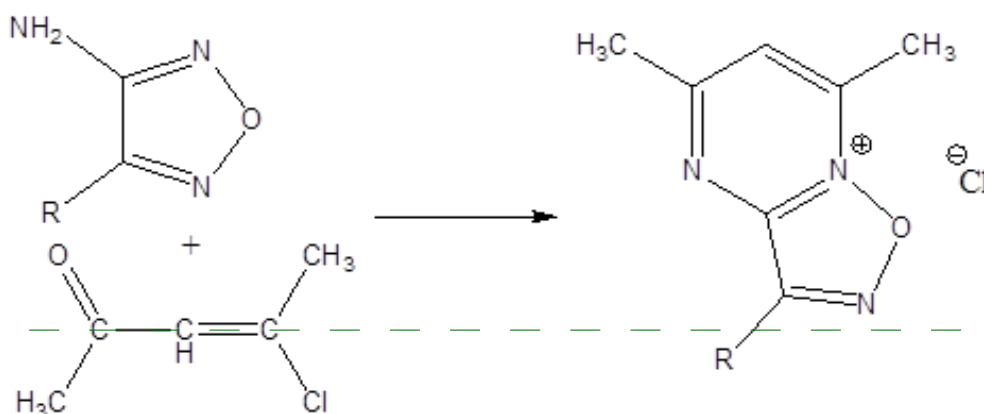


Structure:

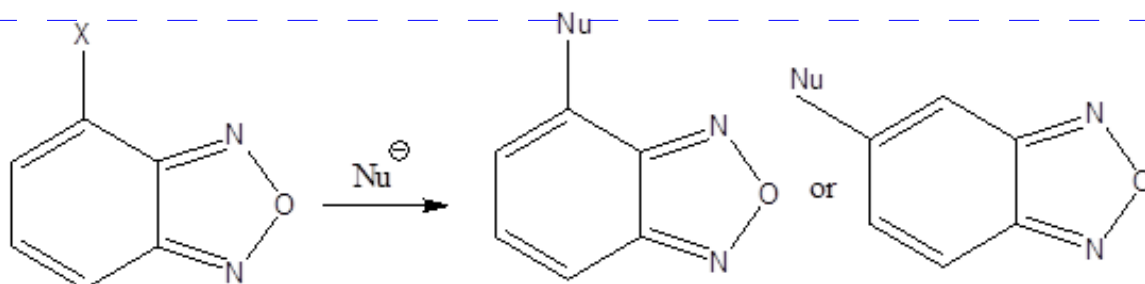


Reactivity:

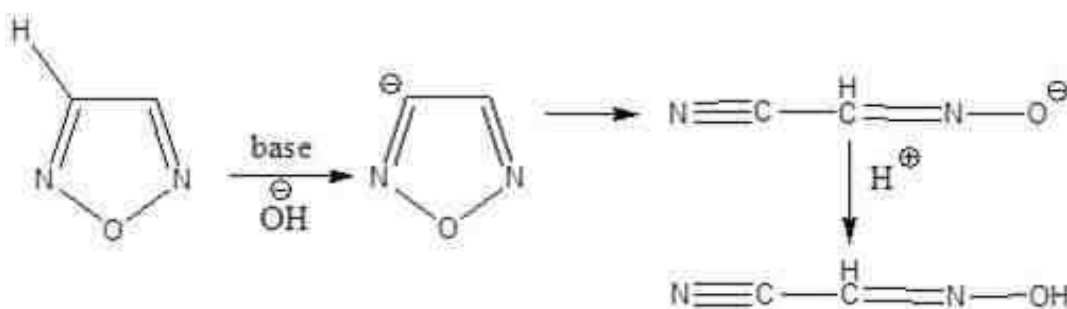
1. Reaction with Electrophiles: 1,2,5-oxadiazoles exhibit very low reactivity with electrophiles as benzofused 1,2,5-oxadiazoles undergo electrophilic substitution in the benzene ring and the 1,2,5-oxadiazole ring remains intact. The quaternisation of the ring nitrogen is also difficult, but occurs only if the ring is substituted with an electron-releasing substituent. The reaction of amino-1,2,5-oxadiazoles with 2-chloro-1-acylalkenes in the presence of perchloric acid results in quaternisation of the ring nitrogen with the formation of oxadiazolopyridinium salts.



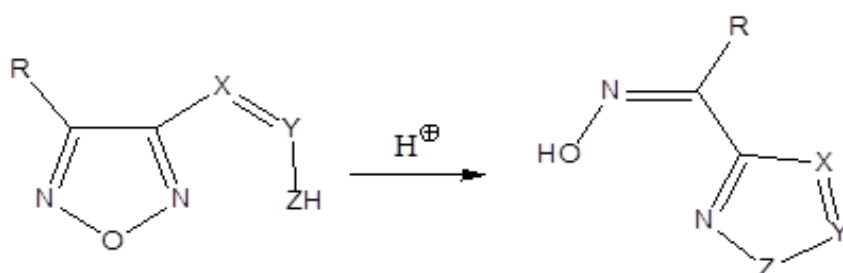
2. Reaction with Nucleophiles: In spite of the low π -electron density on the carbon atoms 1,2,5-oxadiazoles ring is generally resistant to nucleophilic attack. Benzo fused 1,2,5-oxadiazole substituted with halogen atom by nucleophiles involving normal and cine substitution. The relative amounts of the normal and cine products depend on the polarity of the solvent and on steric effects. The presence of electron withdrawing substitution facilitates the nucleophilic attack.

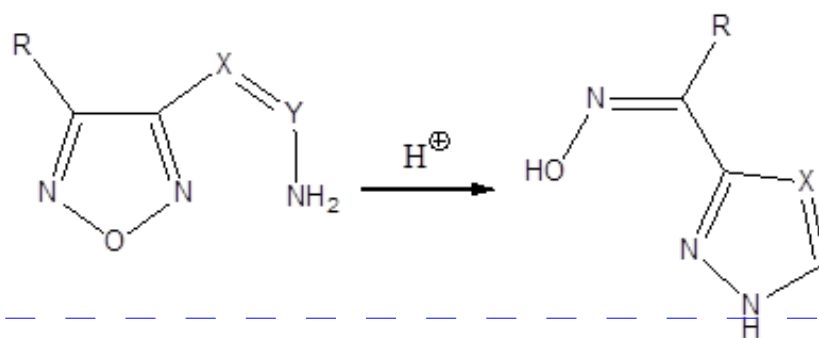


3. Ring cleavage via Carbon deprotonation: The hydrogen atoms, in 1,2,5-oxadiazoles can be abstracted as protons by a strong base with the cleavage of ring providing α -oximino acetonitrile.

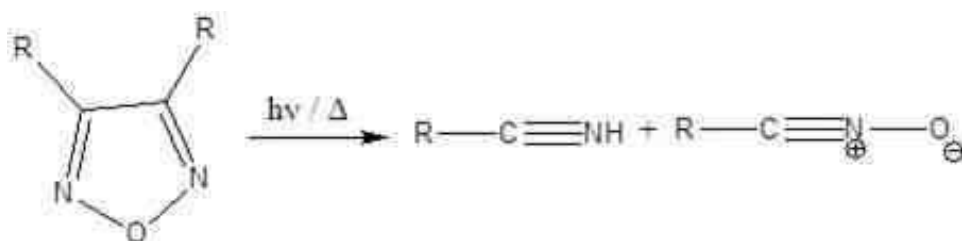


4. Rearrangement Reactions: 1,2,5-oxadiazole substituted at position-3 with side chain such as hydrazone, oxime and amidine are thermally transformed into new heterocyclic systems containing hydroximino substituent.

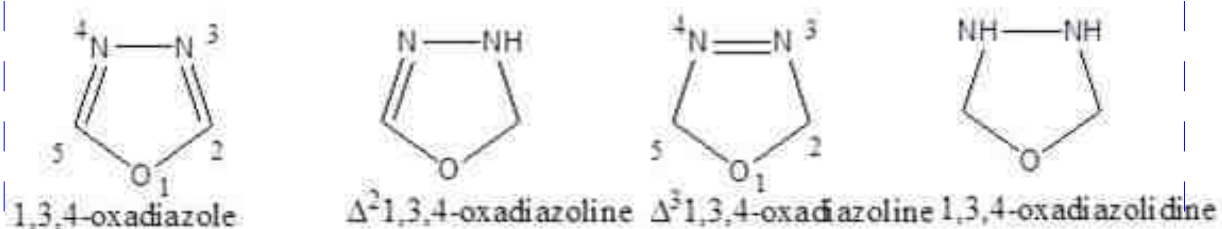




5. Thermal & Photochemical Reactions: 1,2,5 – oxadiazoles undergoes thermal & photochemical reactions with the ring cleavage of oxygen, nitrogen and C-3 & C-4 bond providing nitriles and nitrile oxides.



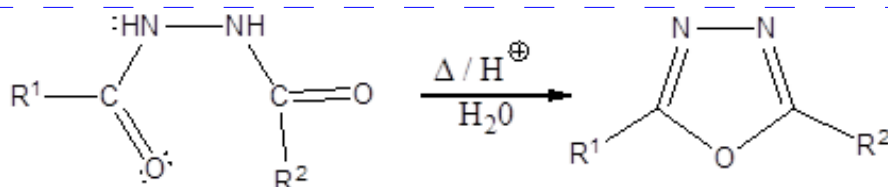
1,3,4 – oxadiazoles: 1,3,4 – oxadiazoles is a thermally stable aromatic heterocycle and exists in two partially reduced forms: 2,3-dihydro-1,3,4-oxadiazole (Δ^2 -1,3,4-oxadiazoline) and 2,5-dihydro-1,3,4-oxadiazole (Δ^3 -1,3,4-oxadiazoline) depending on the position of the double bond. The completely reduced form of 1,3,4-oxadiazole is designated as 2,3,4,5-tetrahydro-1,3,4-oxadiazole (1,3,4-oxadiazolidine).



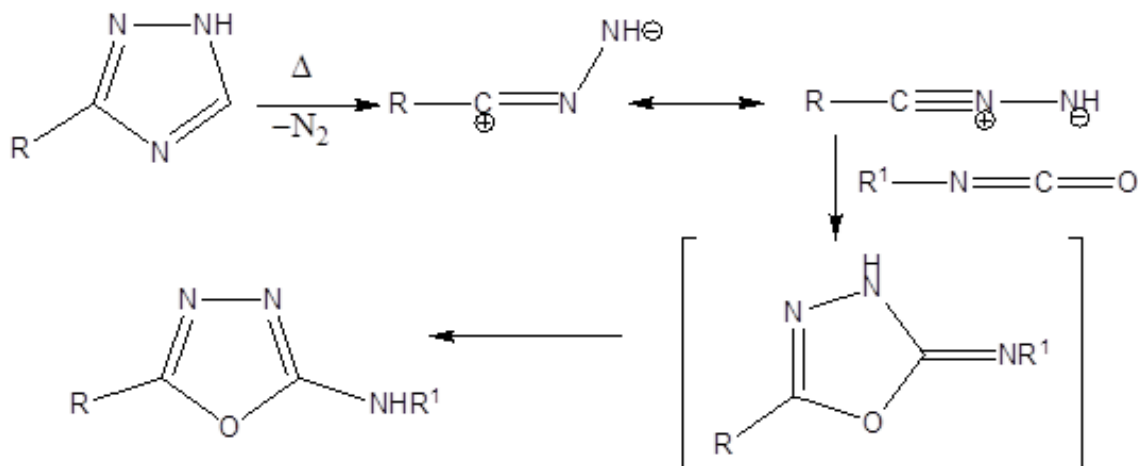
1,3,4 – oxadiazoles find their medicinal applications and are used as analgesics, antipyretics, diuretics, antiinflammatory, hypnotics □ sedatives. 1,3,4 – oxadiazoles have also been used as herbicides, fungicides, bactericides, insecticides etc. 1,3,4 – oxadiazole ring is incorporated to synthesise heat resistant polymers because of thermal stability of the ring. 1,3,4 – oxadiazoles are also used as dye stuffs, fluorescent whitners and scintillators.

Synthesis:

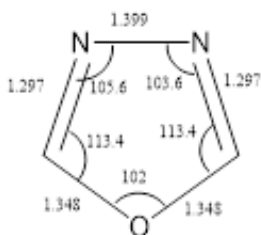
1. From diacyl hydrazines: Thermal or acid catalysed intramolecular cyclization of diacyl hydrazines results in 2,5-disubstituted 1,3,4-oxadiazoles. The reaction is considered to involve nucleophilic attack of carbonyl oxygen of an amide group at the carbon of the second amide group with the formation of C2-O bond. It can also be used to synthesise monosubstituted 1,3,4-oxadiazoles.



2. Ring Transformation: Thermal fragmentation of 5-substituted tetrazole with the elimination of nitrogen results in the generation of nitrilimine intermediate which undergoes 1,3- dipolar cycloaddition with isocyanates to give 1,3,4-oxadiazole.



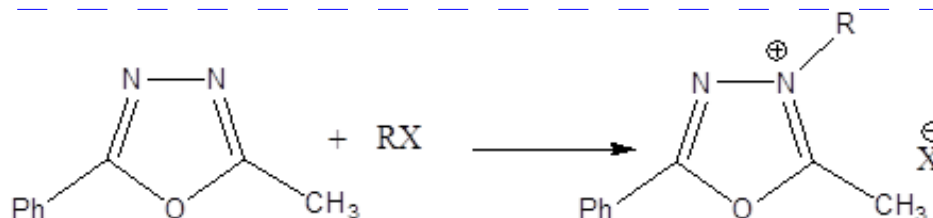
Structure:



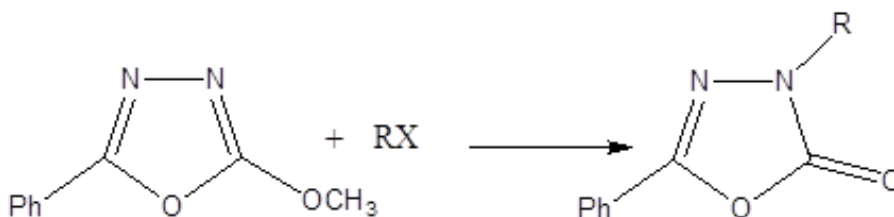
Reactivity: 1,3,4-oxadiazoles contains pyridine type of nitrogen atom at the positions 3- and 4- which cause electron withdrawal from the carbon atom at the positions 2- and 5-. 1,3,4-oxadiazoles, therefore have low electron density on the carbon atoms and relatively higher electron density on the nitrogen atom. The reactions of 1,3,4-

oxadiazoles involve I). Attack of electrophiles at the nitrogen atom and ii). Attack of nucleophile at the carbon atom.

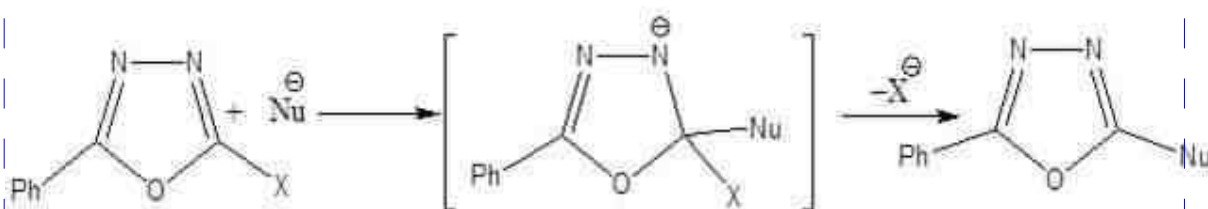
1. Reaction with Electrophiles: Because of very low π electron density of the carbon atoms. The attack of electrophiles preferentially occurs at nitrogen. Alkylation of 1,3,4-oxadiazoles occurs at the position 3- with the formation of 1,3,4-oxadiazolium salts.



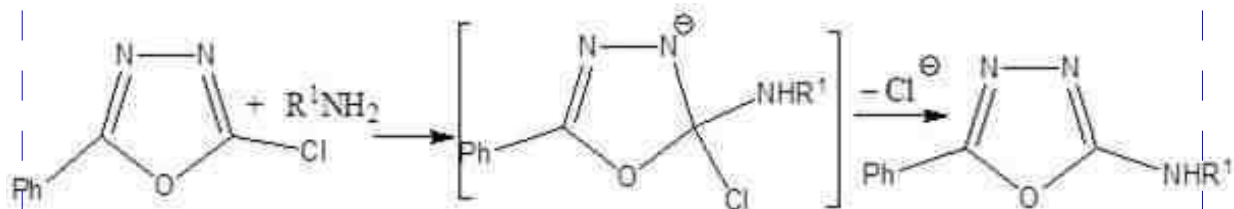
The alkylation of 2-alkoxy-1,3,4-oxadiazoles with alkyl halides produces labile oxadiazonium salts which undergo O-dealkylation to provide 4-alkyloxadiazolin-5-ones.



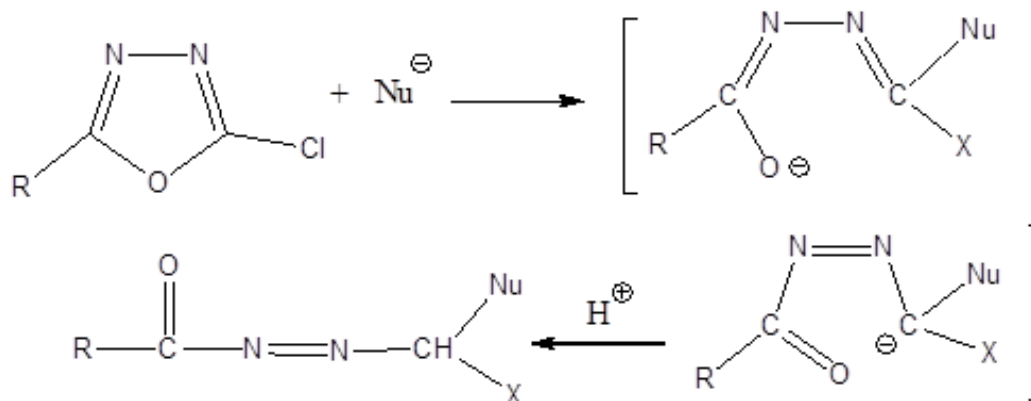
2. Reaction with Nucleophiles: The carbon atom in 1,3,4-oxadiazole ring are relatively with low π electron density and therefore attack of nucleophiles occurs at the carbon atom. The reactions proceed either with nucleophilic substitution or with ring cleavage.



1. Nucleophilic Substitution Reactions: 1,3,4-oxadiazoles substituted with chloro or sulphonyl group at the position 2- undergo nucleophilic substitution reaction. The reaction of 2-chloro-1,3,4-oxadiazoles with nucleophiles such as amines, thiourea or azide ion proceeds with the substitution of chloro group by nucleophile and results in corresponding 2-substituted 1,3,4-oxadiazoles.

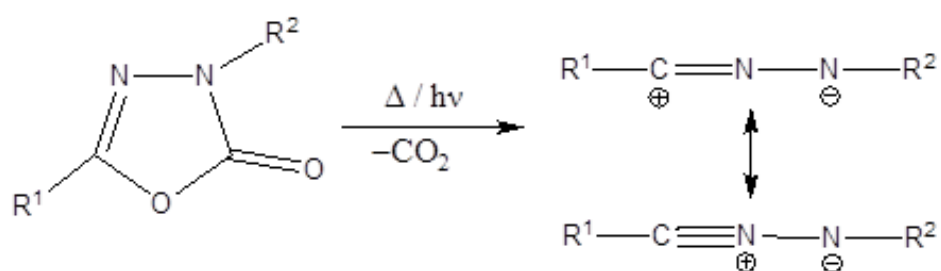


ii. Nucleophilic attack with Ring cleavage: The reactions of alkyl or Aryl 1,3,4-oxadiazole with nucleophiles involves the cleavage of ring to give the hydrazone derivatives.

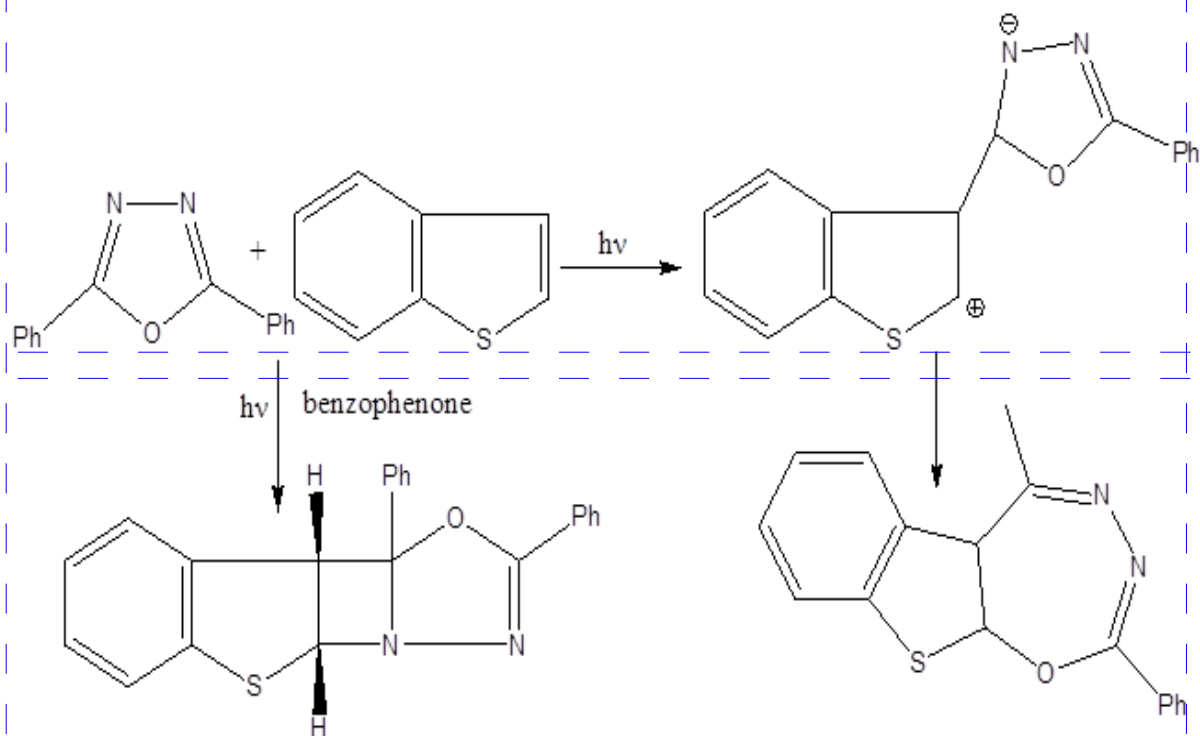


3. Thermal & photochemical Reactions:

i) 1,3,4-oxadiazole is thermally stable and the stability of the ring increased with the substitution of the aryl groups. 1,3,4-oxadiazoline-5-ones undergo thermal and photochemical opening reactions with the loss of carbon dioxide to provide nitrilimines.

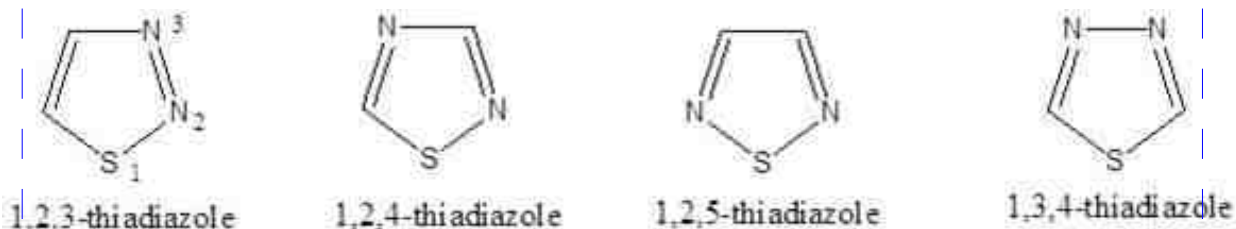


iii. Photochemical irradiation 2,5-diphenyl-1,3,4-oxadiazoles with benzo[b]thiophene leads to the formation of oxadiazepine as a major product. But irradiation of 2,5-diphenyl-1,3,4-oxadiazoles and benzo[b]thiophene with benzophenone as sensitizer results in [2+2] cyclic adduct



Thiadiazoles:

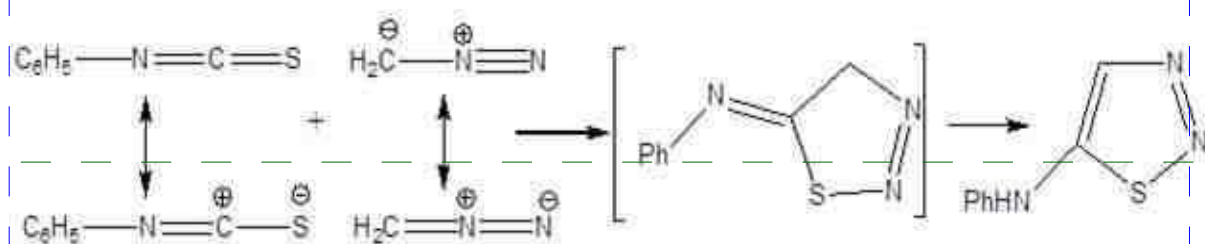
Thiadiazoles are considered to be derived from thiophene by replacing two carbons by pyridine type of nitrogen and include four isomeric members.



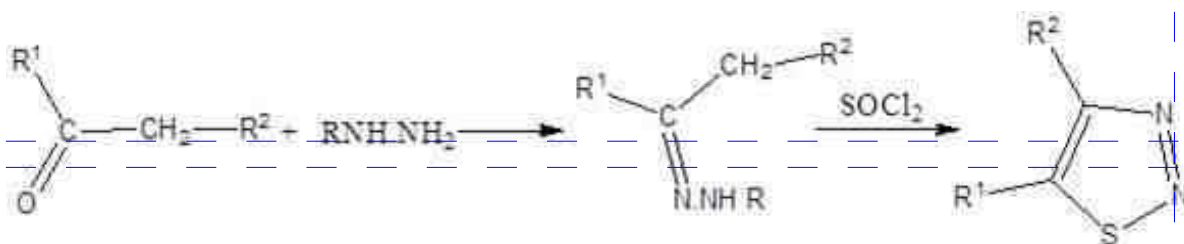
1,2,3-thiadiazole possesses antibacterial, insecticidal \square herbicidal activity. The analogues of this compound behave as good sedative \square hypnotic activity.

Synthesis:

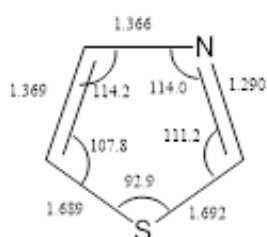
1. Pechmann – Nold synthesis: This method involves dipolar cyclo addition of diazo methane with phenyl isothiocyanate to give 1,2,3-thiadiazoles.



2. Hurd – Mori classical synthesis (From hydrazone): Cyclo condensation of α -methylene hydrazones with thionyl chloride. The cyclisation occurs predominantly at the more reactive methylene site rather than at the methyl site.



Structure:

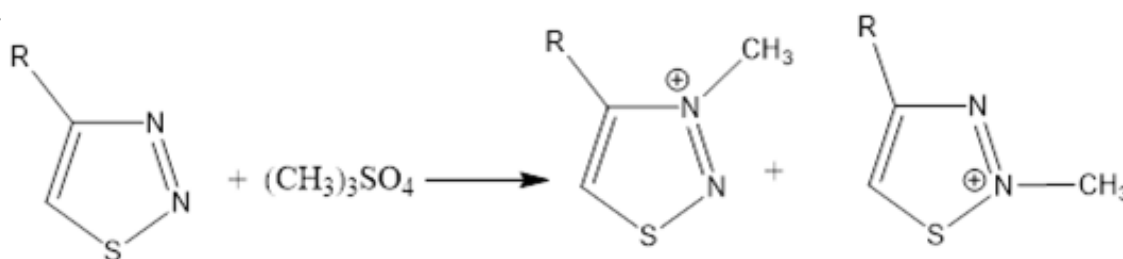


Reactivity: 1,2,3-thiadiazole is a π -excessive heterocycle in which the nitrogen atoms particularly N-3 are comparatively with higher electron density and the carbon atoms are with lower electron density. The attack of electrophiles at carbon is very rare and therefore occurs at the nitrogen atoms. The attack of nucleophiles occurs at the carbon atoms results in either nucleophilic substitution or ring cleavage.

1. Reaction with Electrophiles:

i) Electrophilic attack at nitrogen: The reaction of 1,2,3-thiadiazoles with DMSO in N-alkylation with the formation of a mixture of quaternary salts, whereas alkylation occurs exclusively at the position-

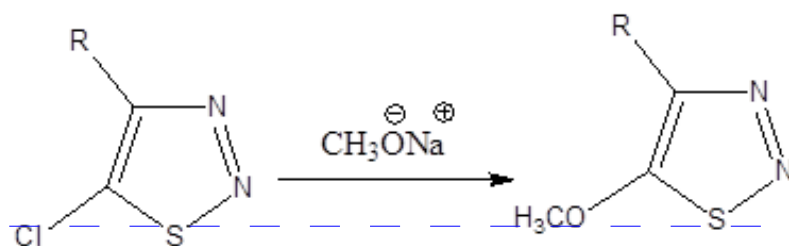
3.



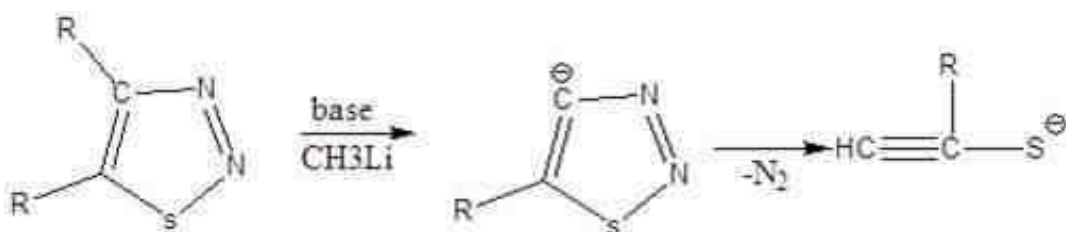
2. Reaction with Nucleophiles:

1). Nucleophilic Substitutions: The halogen atom in 1,2,3-thiadiazoles at the position-5 is reactive and can be replaced by nucleophiles. The

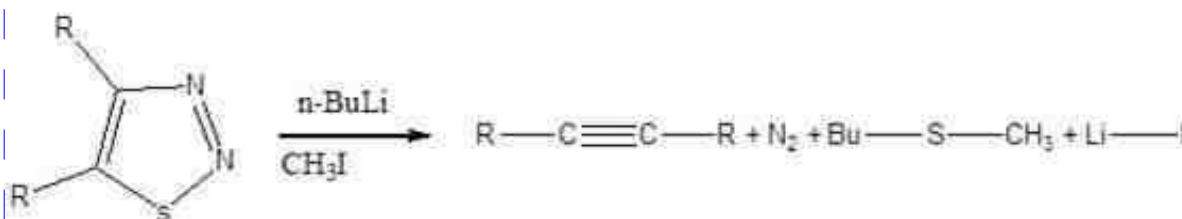
reaction of 5-chloro-1,2,3-thiadiazole with sodium methoxide proceeds with the replacement of chlorine substituent.



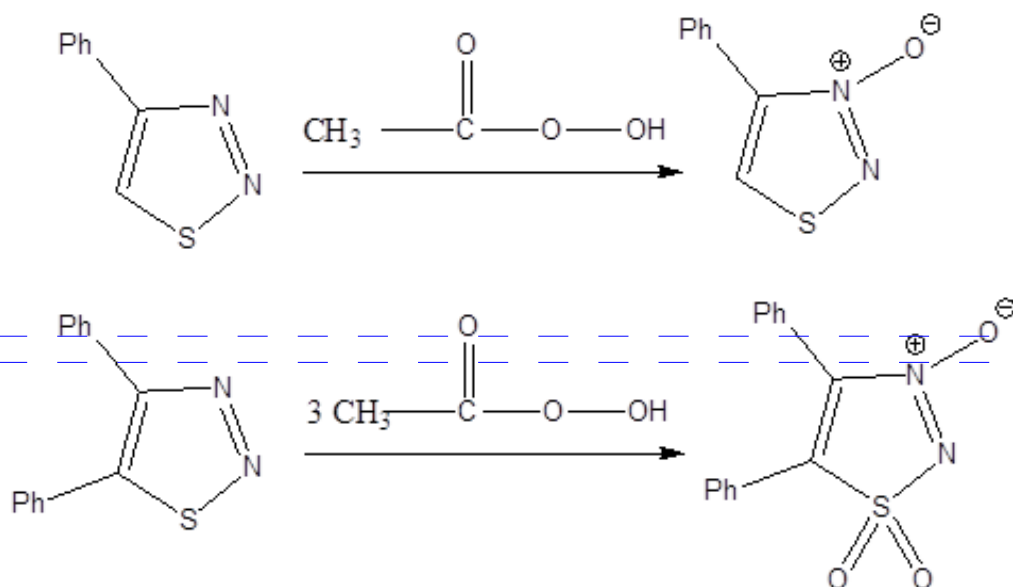
3. Ring cleavage via c-deprotonation: The C5-H in 1,2,3-thiadiazoles is reactive and can be abstracted as a proton by a base. Deprotonation of 1,2,3-thiadiazole ring occurs at C-5 under strongly basic condition and leads to the ring cleavage with the elimination of nitrogen. 1,2,3-thiadiazoles substituted at C-5 can be protonated at C-4 and the resulting anion can be alkylated.



4. Nucleophilic attack at sulphur: If 1,2,3-thiadiazoles is substituted at both the carbons, the reaction with n-butyl lithium followed by methyl iodide with the initial attack of nucleophile at sulphur and in the fragmentation of the ring with the evolution of nitrogen gas.

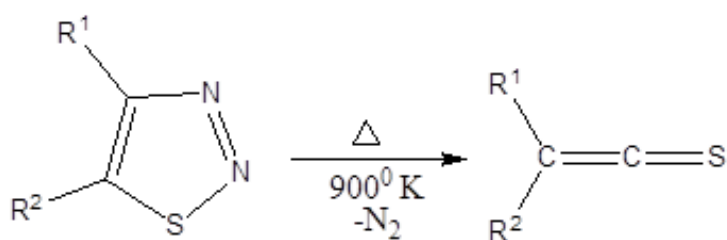


5. Oxidation: Oxidation of 1,2,3-thiadiazoles with one equivalent of per acid occurs at N-3 with the formation of 1,2,3-thiadiazole-3-oxide, but with three equivalent of per acid 1,2,3-thiadiazoletrioxide is produced involving oxidation of N-3 and of the sulphur atom.

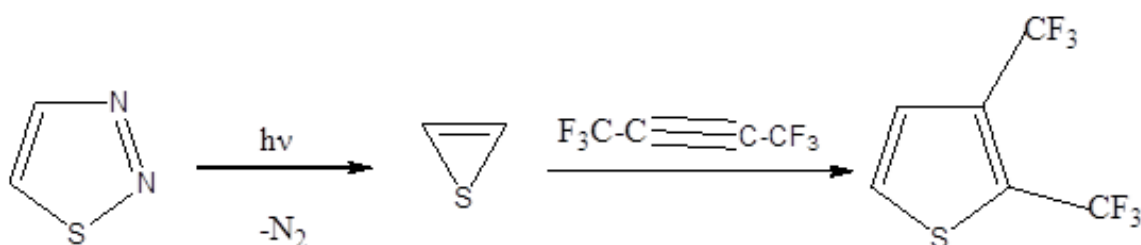


6. Thermal & Photochemical Reaction: Thermal and photochemical reactions are considered to proceed through diradical intermediates with the elimination of nitrogen.

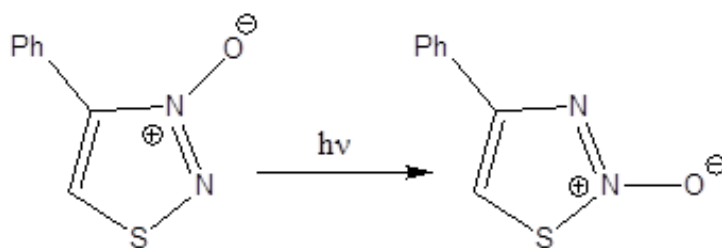
i). Thermal decomposition of 1,2,3-thiadiazole leads to the formation of thioketenes.



ii). Photolysis of 1,2,3-thiadiazole produces thiirene which can be trapped by an alkyne to give thiophene.



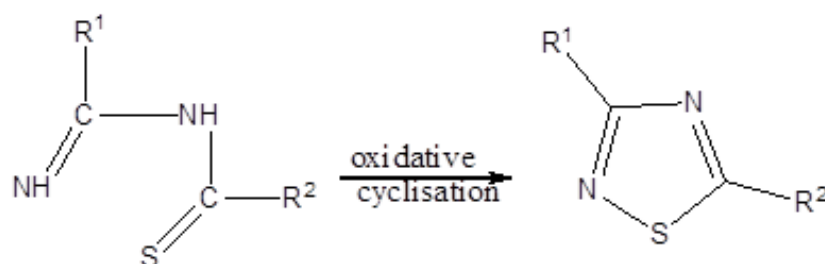
1,2,3-thiadiazole-3-oxide are isomerised into give 1,2,3-thiadiazole-2-oxide when photochemically irradiated.



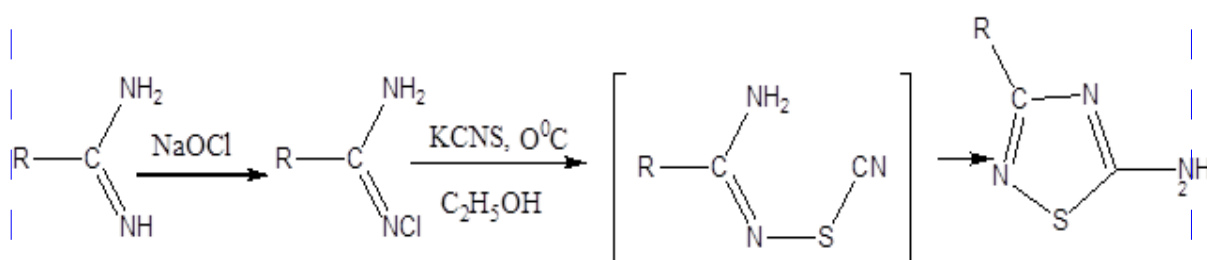
1,2,4-Thiadiazoles: 1,2,4-thiadiazoles is a sulphur and nitrogen containing π -excessive aromatic heterocycle.

Synthesis:

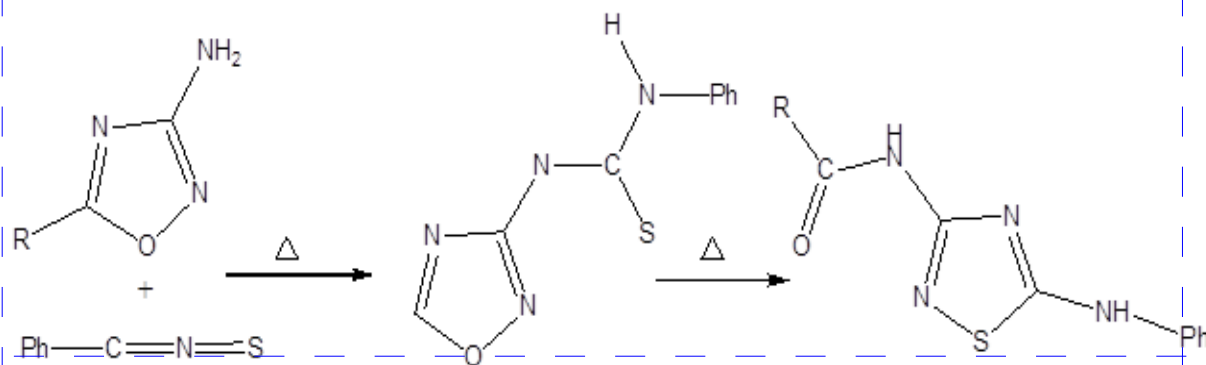
1. Oxidative cyclisation of thioacylamidines: Oxidative cyclisation of thioacylamidine with oxidizing agents such as bromine, iodine, nitric acid, acidic hydrogen peroxide and arylsulphonyl halides in the presence of pyridine leads to the formation of 1,2,4-thiadiazoles.



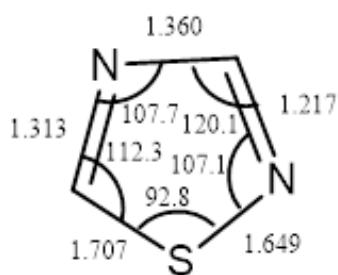
2. From amidines: The reaction of amidines with sodium hypochlorite followed by a potassium thiocyanate gives 5-Amino-1,2,4-thiadiazoles.



3. Heterocyclic Ring Transformation: Thermal rearrangements of thiourea resulting by treating oxadiazoles with phenylisocyanate proceed through mechanism cleavage of the N-O bond to provide 1,2,4-thiadiazole.



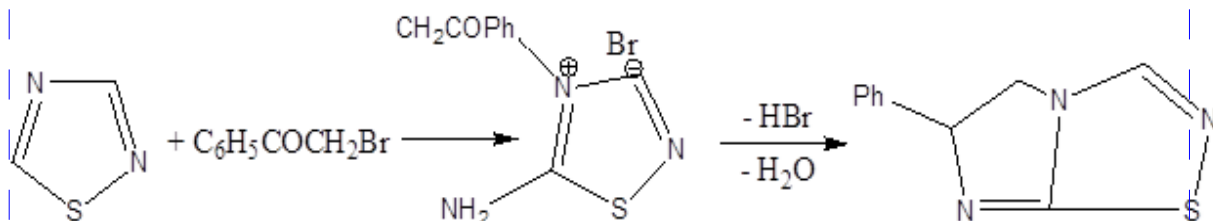
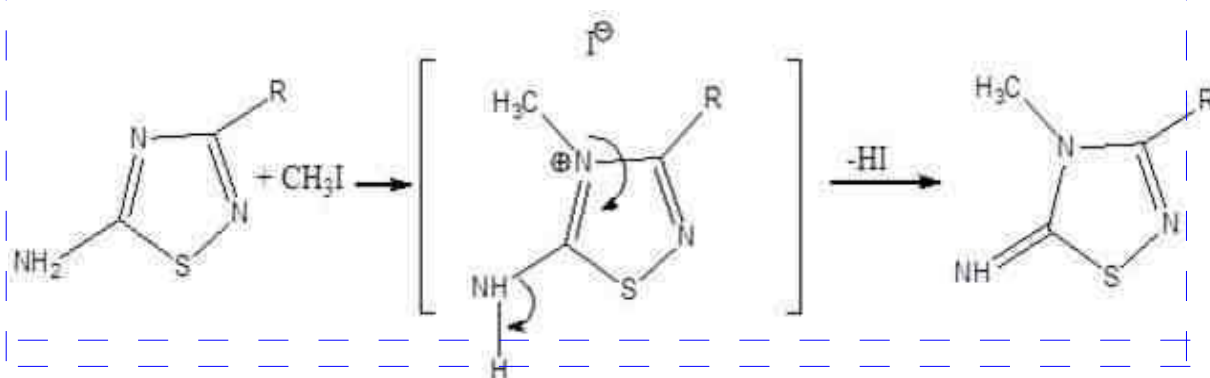
Structure:



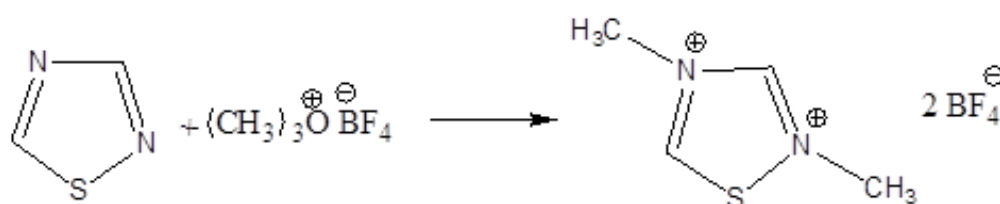
Reactivity: 1,2,4-thiadiazole is sensitive to acid and alkali. 1,2,4-thiadiazole is easily oxidised by 30% hydrogenperoxide and is reductively cleaved readily by reducing agents. The substituents at the positions 3- and 5- of 1,2,4-thiadiazole ring exert stabilizing influence and stabilize the ring towards acid, alkali, oxidizing agent and reducing agent.

The presence of two pyridine type nitrogen atoms which exhibit inductively electron withdrawing effect make the ring carbons least reactive towards electrophiles. However, quaternisation occurs with the attack of electrophiles at the nitrogen atoms, if the ring is activated by electron releasing substituents. 1,2,4-thiadiazole ring is reactive towards nucleophiles and the attack of nucleophiles generally results in nucleophilic substitution or ring cleavage.

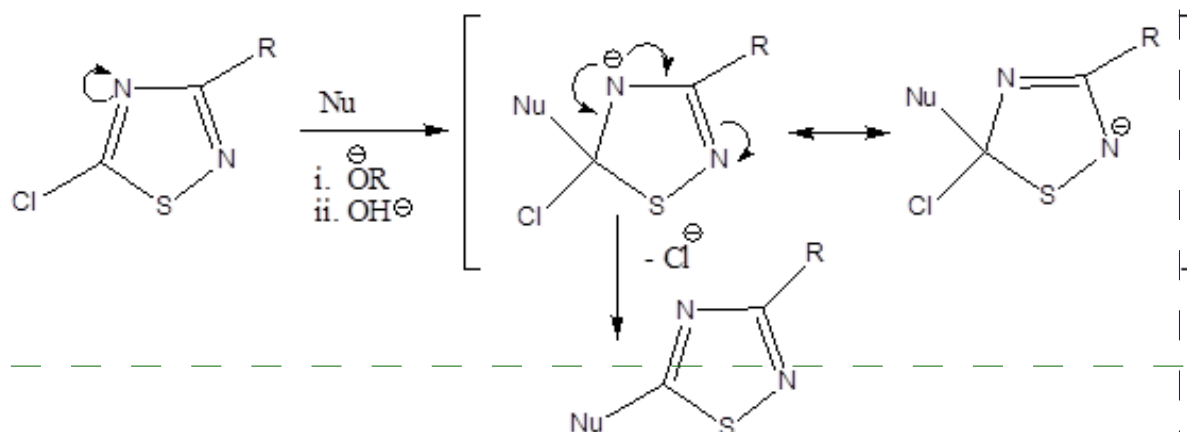
1. Reaction with electrophiles: 1,2,4-thiadiazoles substituted with an electron releasing substituent at position-5 are alkylated by alkyl halides initially at N-4 with the formation of N-4 alkyl derivative 5-alkylamino-1,2,4-thiadiazoles. But with phenacyl bromide, the initially formed N-4 derivative undergoes cyclisation with the formation of fused imidazolothiadiazoles.



The reaction of 1,2,4-thiadiazole with trimethyloxonium tetra fluoro borate gives dicationic salt.

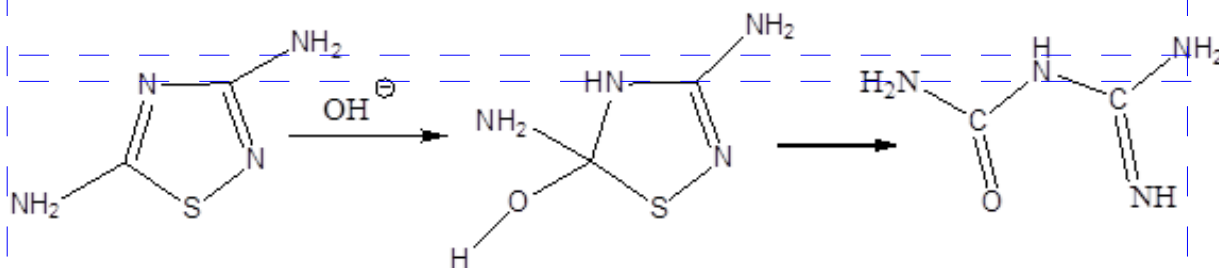


2. Nucleophilic Substitution Reactions: The position 5- in 1,2,4-thiadiazole is more reactive towards nucleophilic attack because of being relatively with lower electron density as compared to the position 3-. The halogen atom at the position 5- can be replaced by nucleophiles involving addition-elimination mechanism.

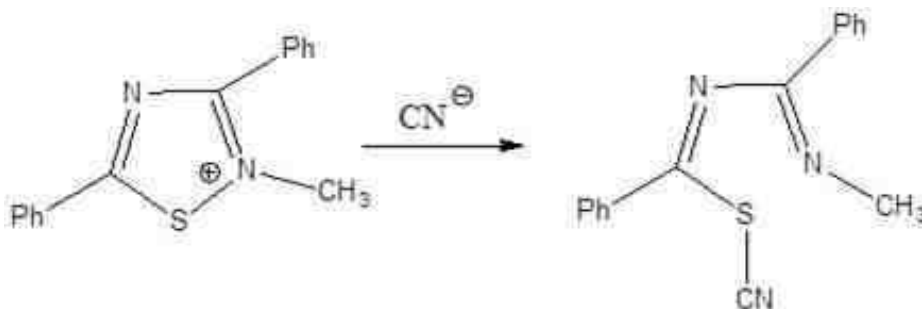


3. Ring cleavage Reactions:

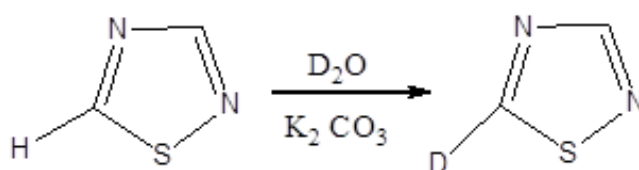
i). Nucleophilic attack at carbon: The presence of substituent's at the position 3- and 5- in 1,2,4-thiadiazoles exert stabilizing influence, however the reactions leading to ring cleavage occur with the attack of nucleophiles at C-5.



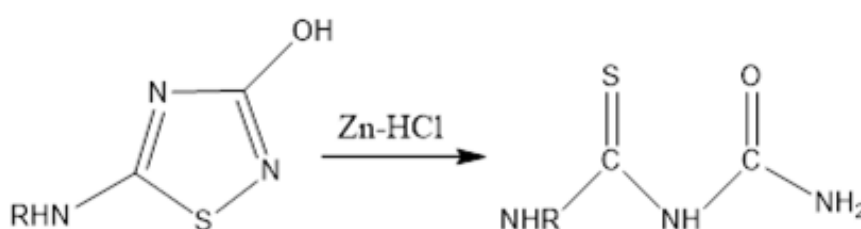
ii). Nucleophilic attack at Sulphur: Soft nucleophiles attack at the sulphur atom of 1,2,4-thiadiazole with the cleavage of ring.

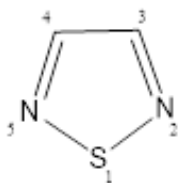


iii). Nucleophilic attack at Hydrogen: 1,2,4-thiadiazole when treated with deuterated water in presence of potassium carbonate to give monodeutero 1,2,4-thiadiazole.



4. Reduction: 1,2,4-thiadiazole are catalytically reduces to acyclic molecule in presence of zinc and hydrochloric acid.

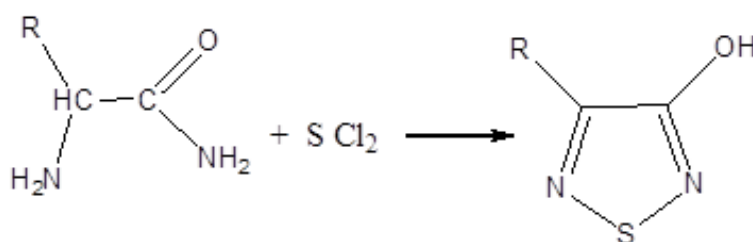
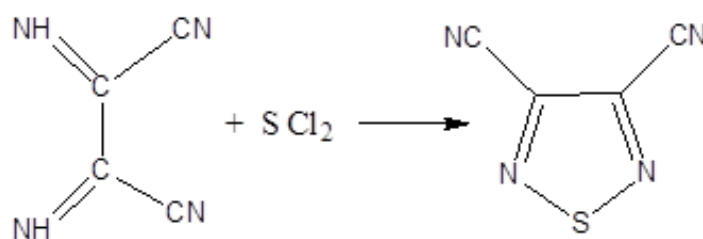
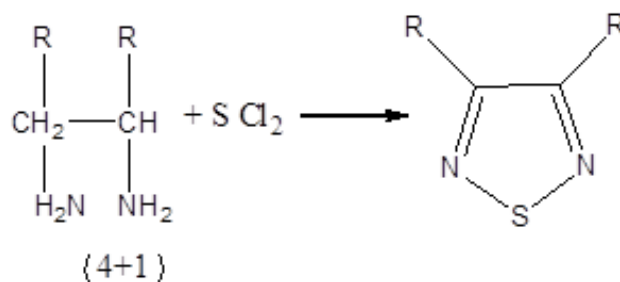


1,2,5-Thiadiazoles:

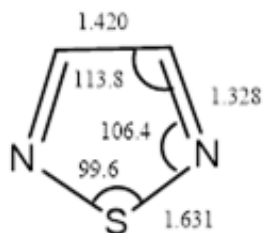
1,2,5-thiadiazole is an π -deficient aromatic heterocyclic molecule. The pharmaceuticals incorporating 1,2,5-thiadiazole ring system are used as antibiotics, Histamine H₂ receptor antagonist & β -adrenergic blocking agents. 1,2,5-thiadiazoles are also used as fungicides, Herbicides, bactericides, insecticides & plant growth regulators.

Synthesis:

1. From o-diamines [(4+1) cyclisation]: This is the most widely used and versatile method and involves the reaction of o-diamines with sulphur monochloride or sulphur dichloride to give appropriately substituted thiadiazoles.

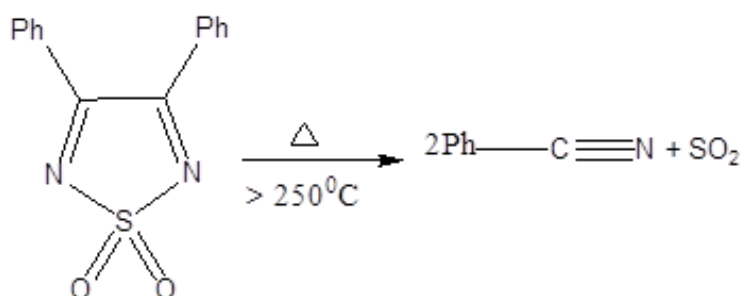


Structure: 1,2,5-thiadiazole is a planar heterocycle with C_{2v} symmetry.



Reactivity:

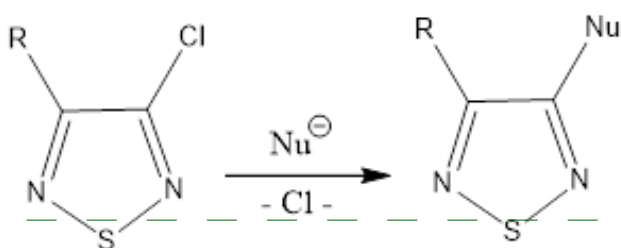
1. **Stability:** 1,2,5-thiadiazole is a weak base. Thiadiazole ring system is generally stable to mineral acids, but slightly to bases. 1,2,5-thiadiazole is thermally stable, but 3,4,-diphenyl-1,2,5-thiadiazole-1,1-dioxide is decomposed into benzonitrile and sulphurdioxide when heated at 2500C.



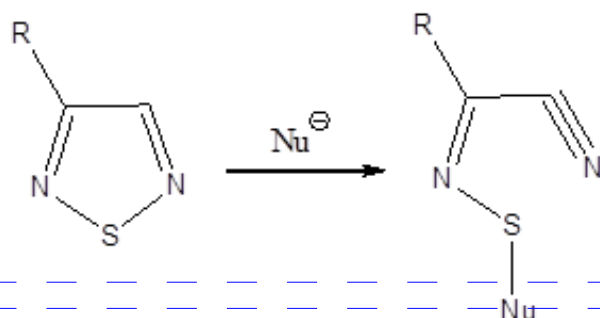
2. **Reaction with electrophiles:** 1,2,5-thiadiazole ring system is with very low electron density at the nitrogen and sulphur hetero atoms and is therefore relatively inert towards electrophilic attack. However, electrophilic substitutions can occur only if 1,2,5-thiadiazole ring is substituted with electron substituents.

3. **Reaction with Nucleophiles:** 1,2,5-thiadiazole ring is susceptible towards nucleophiles with the attack either at carbon, sulphur or a ring proton.

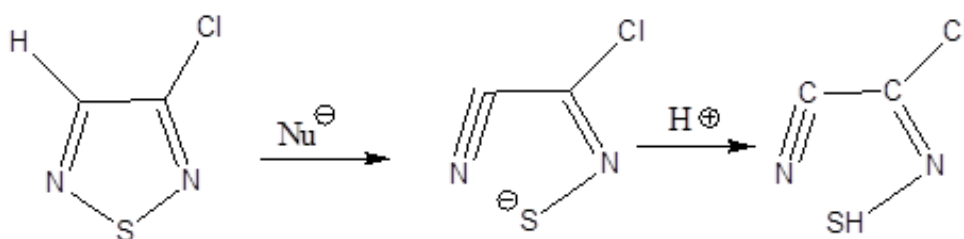
i. Nucleophilic attack carbon



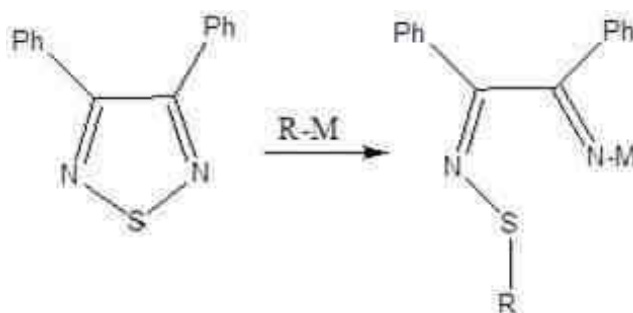
ii. Nucleophilic attack at sulphur



iii. Nucleophilic attack at hydrogen



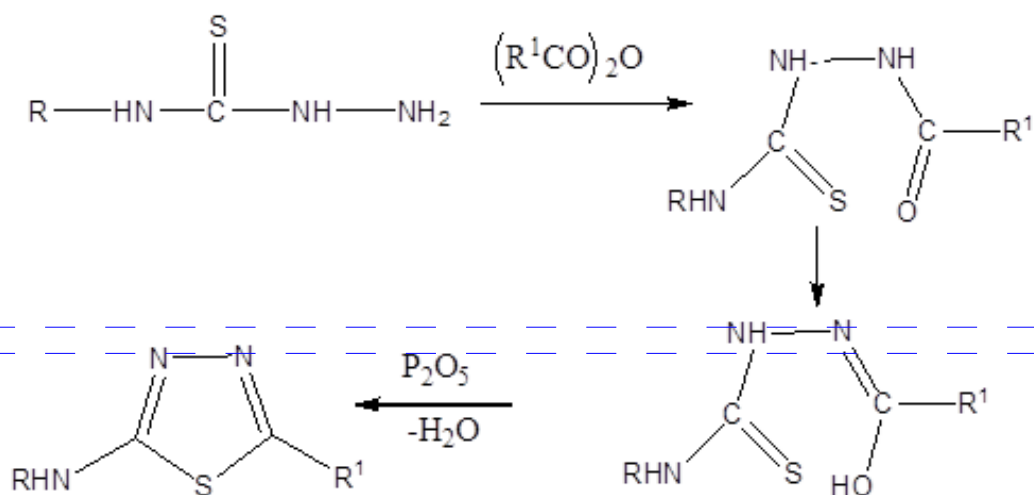
4. Reaction with organometallic compounds: The reaction of 1,2,5-thiadiazole with organometallics involves the attack of nucleophile usually at the ring sulphur, but the attack at the ring Carbon also occurs giving different product.



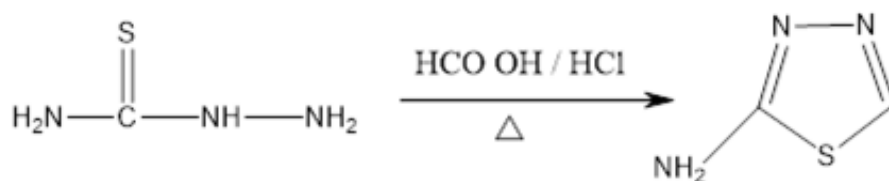
1,3,4-thiadiazole: 1,3,4-thiadiazole is a sulphur containing aromatic heterocycle with nitrogen atoms at the 3- and 4- positions. 1,3,4-thiadiazoles are used in the field of pharmaceuticals as diuretic & antitumour agent. In agrochemicals it is used as an insecticide & herbicide.

Synthesis:

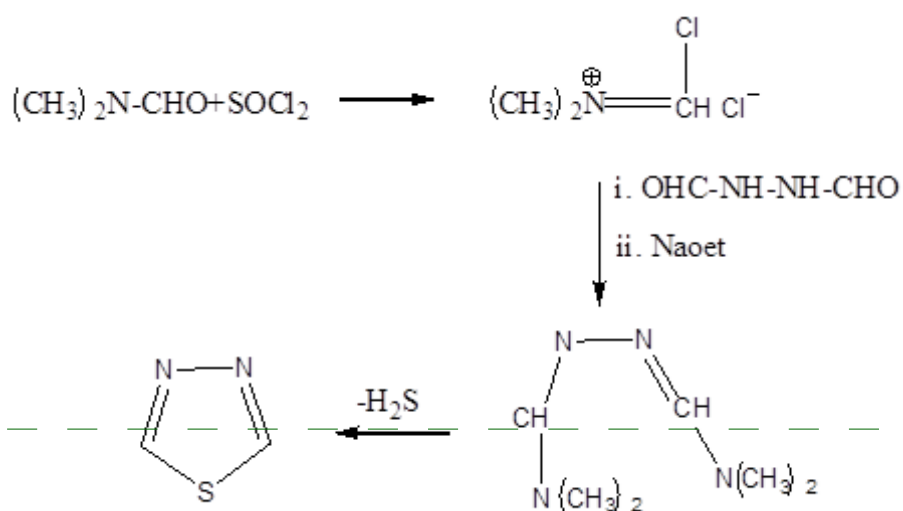
1. From thiosemicarbazides: This is the most common method to synthesise 5-substituted-2-amino-1,3,4-thiadiazoles and involves acylation of thiosemi carbazide followed by the dehydrative cyclisation using sulphuric acid, polyphosphoric acid, phosphorous halides or more recently methane sulphonic acid.



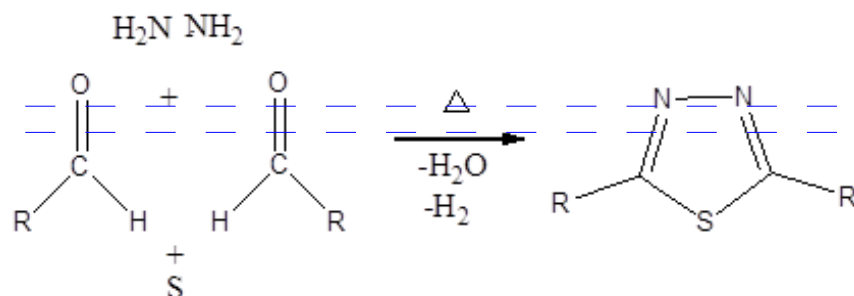
2. Thio semi carbazides: 2-amino-1,3,4-thiadiazole can be obtained by heating thiosemicarbazide with a mixture of formic acid and hydrochloric acid.



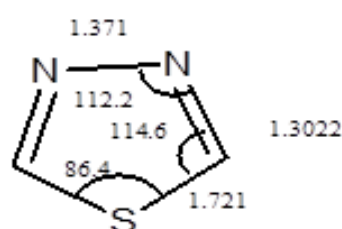
3. From formamidoyl chloride: The reaction of N, N-dimethylformamide with thionyl chloride produces formamidoyl chloride which on treatment with N, N-diformoyl hydrazine and followed by the treatment with sodium ethoxide gives a free base. This free base obtained undergoes cyclisation in the presence of hydrogen sulphide with the formation of parent 3,4-thiadiazole.



4. From hydrazine: This is one pot synthesis of 2,5-dialkyl-1,3,4-thiadiazoles, which involves the reaction of hydrazine with aldehyde and sulphur. The reaction proceeds through an intermediate which is subsequently cyclised to product with the evolution of hydrogen sulphide involving the formation of C-S bond.



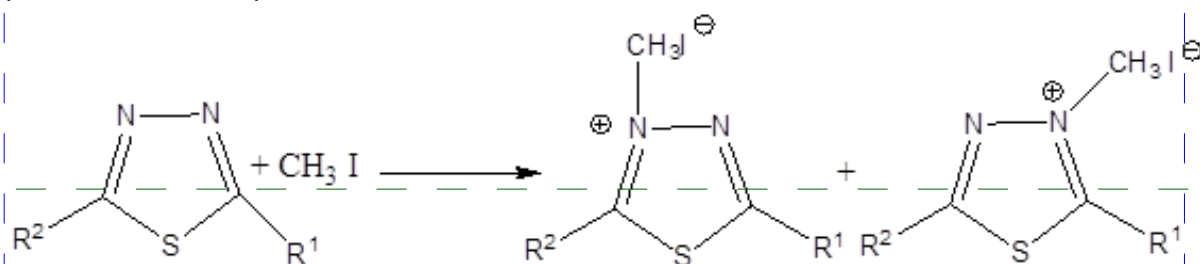
Structure.



Reactivity: 1,3,4-thiadiazoles ring is π electron deficient because of the presence of two pyridine type nitrogen atoms and hence does not react readily with electrophiles at nitrogen or at carbon. If the ring is substituted with the electron releasing substituent, the attack of electrophile occurs at nitrogen with quaternisation 1,3,4-thiadiazole ring is susceptible towards nucleophiles and the attack of nucleophile occurs with nucleophilic displacement or ring cleavage. The reactions involving ring formation between two nitrogens are common, if 1,3,4-thiadiazole ring is substituted with an amino group at the position 2-.

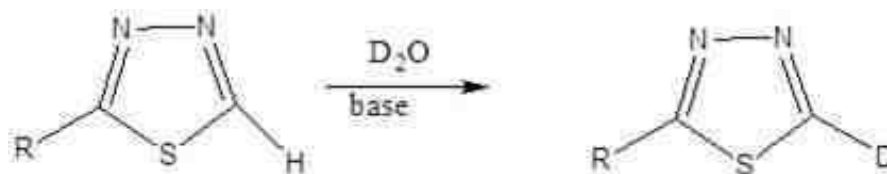
1. Reaction with electrophiles:

1). Electrophilic attack at nitrogen: The attack of electrophiles in 1,3,4-thiadiazole ring occurs at both the nitrogen atoms. The reaction of 1,3,4-thiadiazole with methyl iodide results in quaternisation at N-3 and N-4 and the ratio of the products depends upon the substituents present at the position 2- and 5-.

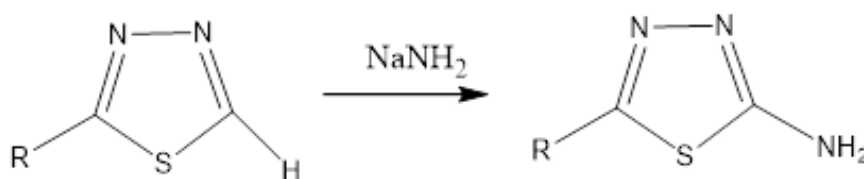


ii). Electrophilic attack at carbon: 1,3,4-thiadiazole does not undergo electrophilic substitutions at the ring carbon atoms because of the low electron density due to the presence of electron withdrawing nitrogen atoms at the positions 3- and 4-.

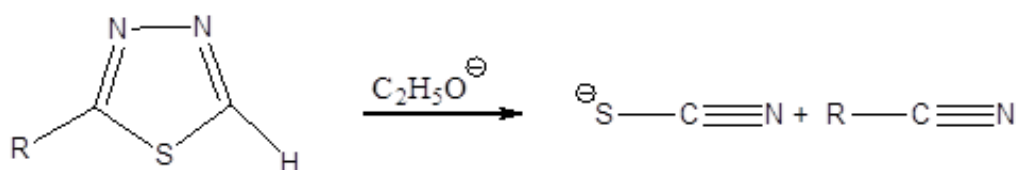
a). Deuterium Exchange Reaction: 1,3,4-thiadiazoles undergo base induced hydrogen-deuterium exchange at the α -position to the sulphur when treated with deuterated water under strongly basic conditions.



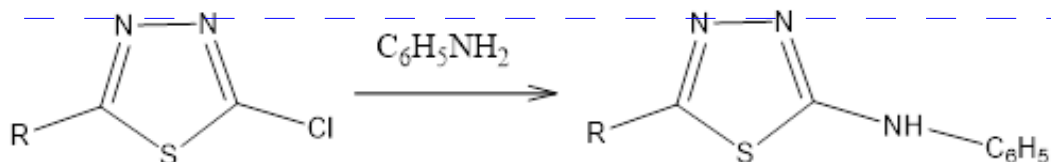
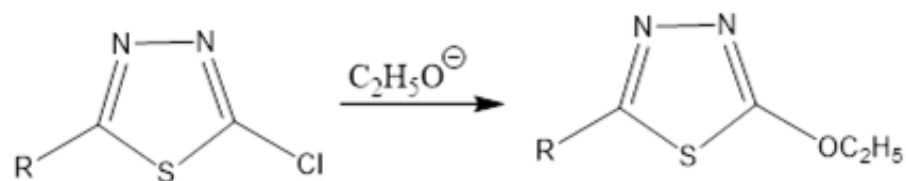
b). Amination Reaction: The Amination reaction of 1,3,4-thiadiazoles using sodamide gives 2-amino-5-alkyl-1,3,4-thiadiazoles.



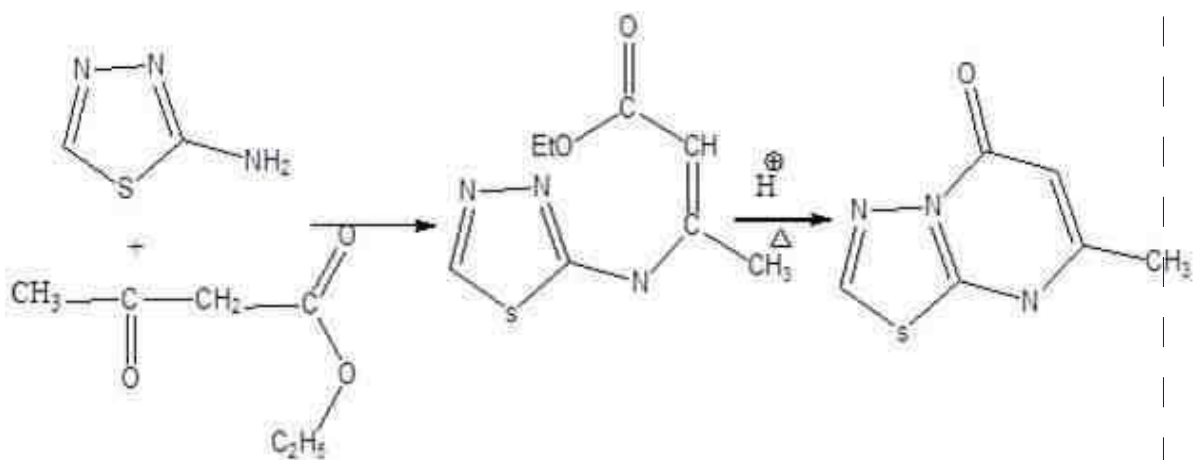
c). Ring cleavage through α -deprotonation: 1,3,4-thiadiazoles unsubstituted at least at one α -position undergo ring opening reaction through α -deprotonation when treated with a strong base.



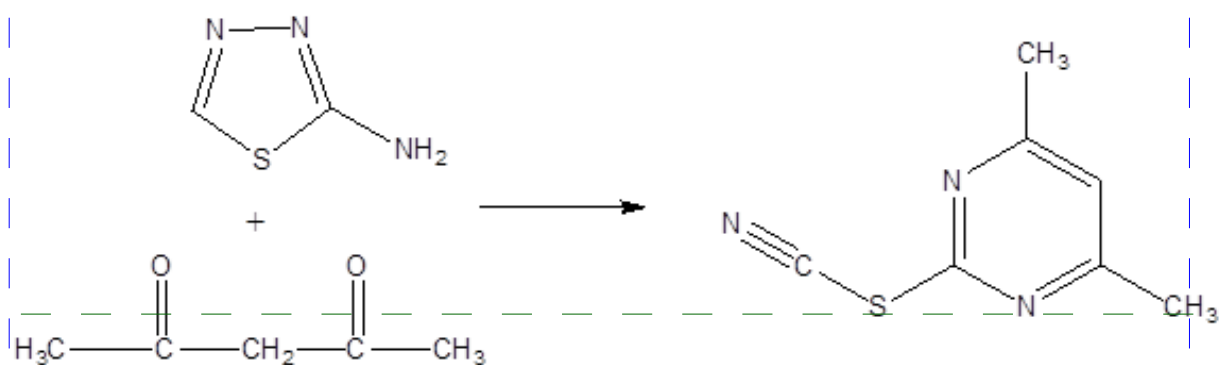
2. Nucleophilic Substitution Reaction: Halo-1,3,4-thiadiazoles undergo nucleophilic substitution reactions readily with the replacement of halogen atom by nucleophiles. The replacement of halogen atom in 1,3,4-thiadiazole nucleus is easier because of the presence of electronegative nitrogen atoms which inductively attract electrons from the ring carbon atoms and make them with low electron density.



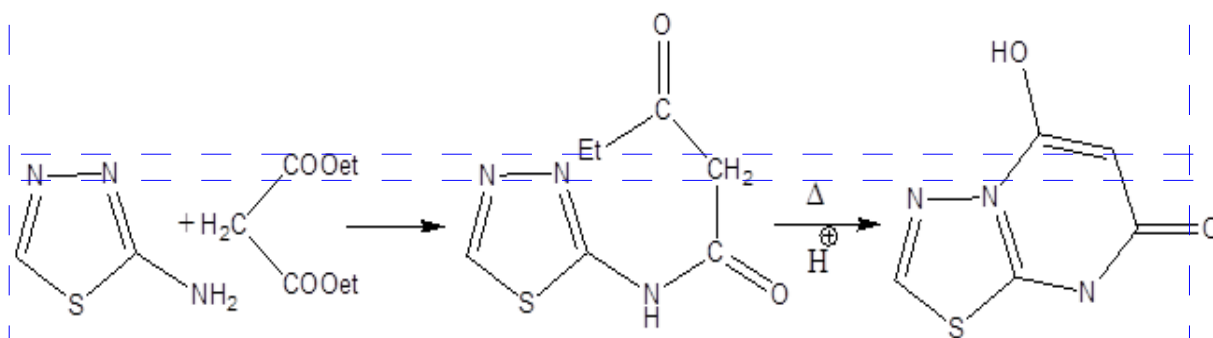
3. Ring formation Reactions: In 2-amino-1,3,4-thiadiazoles the presence of nitrogen atom at position 3- facilitates the ring formation involving nitrogen of an amino group. The reaction of 2-amino-1,3,4-thiadiazole with β -diketones results in the formation of bicyclic compounds. The reaction depends on the nature of the β -diketones.



The reaction with pentane-2,4-dione results in 4,6-dimethyl-2-thiocyano pyrimidine molecule.



The reaction of 2-amino-1,3,4-thiadiazole with diethylmalonate proceeds initially with the formation of an ester which is then cyclised to bicyclic compound on heating.

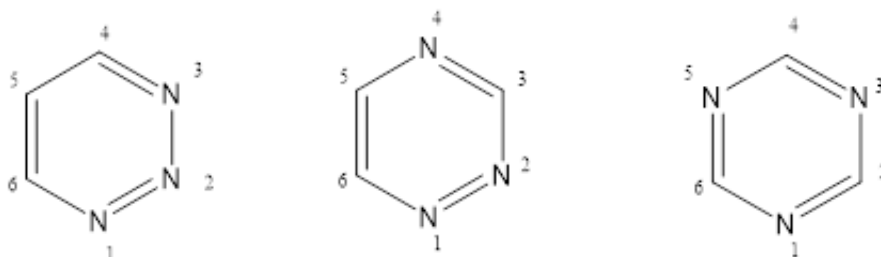


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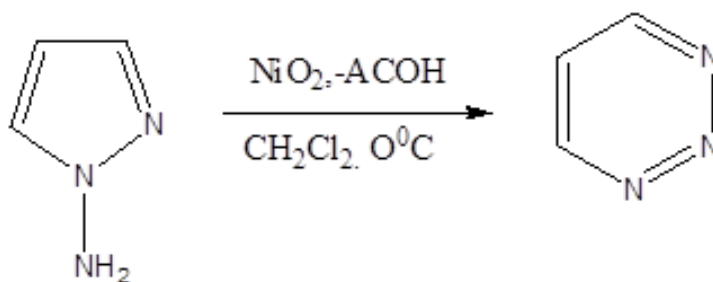
SIX MEMBER HETEROCYCLES WITH MORE THAN TWO HETEROATOMS

Triazines:

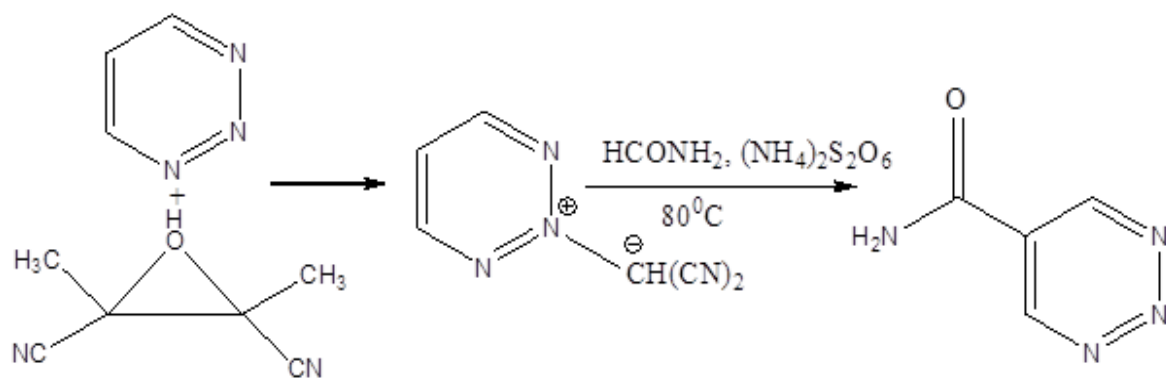
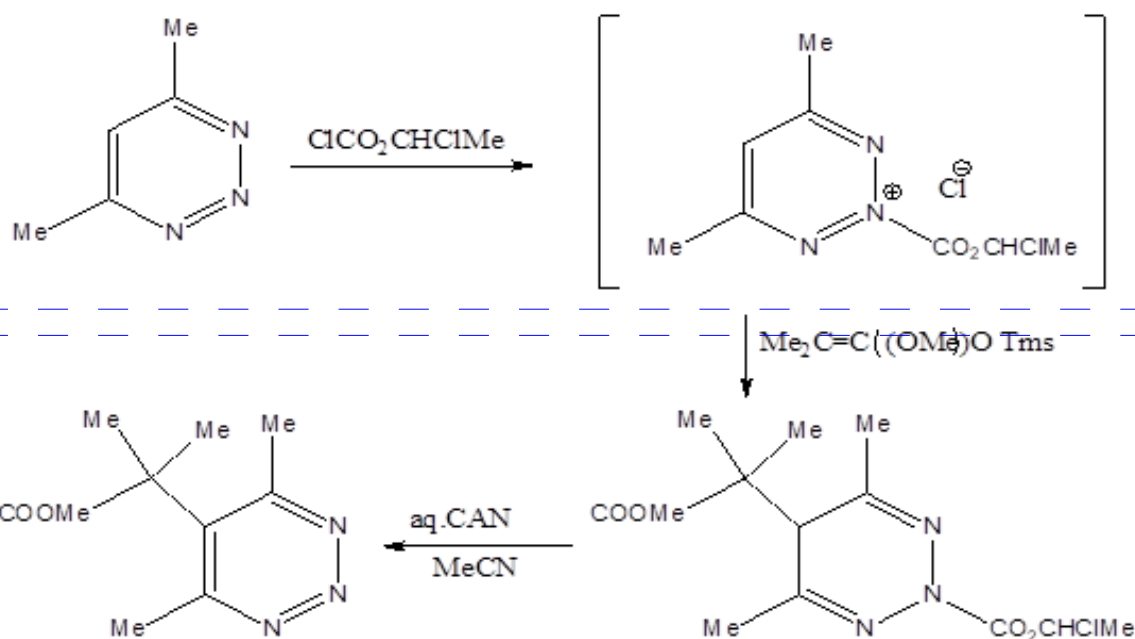
Neutral six membered aromatic heterocycles cannot contain a divalent heteroatom.

**1,2,3-Triazine****Synthesis:**

1. Oxidation: 1,2,3-triazine has been prepared by the oxidation of 1-amino pyrazole.

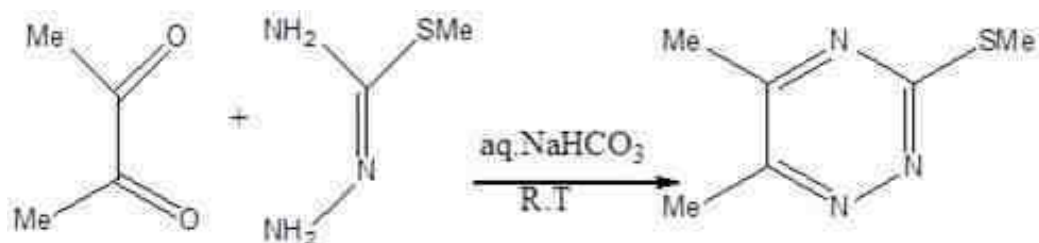
**Reactivity:-**

Reaction of 1,2,3-triazine with nucleophiles usually leads to ring opening through attack at C-4. However, silylenol ethers react with chloroformate. 1,2,3-triazine complexes to give 5-substituted-2,5-dihydro-1,2,3-triazines which can be rearomatised using Cerium(IV) ammonium nitrate. In this case, initial addition of the electrophile takes place at N-2, leading to the specific activation of C-5.

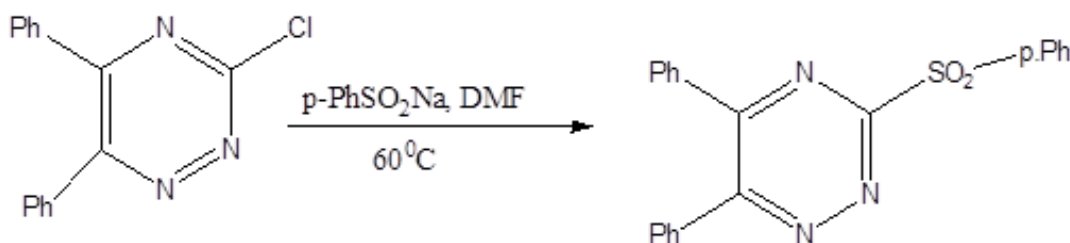
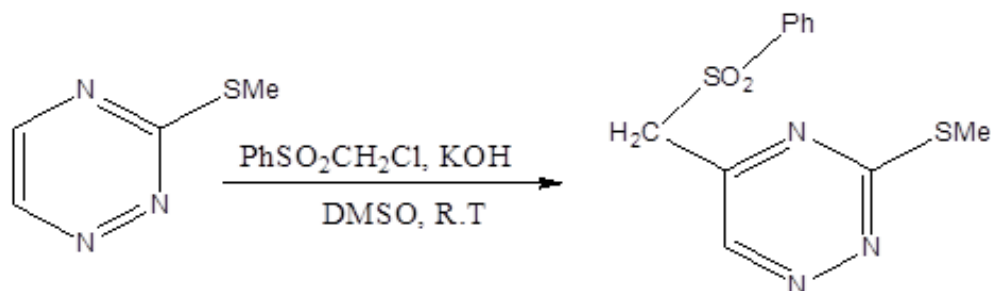
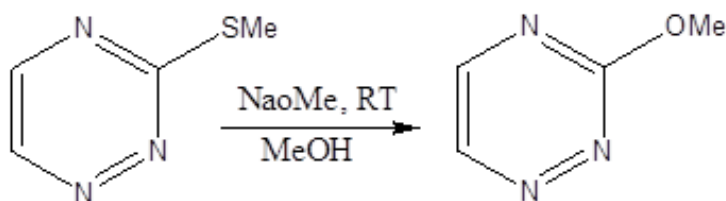


1,2,4-triazine:-

Synthesis: 1,2,4-triazine are prepared by the condensation of amidrazones with diketones or halo ketones.



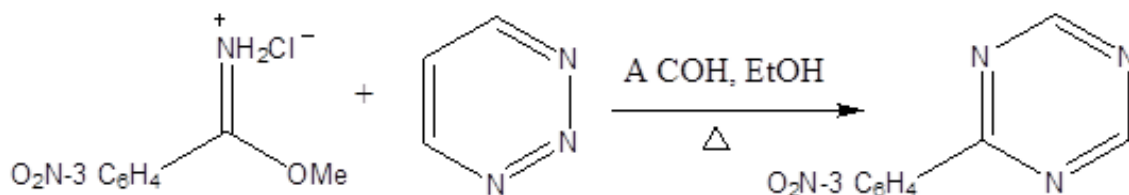
Reactivity: Nucleophilic displacement of methylthio in 1,2,4-triazines by alkoxides and amines.



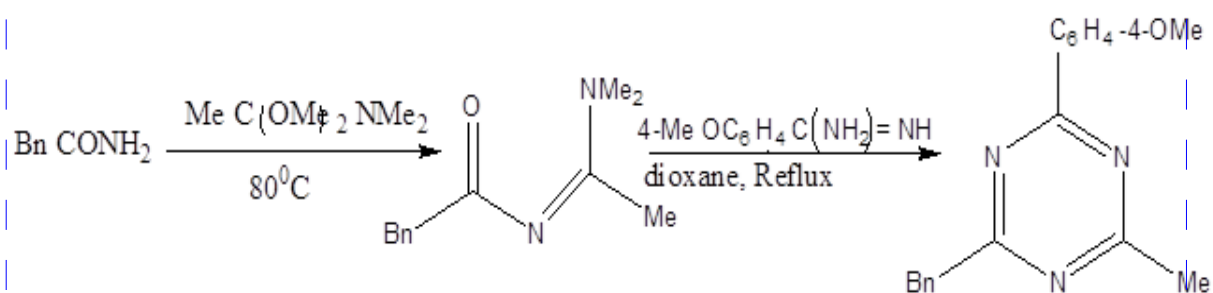
1,3,5-triazine:

Synthesis:

Trimerisation of nitriles or imidates gives symmetrically substituted compounds, mono substituted 1,3,5-triazines can be obtained through the reaction of imidates with 1,3,5-triazine itself.

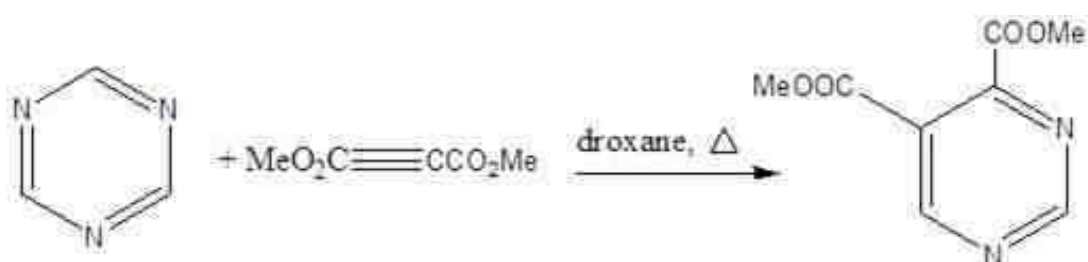


The synthesis of 1,3,5-triazines with different substituents at each carbon as an N'-acyl-N,N-dimethylamidine reacts with an amidine or guanidine to form a 1,3,5-triazine.

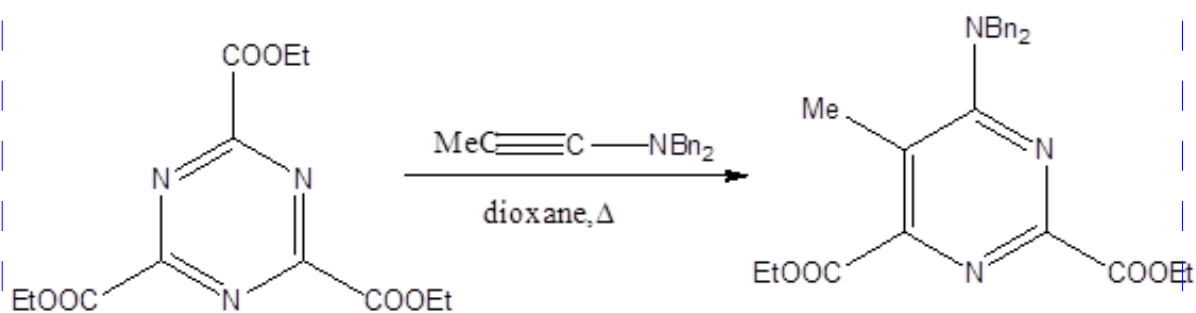


Reactivity:

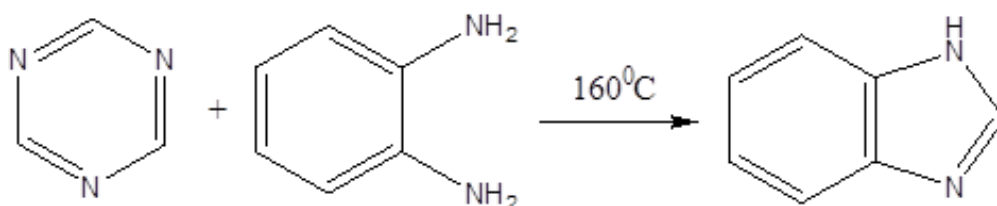
1.



2.

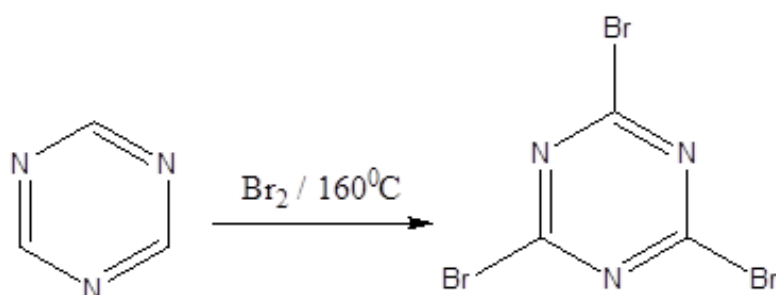


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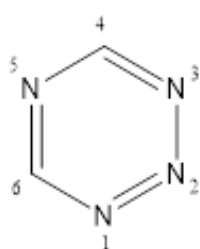


The susceptibility of 1,3,5-triazine of nucleophilic attack with ring opening makes it a synthetically useful equivalent of formate or formamide, particularly for the synthesis of other heterocycles as imidazoles.

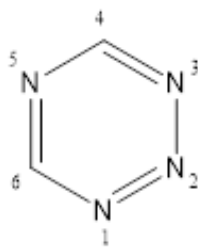
4. Electrophilic substitutions such as bromination of 1,3,5-triazines takes place through bromide nucleophilic addition.



Tetrazine:

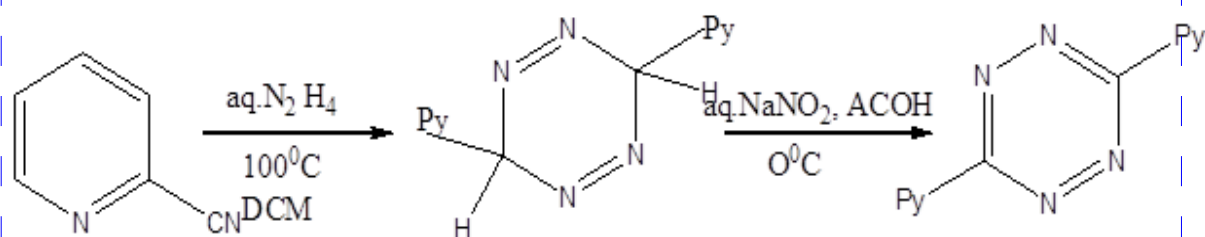


1,2,3,5-tetrazine



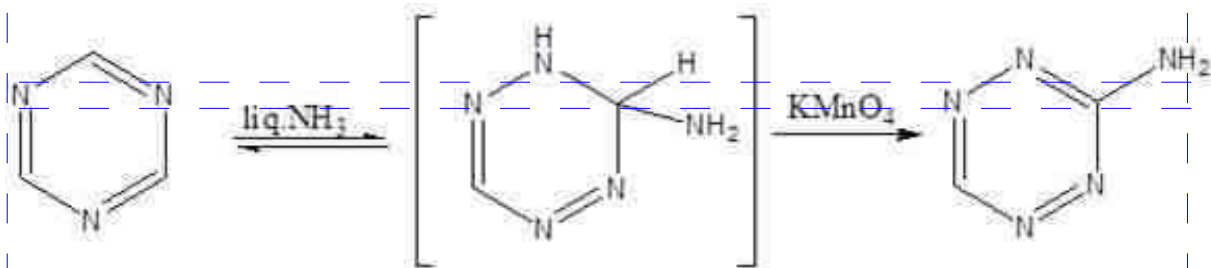
1,2,4,5-tetrazine

Synthesis: 1,2,4,5-tetrazine can be produced by condensation of hydrazine with carbonyl compounds at acid oxidation level, followed by oxidation of the dihydroproducts: this generally produces 3,6-identically-substituted derivatives, crossed condensation reactions being inefficient.

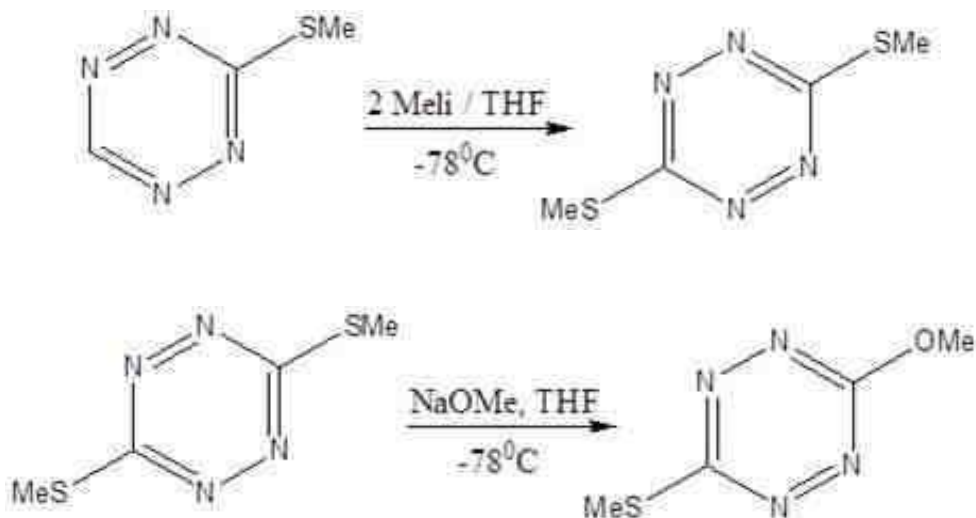


Reactivity:

1. The reactivity of 1,2,4,5-tetrazine with simple amines can be contrasted with the requirement for sodamide (Chichibabin Reaction) for the diazines and pyridine.



2. Nucleophilic displacement of methylthio in 1,2,4,5-tetrazine by alkoxides and amines is very easy. Monodisplacement can be carried out on 3,6-bis(methylthio)-1,2,4,5-tetrazine but the reaction using methoxide requires careful control of reaction conditions to avoid formation of the dimethoxy derivative. Reaction of the bis(methylthio)-1,2,4,5-tetrazine compound with methyllithium resulted in nucleophilic attack at nitrogen.

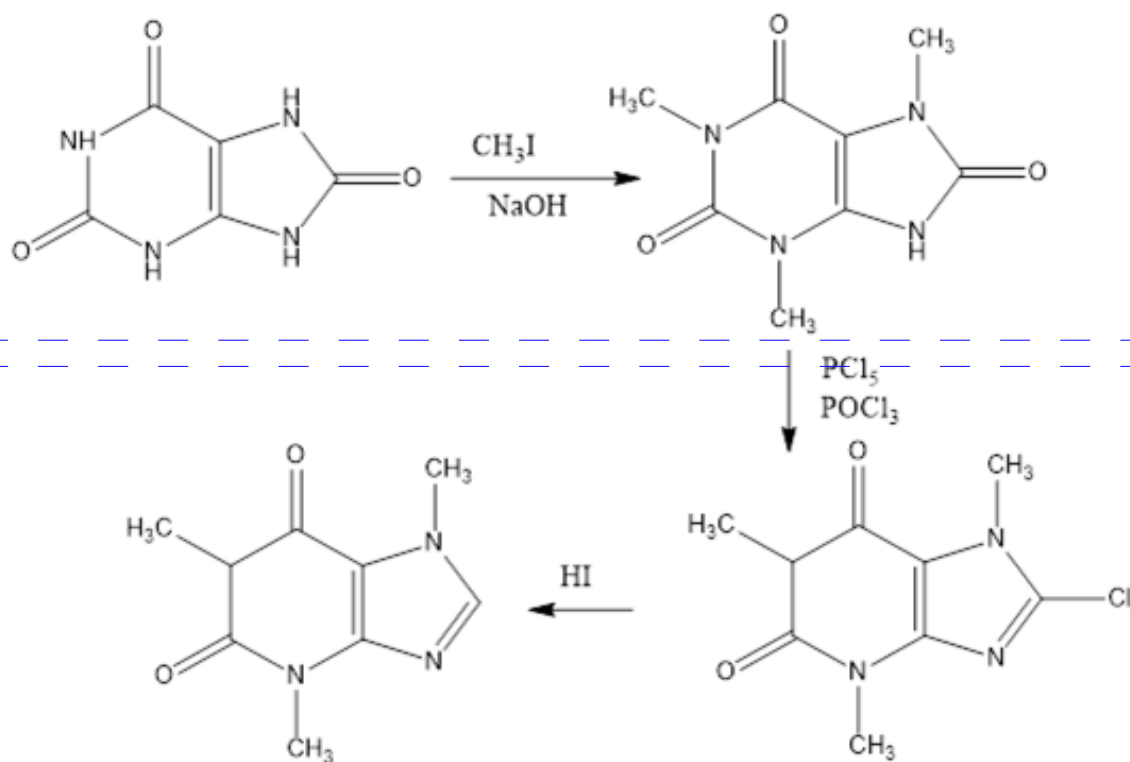


Xanthine Bases:

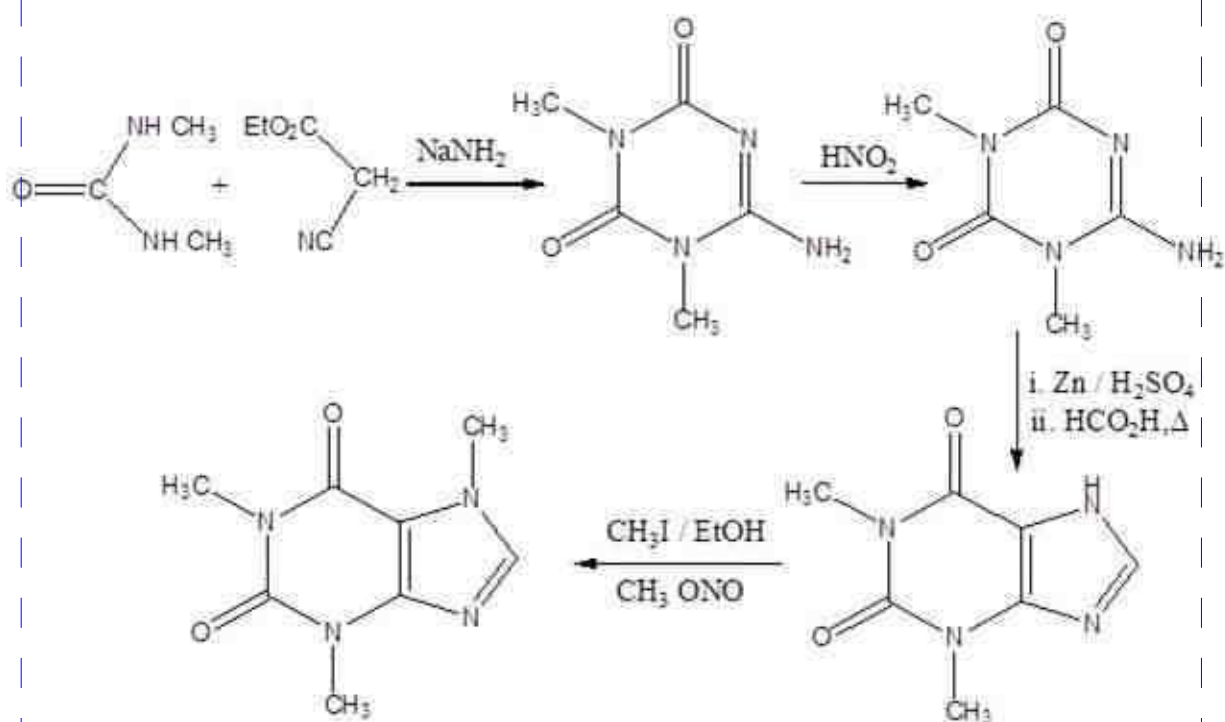
Three important methylated xanthenes that occur naturally are caffeine, theobramine and theophyline.

Caffeine: 1,3,7-trimethylxanthine-this occurs in tea and coffee.

M.P – 235 – 237°C

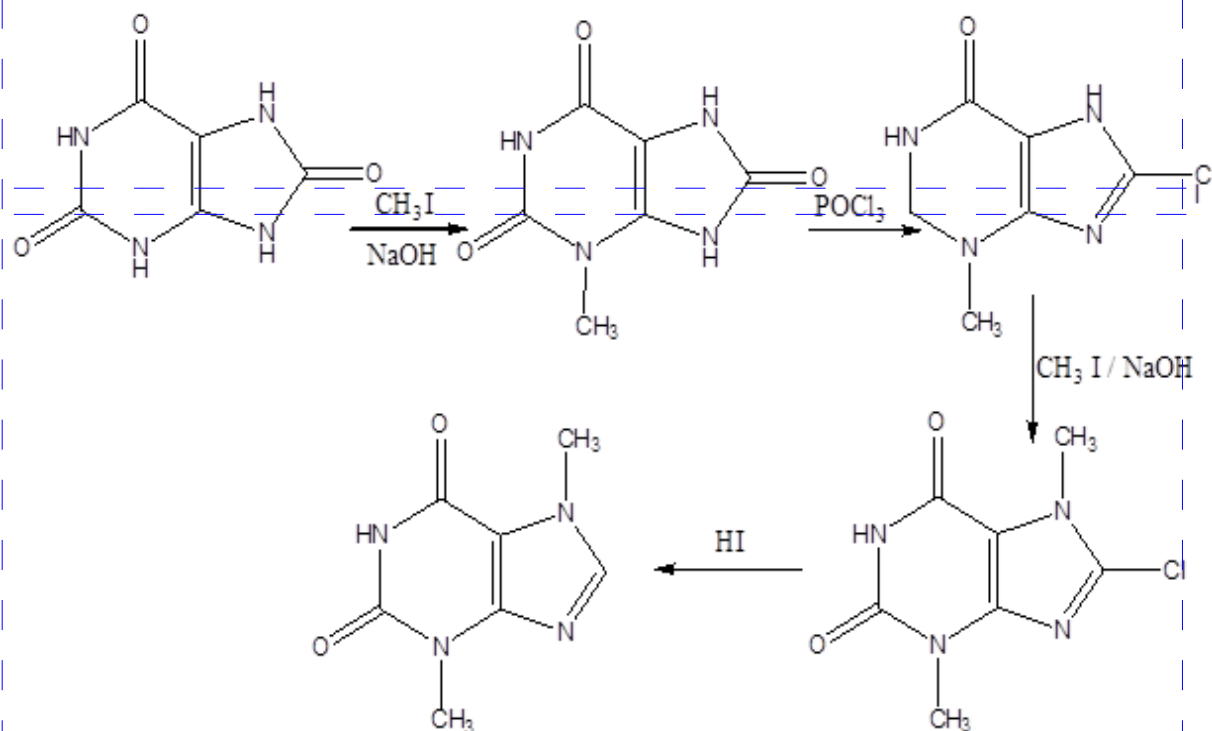


2. Traube's method:

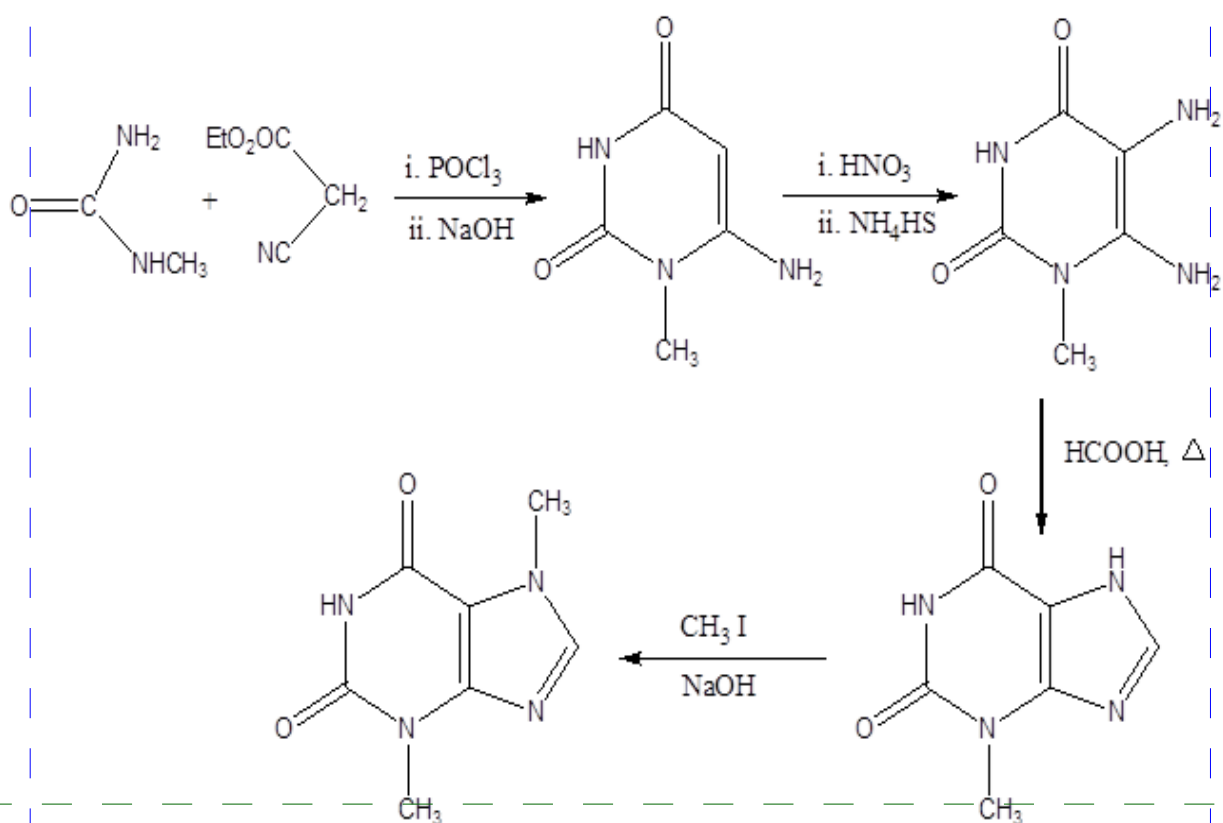


Theobromine: 3,7 dimethyl xanthine. This occurs in cocoa, beans, tea etc M.P 337c

1. Fischer synthesis:



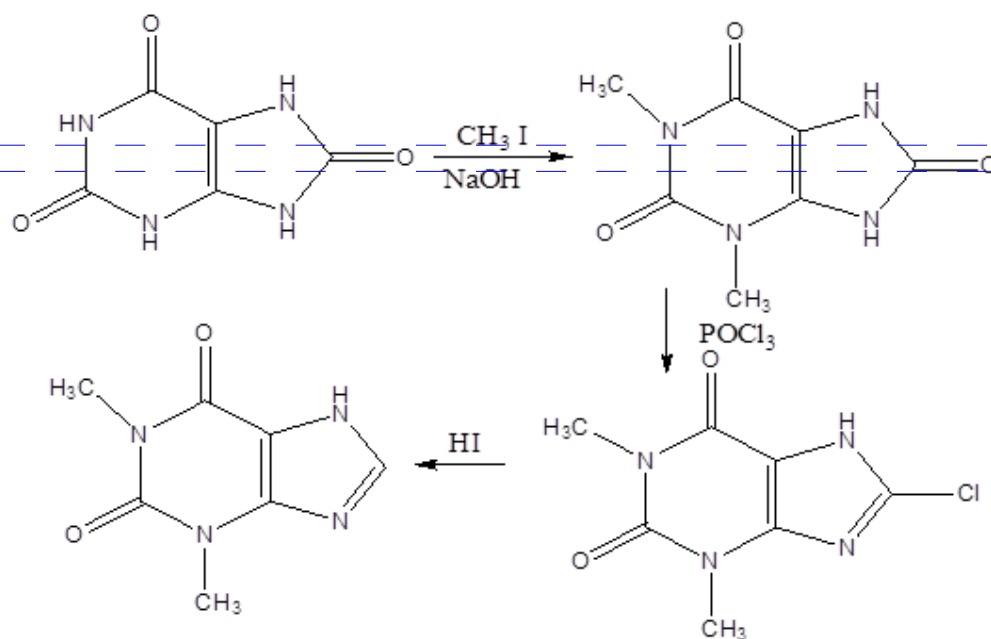
2. Traube's method:



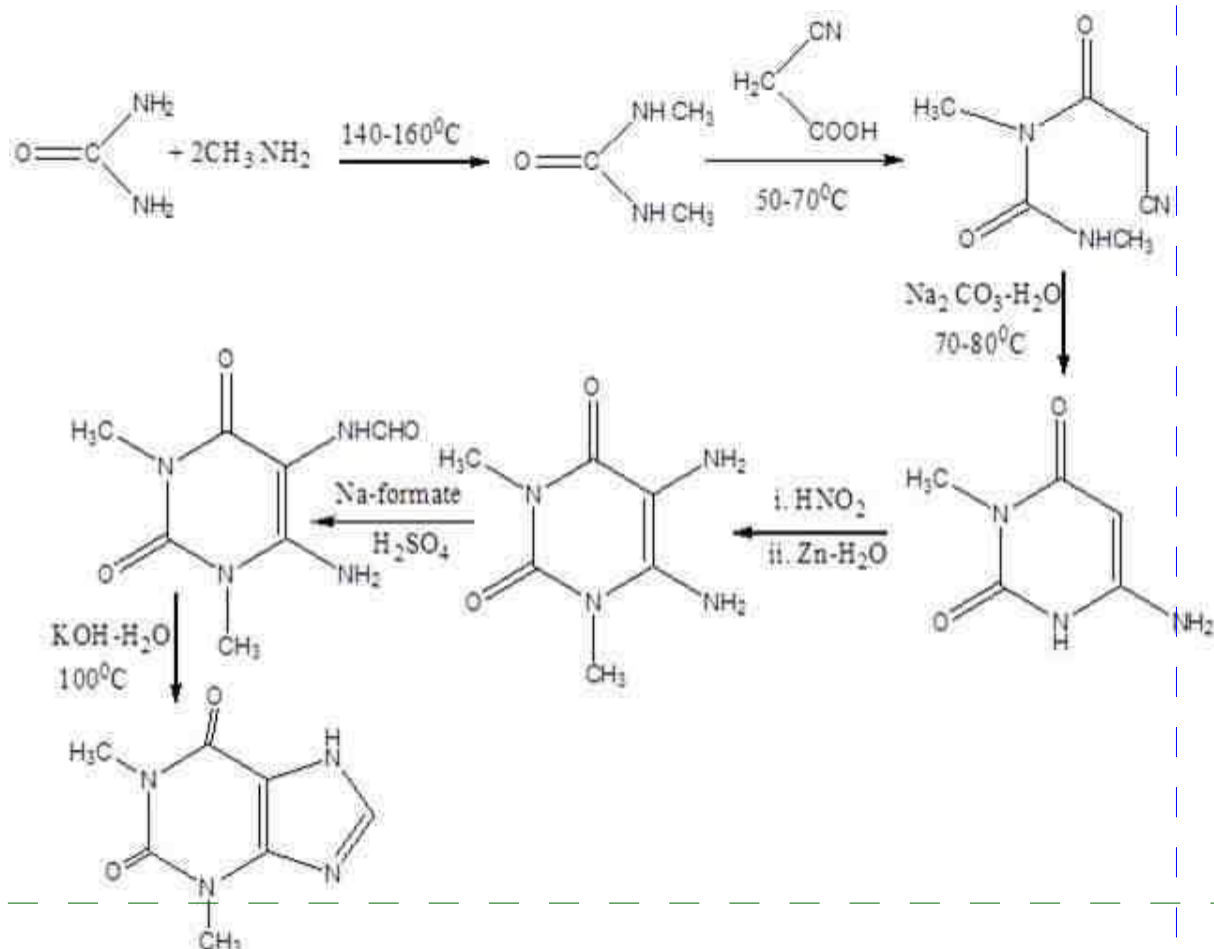
Theophylline:

1,3-dimethylxanthine. This occurs in tea.. M.Pt 269–2720 c

1. Fisher Method:



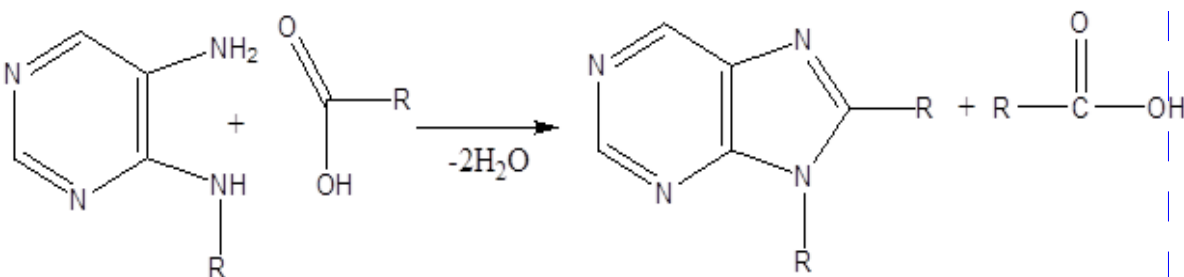
2. Traube's Method:



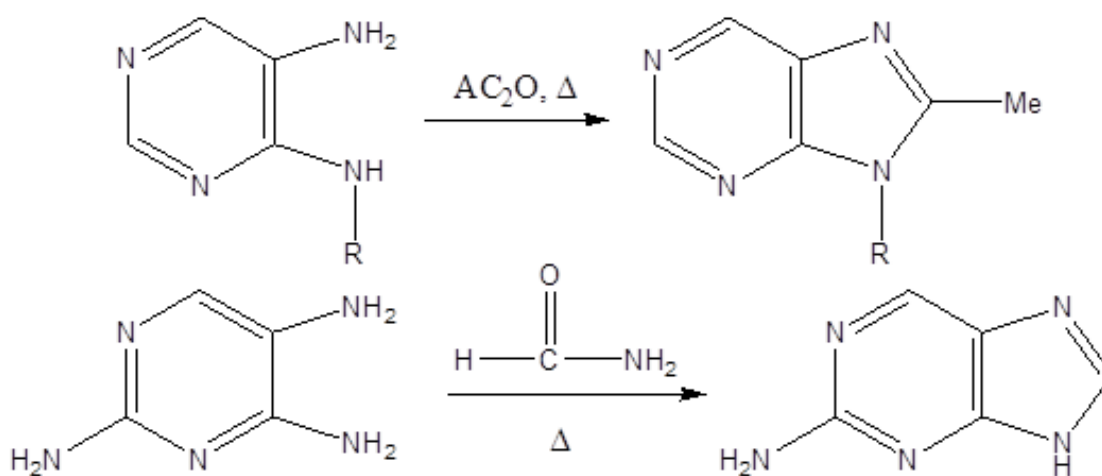
Purines: Purines together with certain pyrimidine bases, they are constituents of DNA and RNA and consequently of fundamental importance in life processes. As nucleosides and nucleotides, they act as hormones and neurotransmitters and are present in some coenzymes. The interconversion of mono- and di- and triphosphate esters of nucleosides is at the heart of energy-transfer in many metabolic systems and is involved in intracellular signaling. The central biological importance, together with medicinal chemists search for antitumour and anti viral (particularly antiAIDS) agents.

Synthesis:

1. From 4,5 diamino pyrimidines: 4,5 diamino pyrimidines react with carboxylic acids or derivatives to give purines, the carboxyl carbon corresponding to C-8.

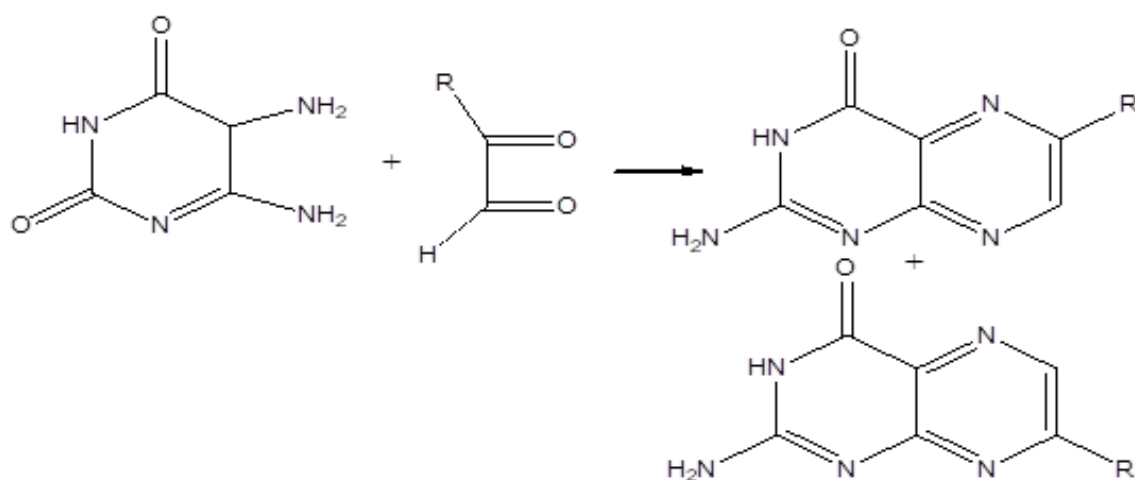


2. Traube Synthesis: 8-unsubstituted purines can be prepared simply by heating 4,5 diamino pyrimidines with formic acid but formamide (or formamidine) are better.



Pteridines : Pyrazino[2,3-d]pyrimidines are known as pteridines because the first examples of the ring system, as natural products were found in pigments, like xanthopterine(yellow) in the wings of butterflies. The pteridine ring system has been found in coenzymes which use tetrahydrofolic acid (derived from the vitamin folic acid) and in the cofactor of the oxomolybdo enzymes and comparable tungsten enzymes. It is also present in the anti cancer drug Methotrexate.

1. Isay synthesis: The condensation of the heterocyclic 1,2-diamine with an unsymmetrical 1,3-dicarbonyl compound usually leads to a mixture of two 5/6-substituted isomers.



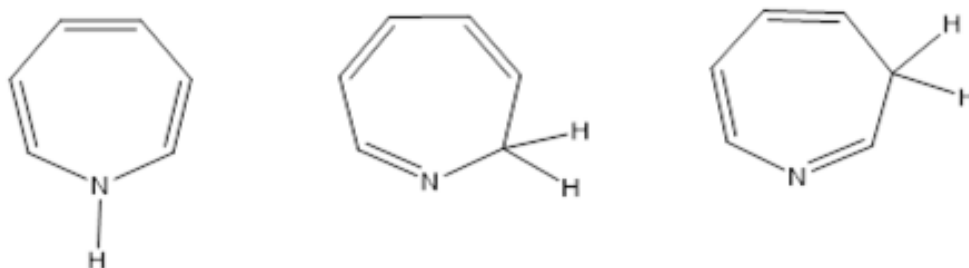
8

SEVEN MEMBER HETEROCYCLES

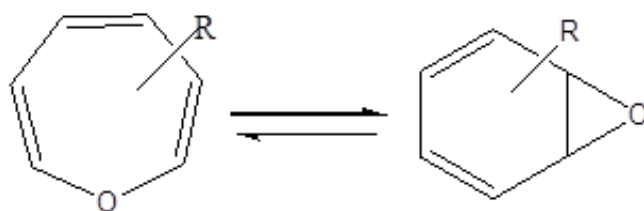
The unsaturated seven membered heterocycles with one nitrogen, oxygen or sulphur atom are named systematically as azepines, oxepines and thiopines respectively. Thiopines are known only with bulky substituents but oxepin and 1H-azepine have both been synthesized.



1H-azepine and oxepin are not planar and there is no evidence that they are delocalized. 1H-azepine is an unstable polyene that rearranges easily to its 3H-tautomer. This can be related to the different numbers of π electrons in the azepine ring: if 1H-azepine were planar, the cyclic electron system would contain eight π electrons. This planar structure is calculated to have negative resonance energy in comparison with an acyclic model. The structures that these molecules adopt have therefore been important in developing the concept of aromaticity.



Oxepins exist in equilibrium with bicyclic valence tautomers, the interconversion being a six electron disrotary electrocyclic reaction. Oxepin itself exists as an inseparable mixture with benzeneoxide at room temperature, since the activation energies for the forward and reverse reactions.

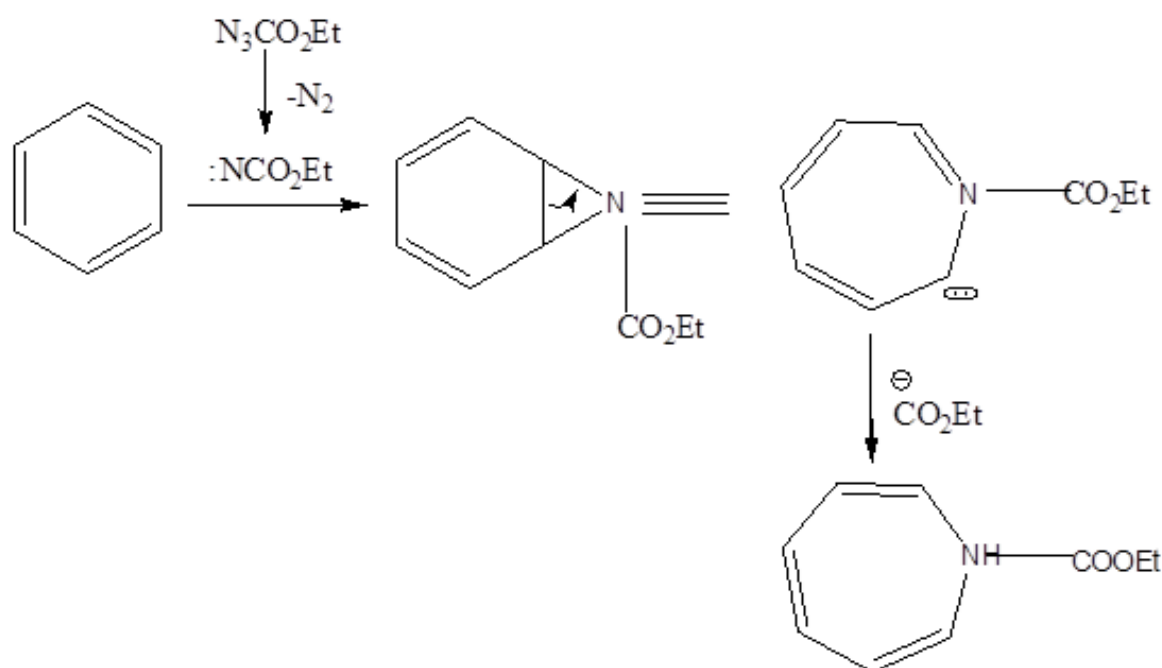


Azepine

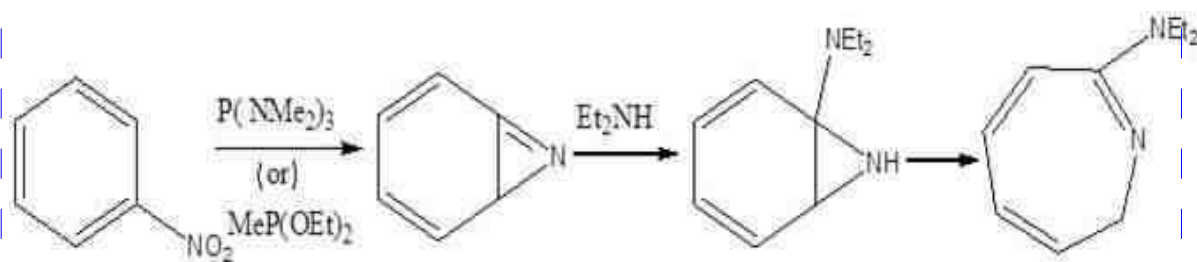
Three isomers of azepine namely 1H-, 2H- and 3H-azepine have been described of which only the 3H-isomer is stable enough to allow it to be distilled.

Synthesis:

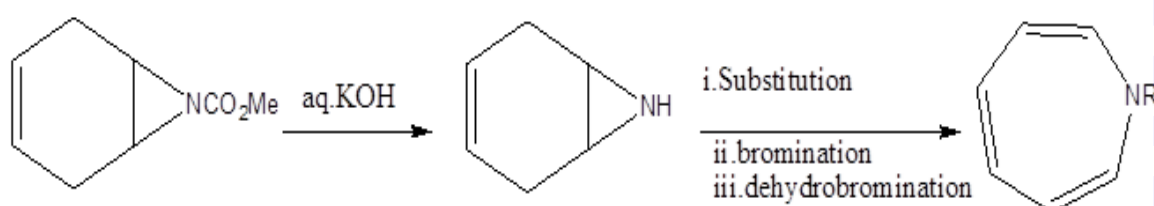
1. Pyrolysis of Azide compounds: The most direct method is the combination of a nitrene, formed by pyrolysis or photolysis of an azido compounds in the presence of a benzene derivative. It has been established that only the singlet nitrene reacts with the benzene. Mixtures result of the benzene is substituted.



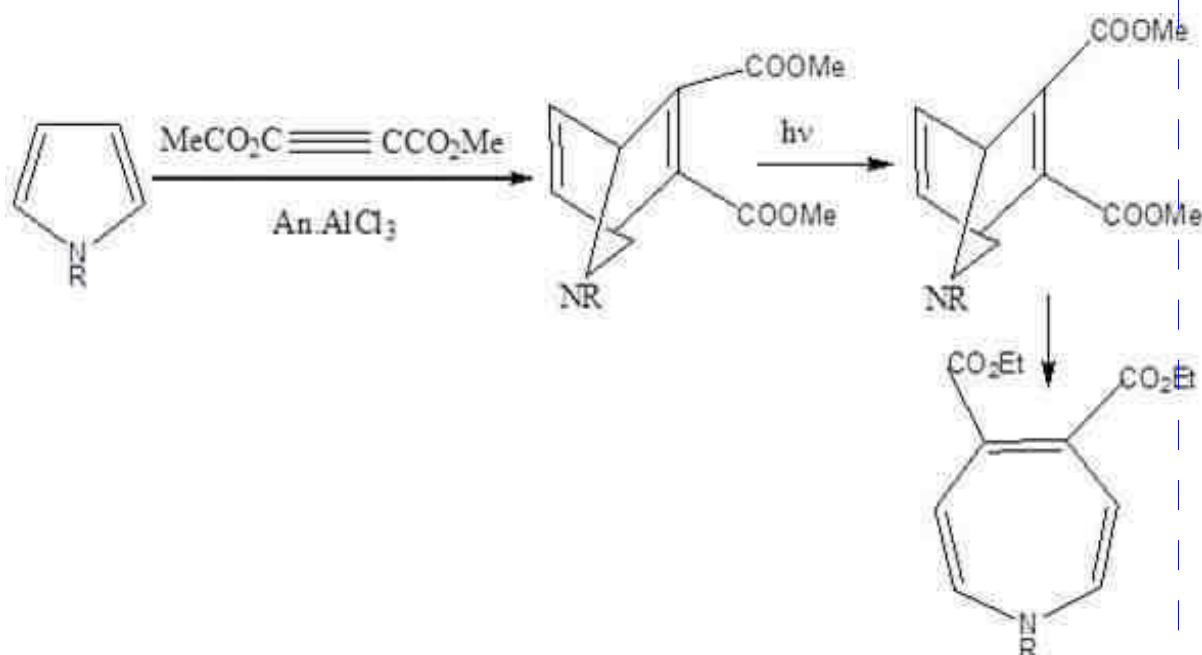
2. Reduction of Aromatic Nitro compounds: A synthesis is the reduction of an aromatic nitro compound to a nitrene in the presence of diethylamine, when a 2-diethyl-amino-3H-azepine is formed.



3. From Aziridines: The Aziridine can be hydrolysed and decarboxylated by aqueous potassium hydroxide to a new substituent is then placed on the nitrogen atom and the product is converted into Azepine.

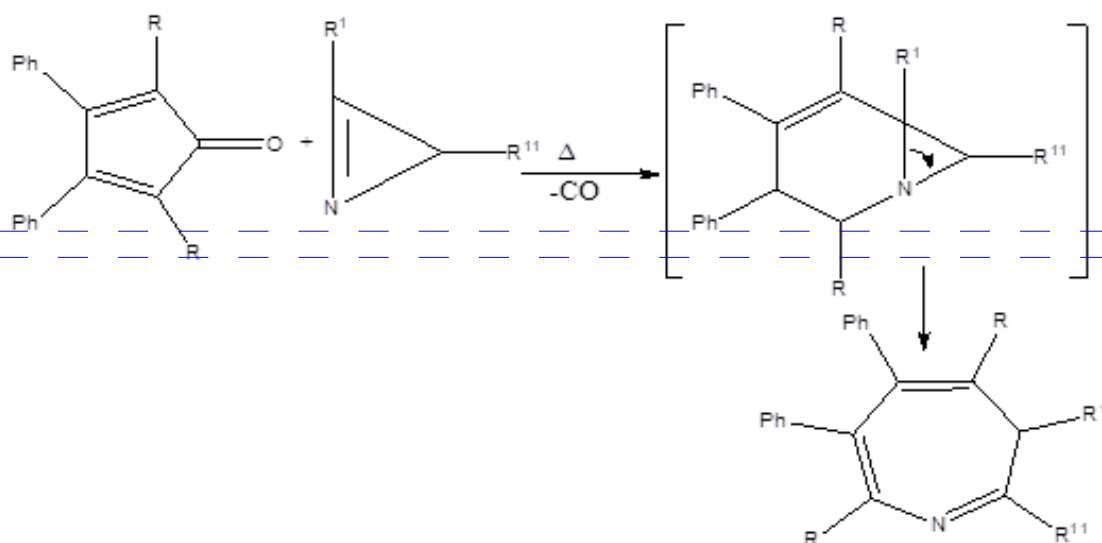


4. From pyrroles: 4, 5 dimethoxy carbonyl azepines can be synthesized from pyrroles possessing a strongly electron attracting substitution at position-1. A Diels Alder addition with dimethyl acetylene dicarboxylate yields the adduct, which on photolysis gives the 3-azaquadricyclane, which on thermal decomposition gives azepine.

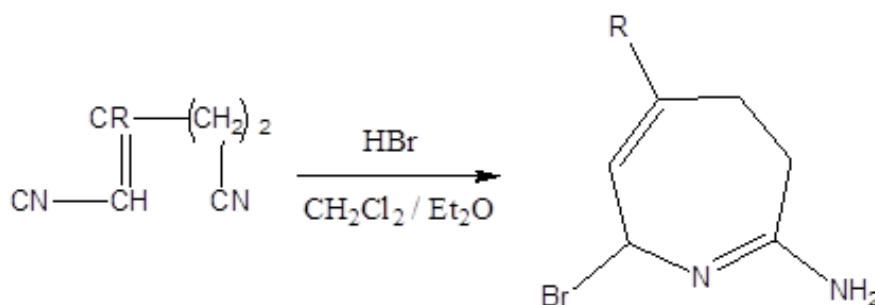


5. From Azirines:

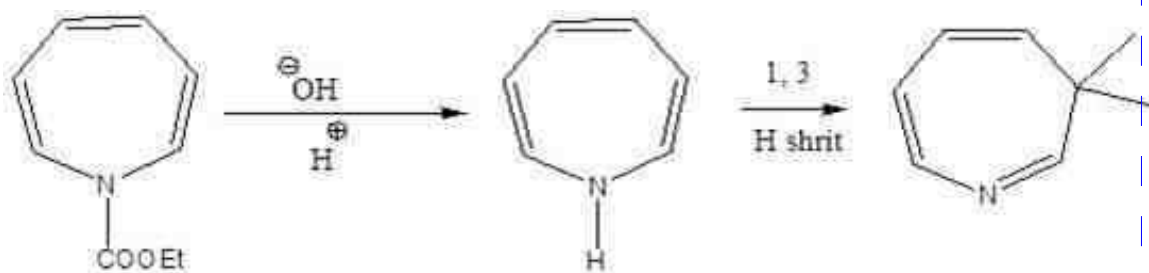
Azirines can undergo Diels Alder reaction to give 3H Azepines



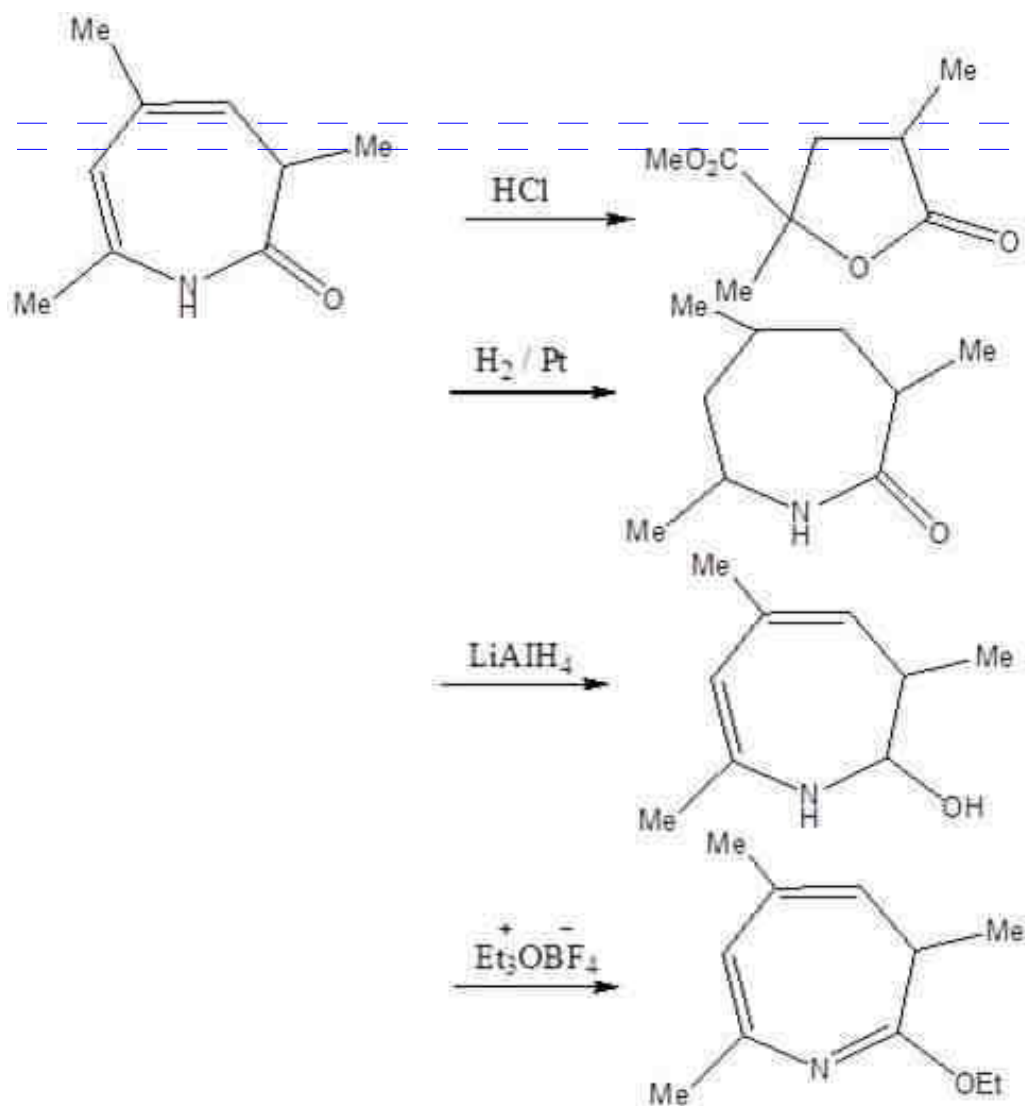
6. From dinitriles: Suitable dinitriles can be cyclised to azepines in high yield.


Reactivity:

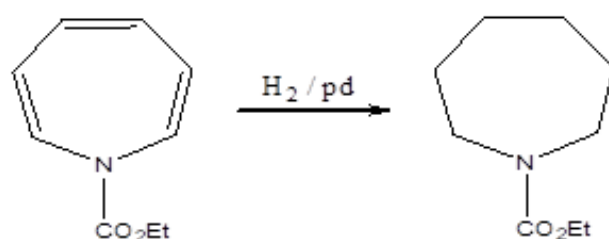
1. Hydrolysis: 1 ethoxy carbonyl azepine on alkaline hydrolysis followed by acidification is thought to give the 1H-azepine, but like other enamines bearing no N-substituent it isomerizes rapidly to the 3H-isomer.



2. 1,3-dihydro-2H-azepin-2-ones hydrogenation over platinum gives the expected cyclic amide, is reduced by Lithium Aluminiumhydride gives amine and with triethyloxonium borofluoride gives the corresponding imino ether, the 2-ethoxyazepine.

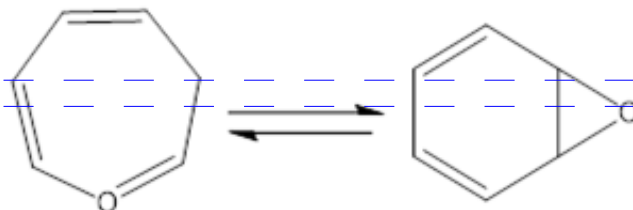


3. Complete hydrogenation can be done using Hydrogen in presence of palladium.

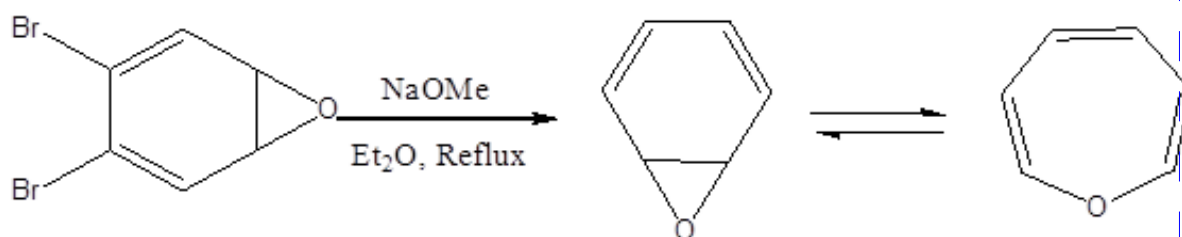


Oxepine:

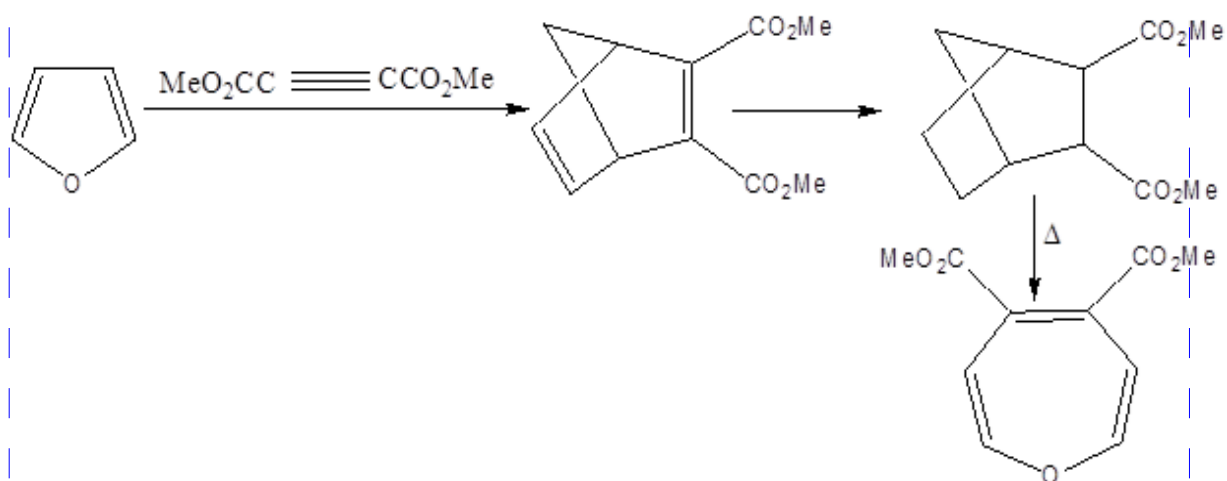
Oxepine is an orange liquid molecule with boiling point is 380C. The NMR spectrum of the liquid is temperature dependent and is interpreted to show the presence of amounts of the oxirane and oxepine.


Synthesis:

1. From oxirane derivatives: Dibromo derivative of the oxirane is refluxed in presence of strong base such as sodiummethoxide in presence of dry ether gives oxepine.

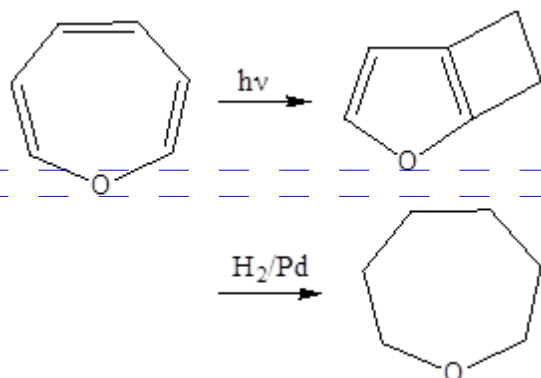


2. Diels Alder Reaction: Furan is treated with Acetylide methoxy carboxylate gives a Diels Alder adduct, which on photolysis gives oxaquadracyclanes finally on thermolysis gives the oxepine derivative.

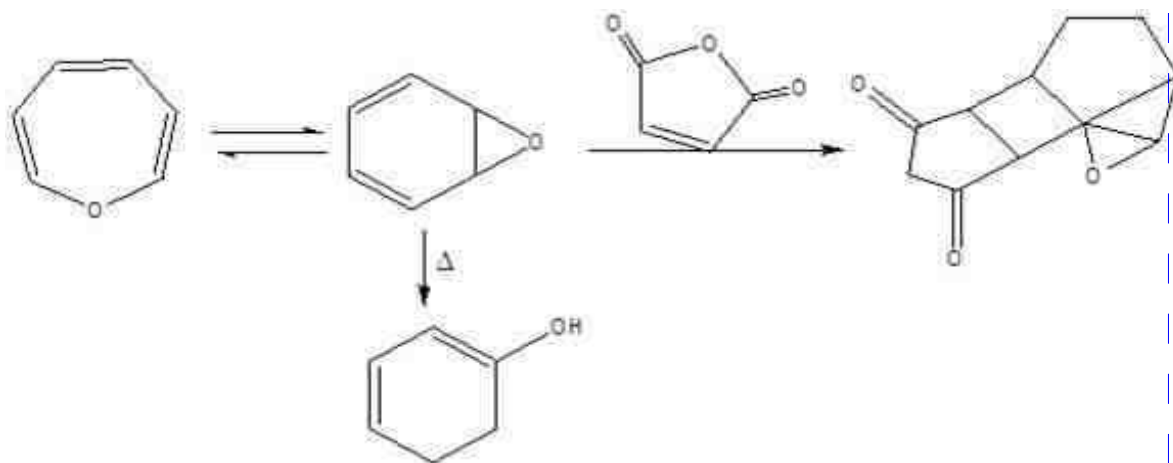


Reactivity:

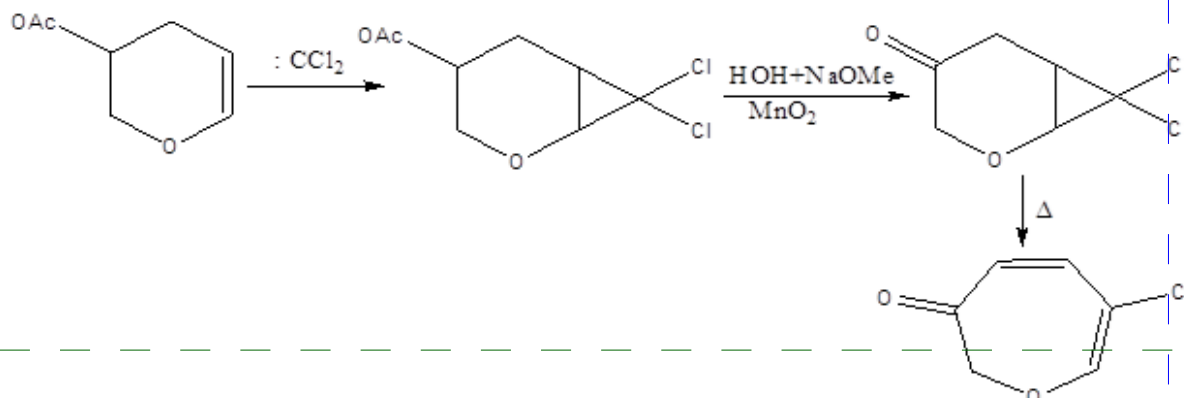
1. On photolysis, oxepine gives bicyclic molecule. Oxepine on reduction with hydrogen and palladium gives hexa hydro oxepine.



2. Oxepine on equilibrium gives the cyclohexadienepoxide, which reacts with malic anhydride (dienophile) gives the adduct. Whereas the diene under thermal conditionjs gives the cyclohexyldienol.



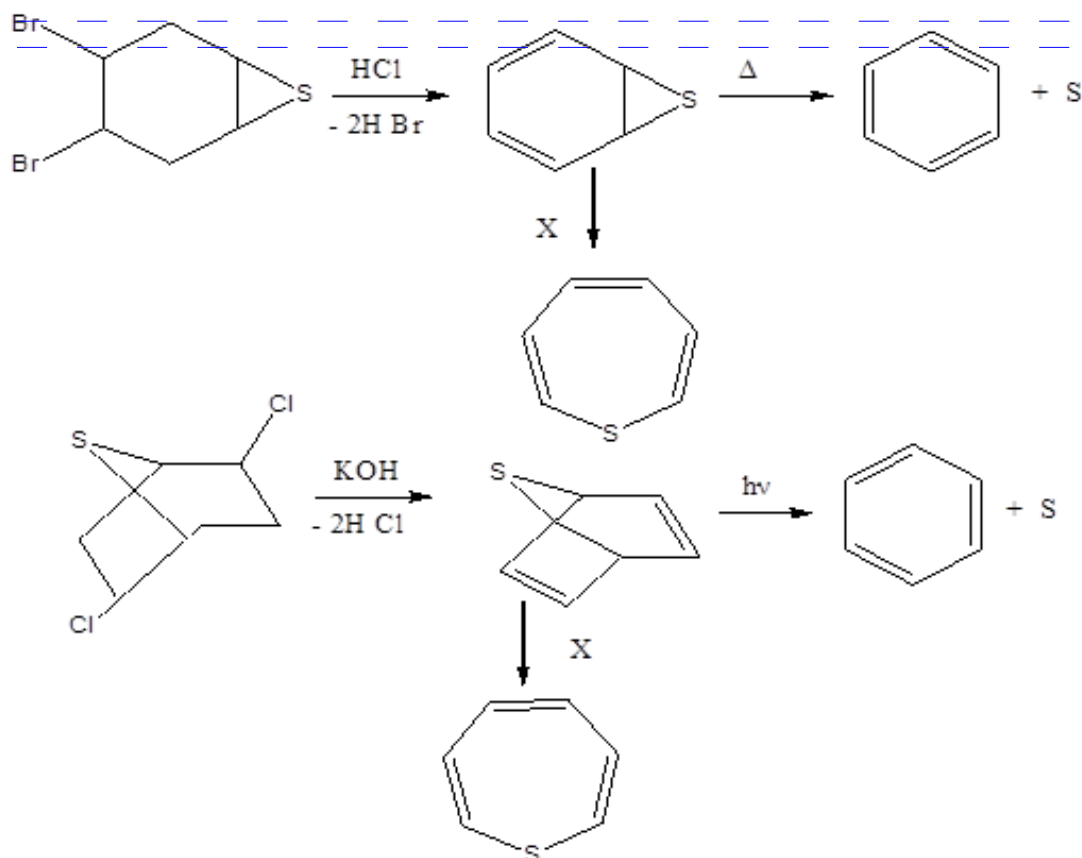
3. The NMR spectrum 3-chloro-6-oxo oxepine gives an indication of the presence of enol. and the compound is very sensitive to both acids and bases. There is no doubt that there is little, if any, aromatic character present in simple oxepines.



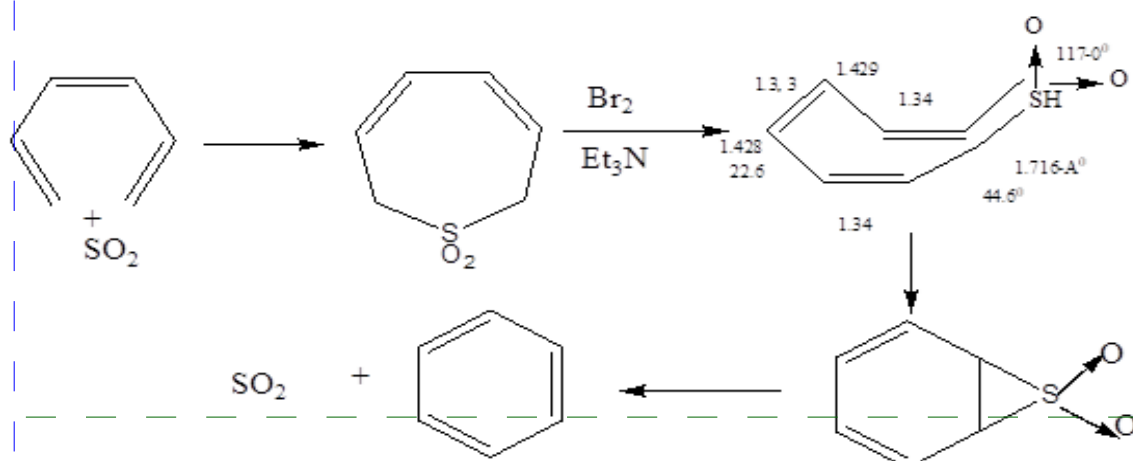
Thiepine:

Synthesis:

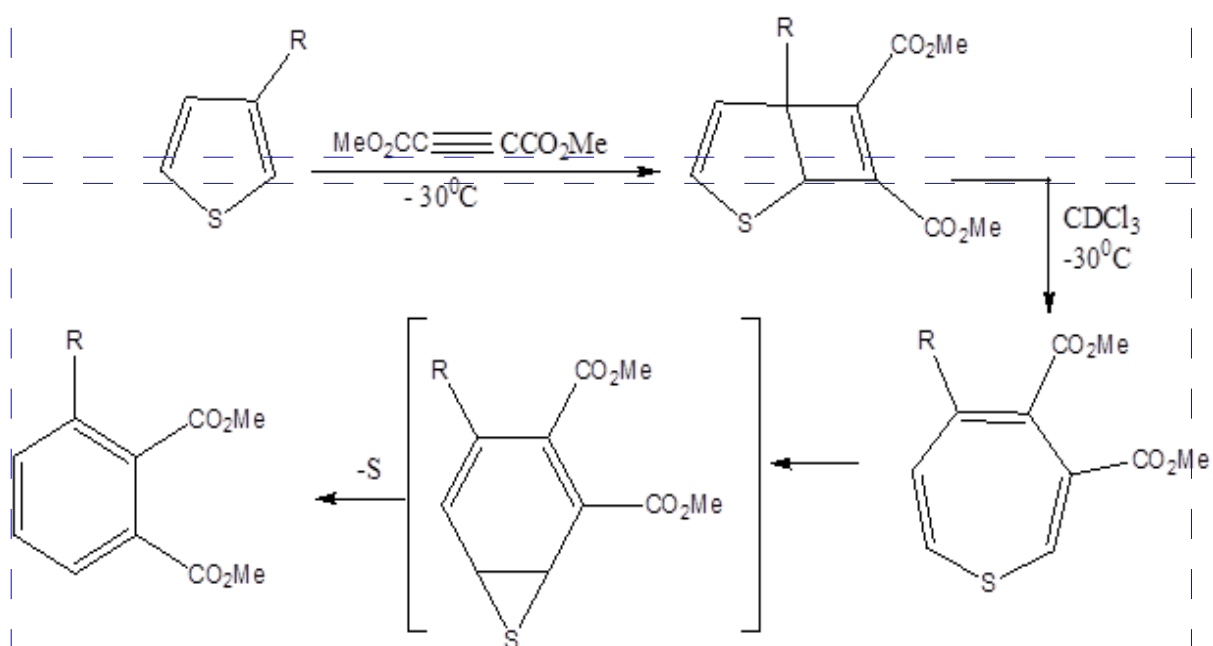
Few compounds definitely possessing the thiepin ring are known. Recent attempts to prepare thiepin by the action of bases on bicyclic derivatives have given only benzene and sulphur.



The 1,1 dioxide is a stable compound, with m.pt of 1180°C which decomposes slowly on melting to benzene and sulphurdioxide. An X-ray structure determination has shown that the molecule exists in the boat form.

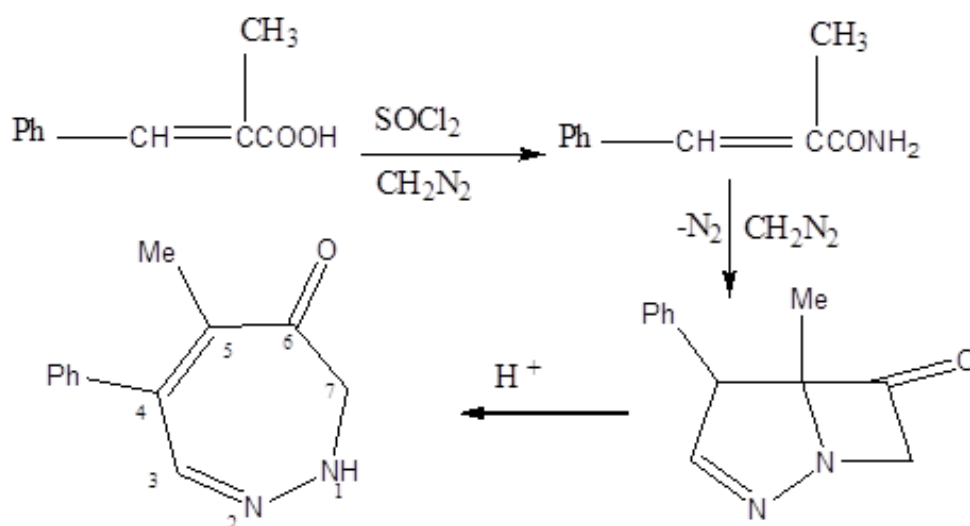


Thiophene like enamine combines with acetylenic ester to give the bicyclic compound slowly yielding the thiopine, which decomposes to give benzene derivative and sulphur.

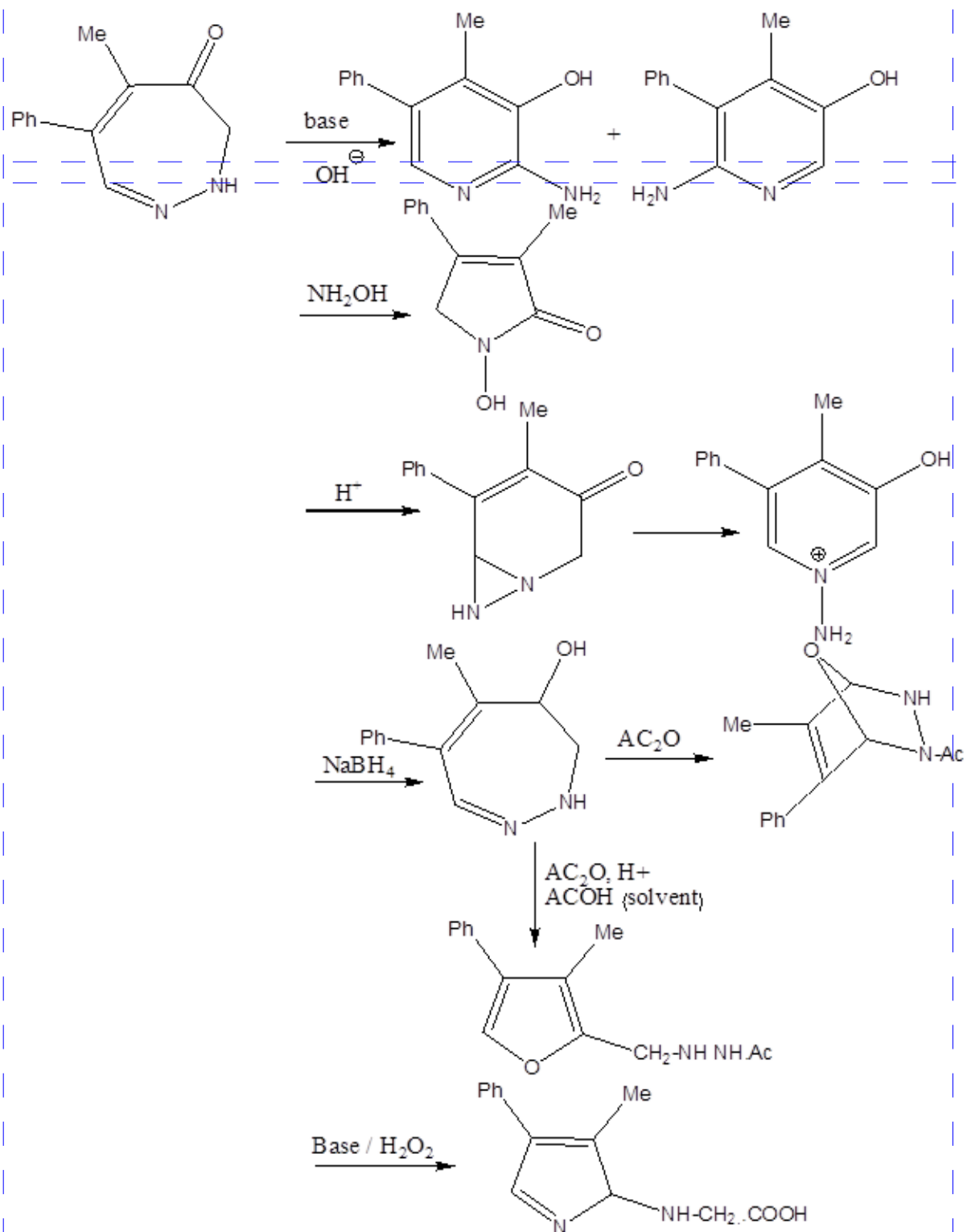


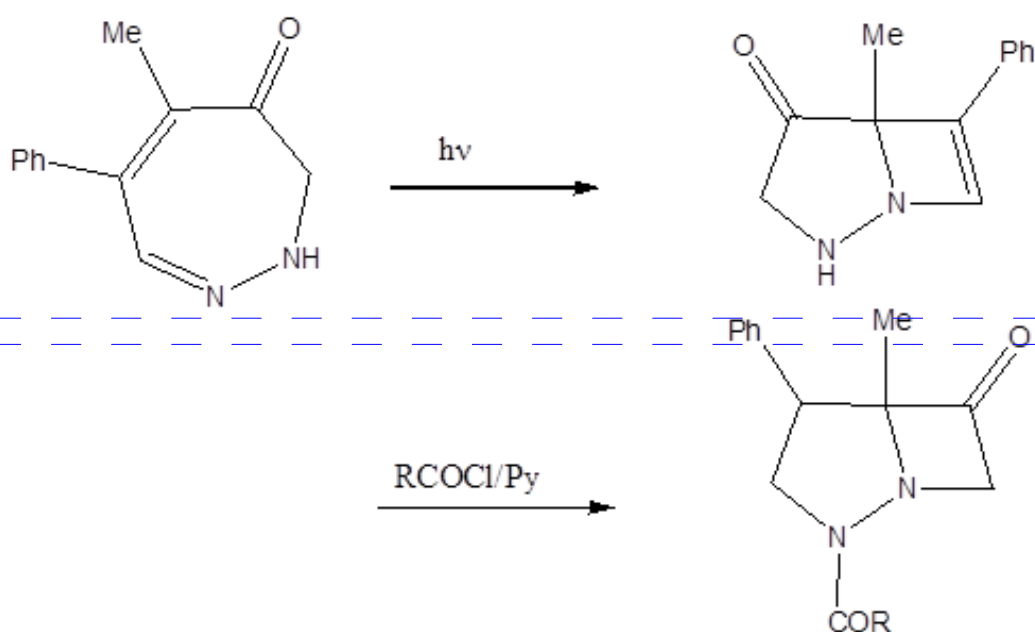
Diazepines:

Seven membered cyclic ring containing two Nitrogen atoms is known as Diazepine. Synthesis of 6,7-dihydro-5-methyl-4-phenyldiazepine-6-one.



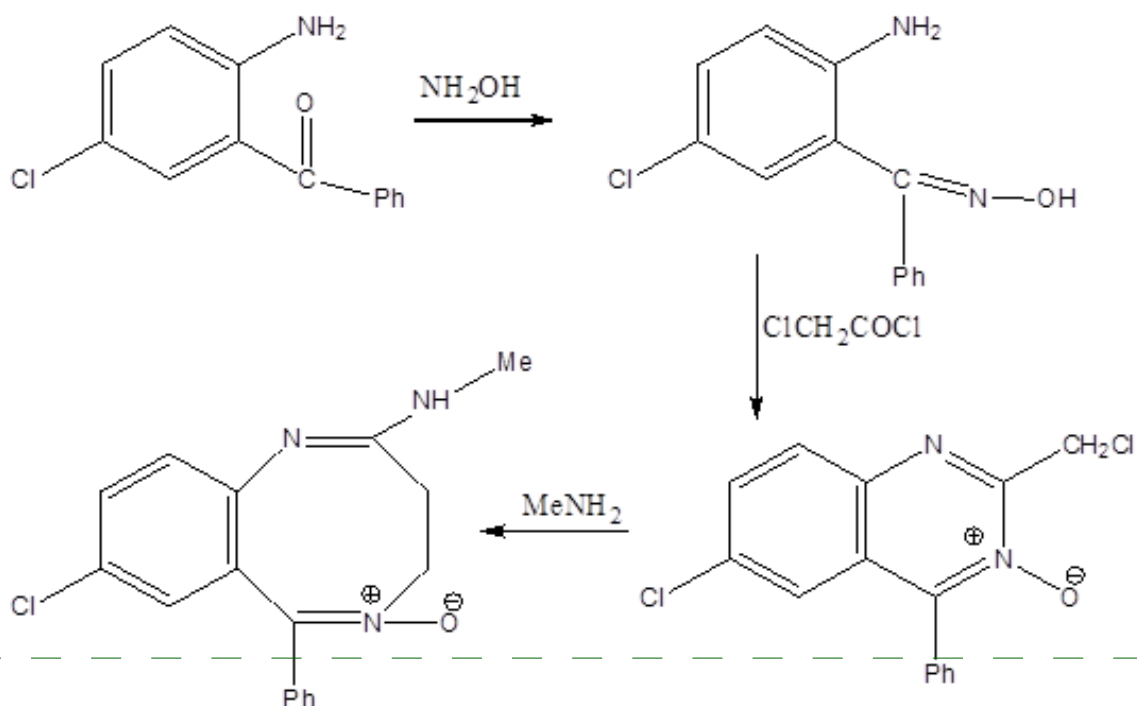
Rearrangements of diazepines



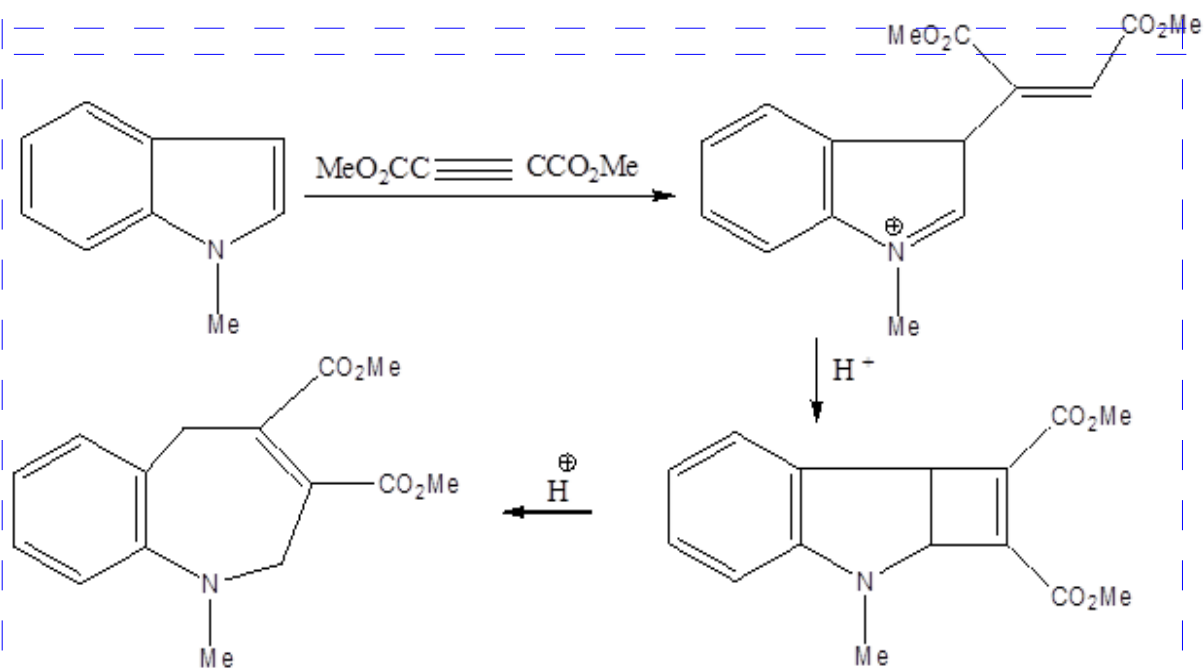


Synthesis of Benzodiazepines: The valuable tranquilising agent, Librium, is the 1,4-diazepine-4-oxide has been synthesized as outlined. IUPAC name of benzodiazepine is Librium-1,4-benzodiazepin-4-oxide.

Synthesis: Compound is treated with hydroxylamine hydrochloride to give oxime, derivative, which is treated with chloroacetyl chloride to give bicyclic N-oxide compound. The intermediate is treated with methyl amine to give the librium



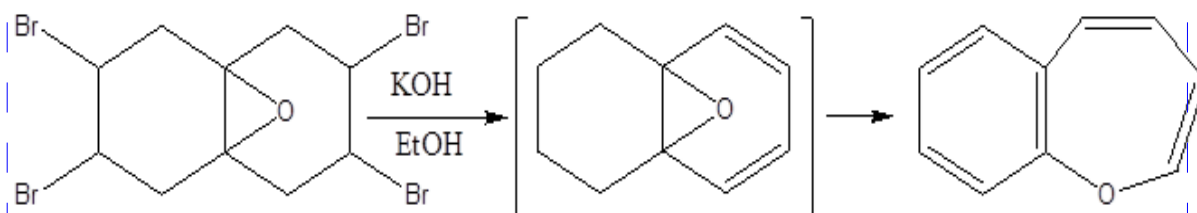
Synthesis of Benzoazepines: N-methyl indole with dimethyl acetylene dicarboxylate in pure acetonitrile solvent gives benzoazepine. The indole behaves as an enamine & suffers electrophilic attack at position 3. This is followed by cyclisation to the cyclobutene and the ring opening.



Benzoazepines: Benzo[b]oxepine is yellow green oil with b.pt 50°C.

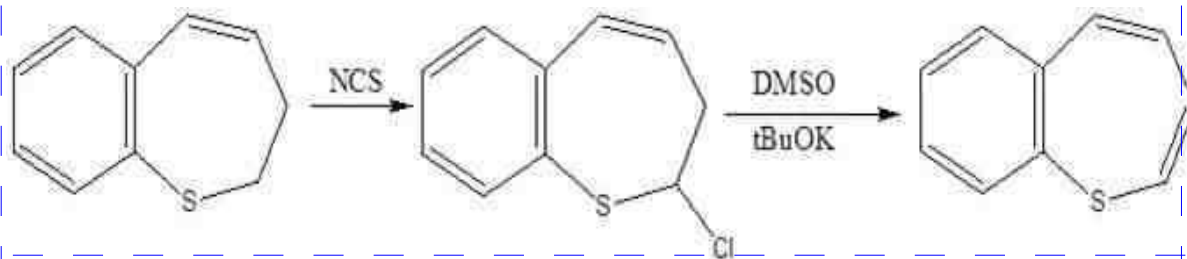
Synthesis:

1.



3. Benzo[d]oxepine has been obtained from the bi-Wittig reagent derived from $O(CH_2P^+Ph_3)_2Br^-$.

Reactivity:

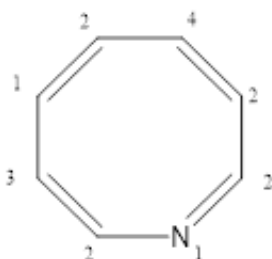


9

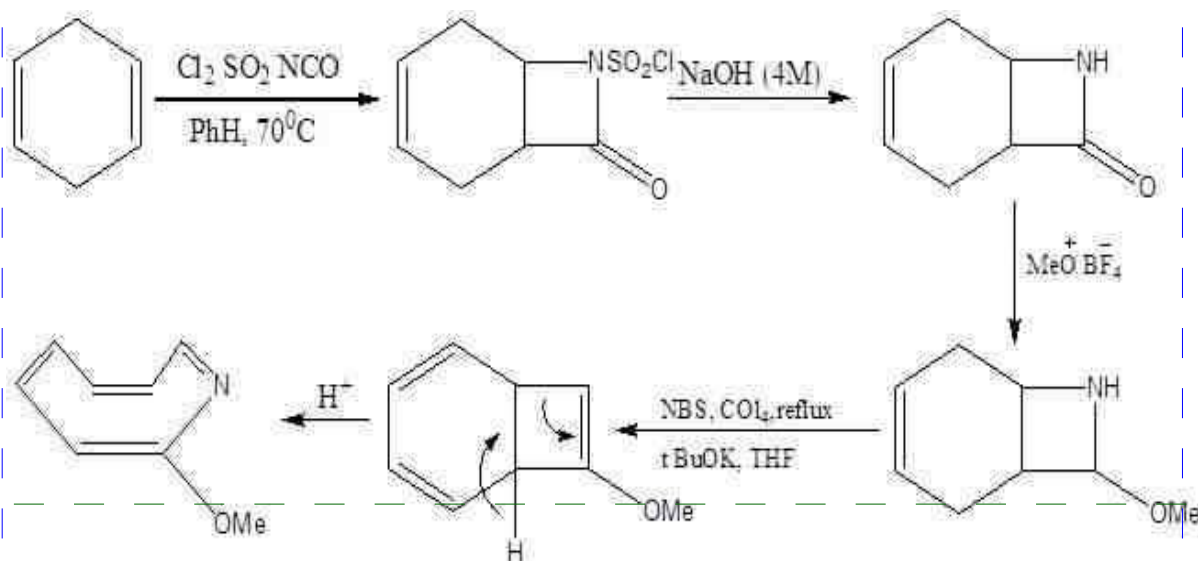
LARGE RING HETEROCYCLES

Many heterocycles possessing rings with more than seven carbon atoms, including one (or) more oxygen, nitrogen and sulphur are known. The following brief discussion is restricted to eight- and nine- membered ring systems. The endings -ocine and -onine are used for the saturated eight- and nine- membered rings, respectively.

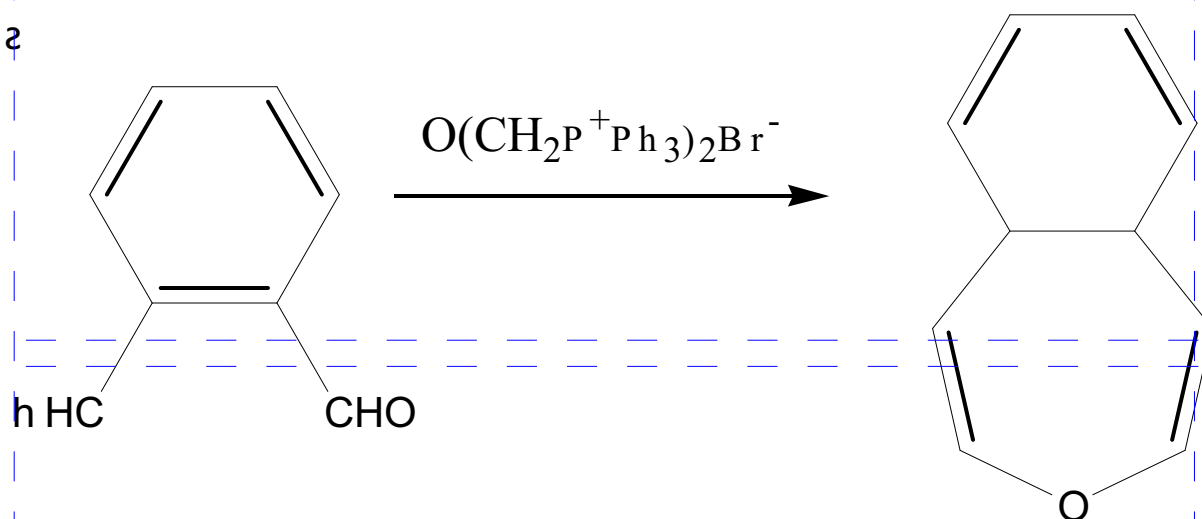
Azocines: Cyclooctatetraene has been known for many years, the first aza derivative was obtained in 1968 as a yellow oil with b.pt 82°C.


Synthesis:

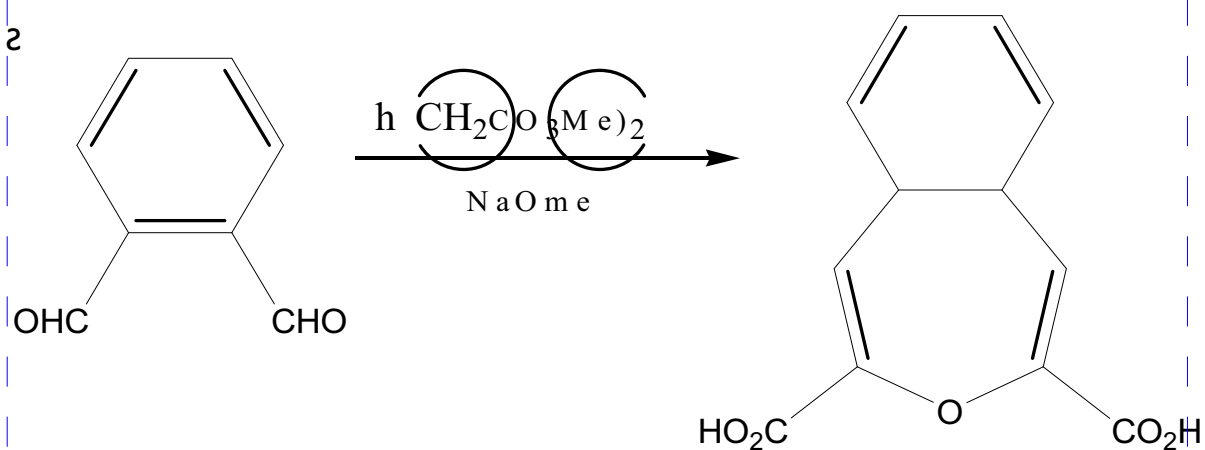
1. From 1,4-cyclohexadiene. Addition of chlorosulphonylisocyanate gave the β -lactum. Alkali then removed the 1-substituent, and alkylation with trimethyloxonium tetrafluoroborate gave the very base sensitive 1-azetine. Monobromination with N-bromosuccinimide and dehydrobromination gave a mixture of benzonitrile and 2-methoxyazocine.



2



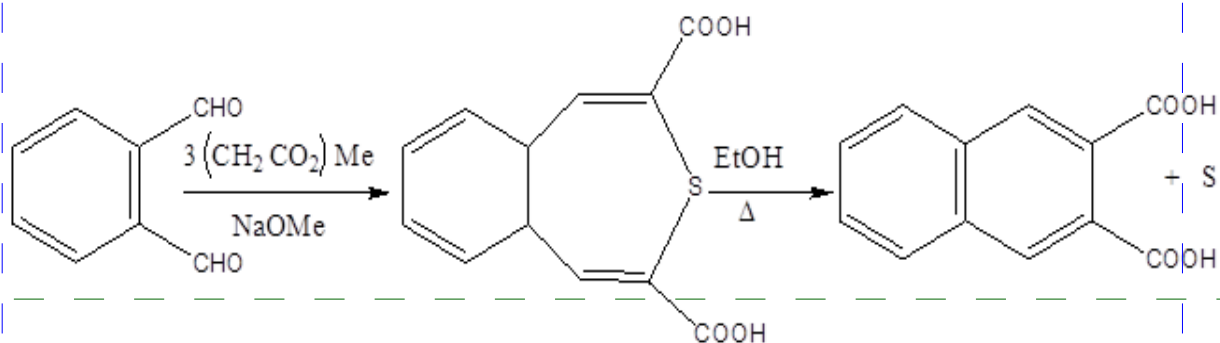
2



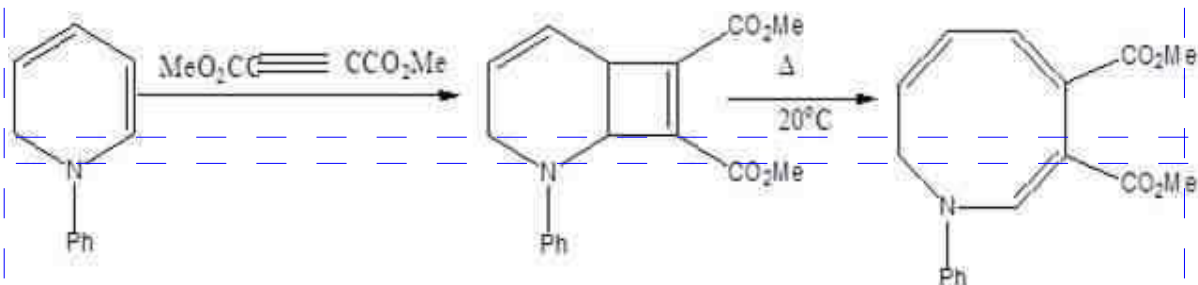
Benzothiophenes: Benzo[b]thiophene is an unstable yellow liquid with 15-20°C, yielding sulphur and naphthalene at room temperature.

Synthesis:

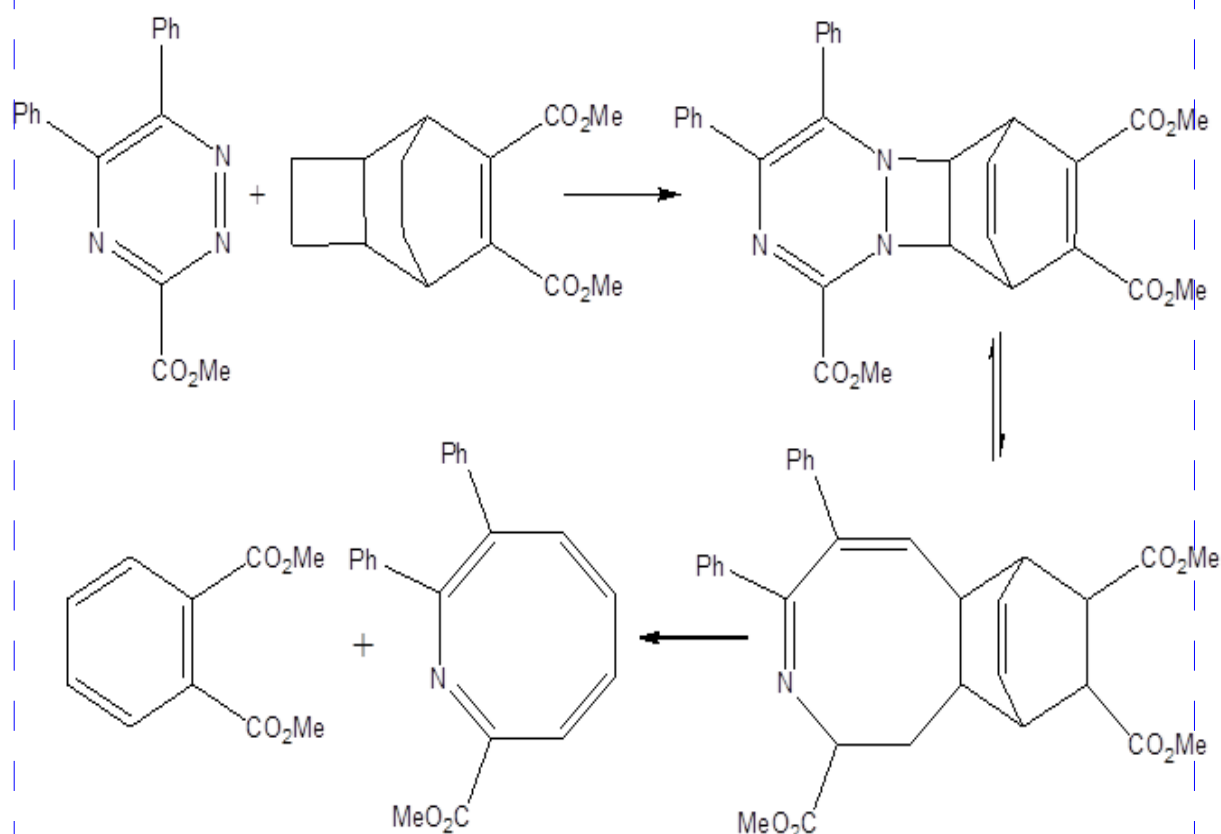
1. The benzo[d]thiophene is easily obtained and readily loses sulphur to form naphthalene-2,3-dicarboxylic acid.



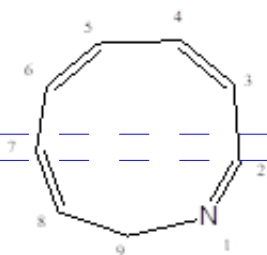
2. The 1,2 dihydropyridine reacts as an enamine, by a nonconcerted route to give the bicycle compound. The central bond opens by a concerted disrotatory process, to give the dihydroazocine.



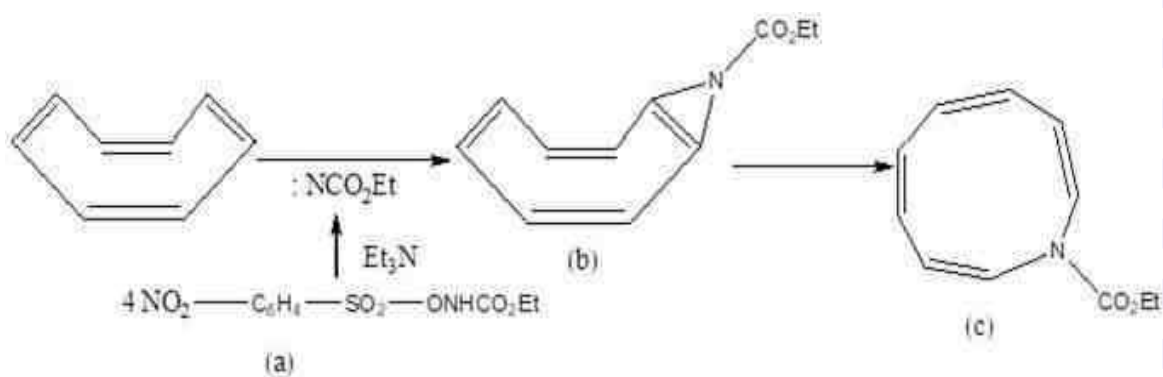
3. The diester with methyl-5,6-diphenyl-1,2,4-triazine-3-carboxylate undergoes reaction giving to intermediate compound. This is in equilibrium with the dihydroazocine, which undergoes a retroDiels-Alder reaction gives azocine derivative and dimethylphthalate.



Azonine: The azonine system has attracted attention recently, and if the lone pair of electrons of the heteroatom is included the ring could contain 10π electrons, one requirement for aromaticity.



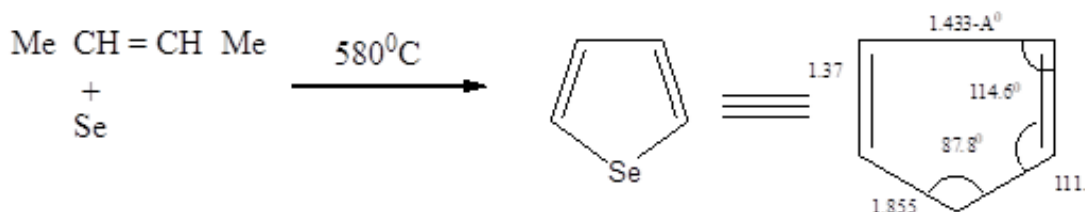
Synthesis: Cyclooctatetraene with ethoxy carbonyl nitrene generated from (a) with triethyl amine gives the aziridine derivatives (b) which on photolysis give Azonine



10

OTHER HETEROCYCLES

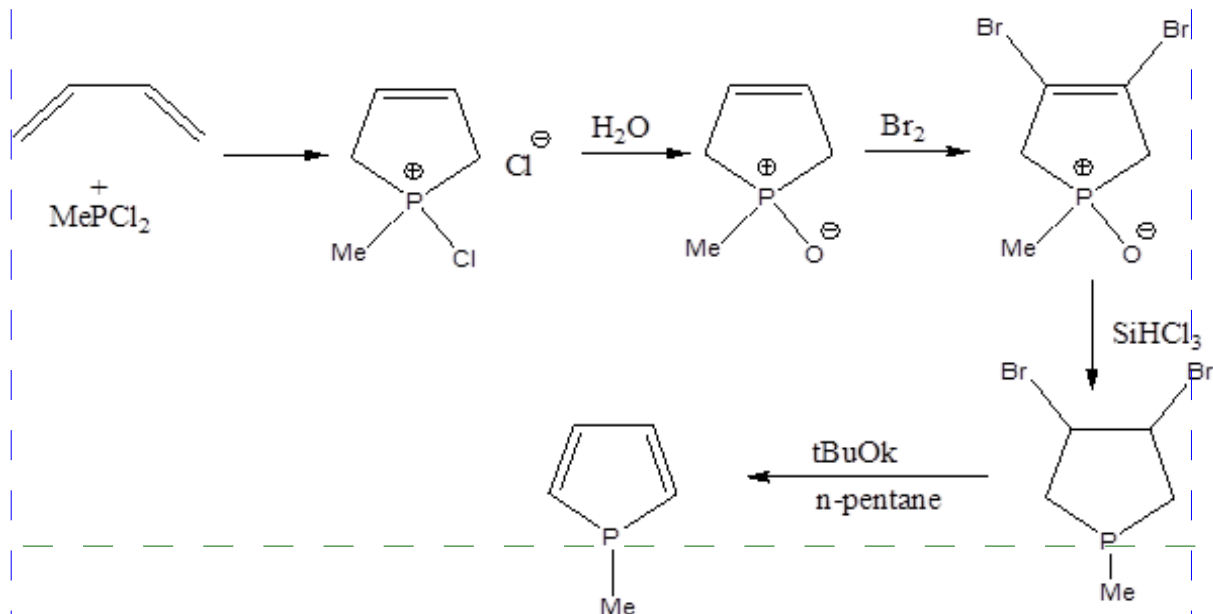
Selenophenes: On pyrolysis 2-butene with selenium gives selenophene.



Tellurophene: Sodium telluride and butadiyne in presence of methyl alcohol yields tellurophene.



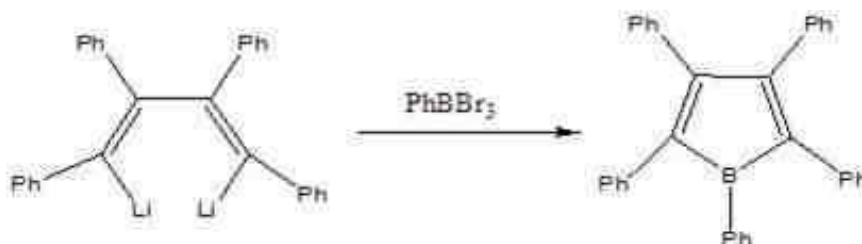
Phospholes: Phospholes are synthesized from 1-methylphosphole. It was obtained 87% pure. It is a colorless liquid with b.pt 82°C .



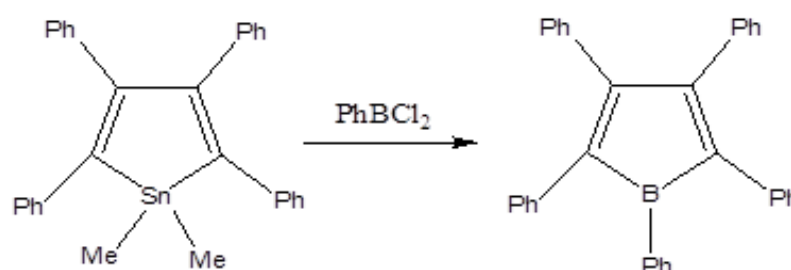
Boroles: Simple boroles have not yet been obtained, but pentaphenyl borane has been synthesized in two ways. In spite of the great steric shielding by the phenyl groups, which must be roughly perpendicular to the plane of the heterocyclic, the compound is very reactive. The borole ring could be considered antiaromatic, as it possesses only four π electrons.

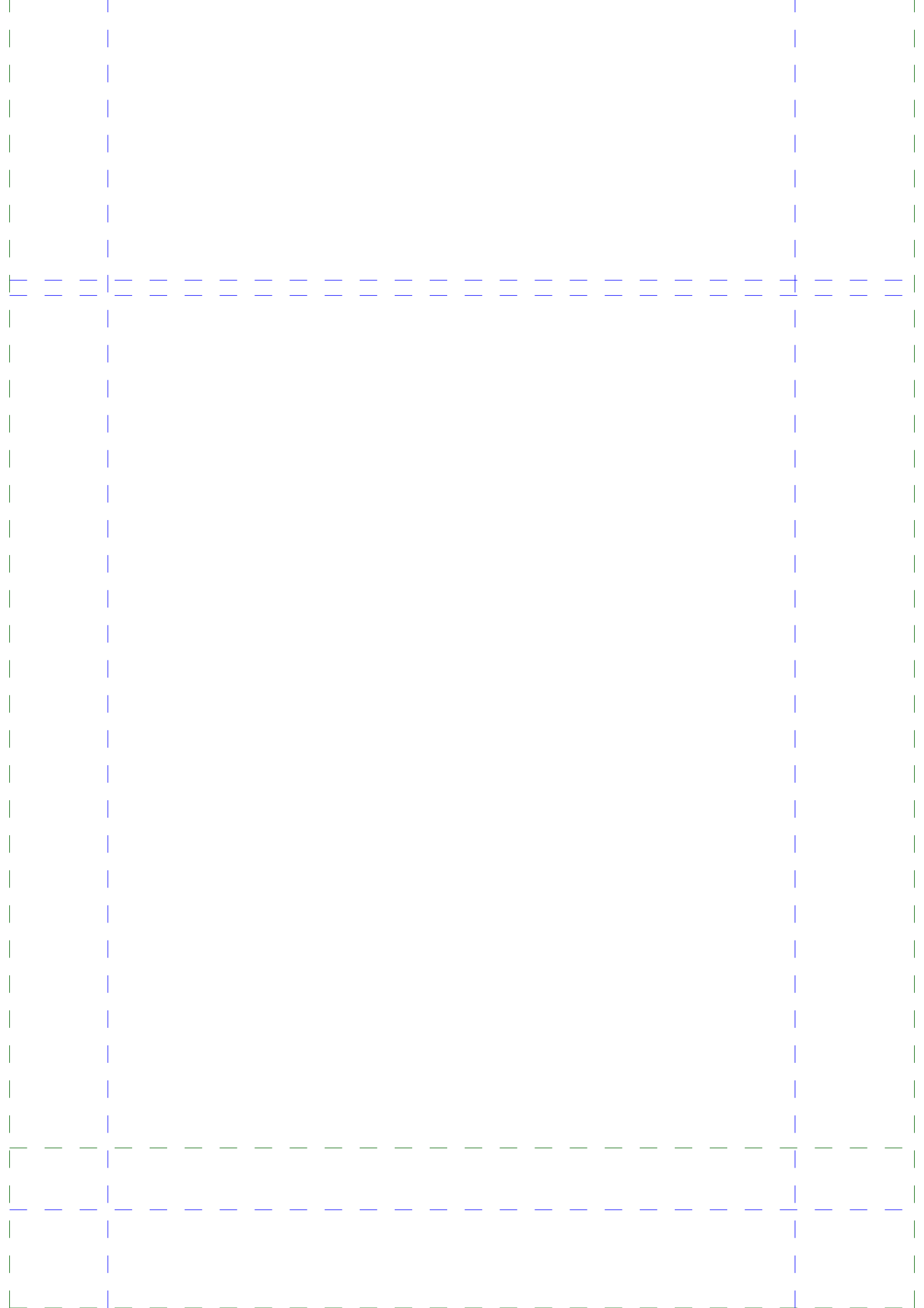
Synthesis:

1. From lithium molecules:



2. From tin derivatives:





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Dr. Vaggu Saidulu

Economics Terminologies

Dr. V. Saidulu

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This book is very useful to understand economic terminologies especially for beginners, non-economics students, competitive aspirants, Telugu medium students. This aim is to make students understand economics at the root level. Hence I am going to release another two books i.e.; Nobel laureates in economics, short concepts in economics Very soon.

About the Author

Dr.Vaggu Saidulu worked as a Lecturer in the Department of Economics in Sri Venkateshwara Degree & PG College, Suryapet for nine years. Now at present working as a Faculty in Economics in the Department of Economics, Mahatma Gandhi University, Nalgonda, Telangana.



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The main objectives in conducting the present studies are to minimize the cost of investigation and to maximize the results for analyzing and evaluating the quality and availability of groundwater researches. Climate change is "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.

Climate fluctuations are not unusual. In the North Atlantic Sector, for example, it is well known that the average temperatures and winds can fluctuate on decadal time scales. Climate changes caused by humans (anthropogenic) also evolve over the course of several decades. The natural decadal changes and those caused by humans are therefore superimposed upon one another. This makes it difficult to assess the impact of humans on climate with certainty. And also, proper understanding of the problem (Fluoride) of relation between geology, distribution, it is also proposed to investigate different aspects like land use and land cover, rainfall, climate, evapotranspiration, runoff, infiltration and water level fluctuation.



Ganaboina Machender
Prof A.L. Ramanathan

An Understanding the role of land use, cover, and the climate change

on the fluoride concentration and groundwater availability in Telangana region, India



Dr. G. Machender has obtained 4th rank in M.Sc. Geology from the Department of Geology, Osmania University, Hyderabad in the year 2005. He was awarded PhD Degree from the Osmania University in 2012. He has contributed more than 18 scientific papers in reputed National and international peer review journals with citation Index of more than 150.



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About the Editors



Dr Ramesh Kumar Miryala is currently the Principal for University College of Commerce & Business Management, Mahatma Gandhi University, Nalgonda. He obtained his MBA from Kakatiya University, Warangal, MSc (Psychology) from Kakatiya University and Ph.D in Business Management from Osmania University, Hyderabad. He has vast experience of 18 years of teaching and research. So far he has published more than 48 Research articles in various National and International Journals and has authored four books. He is a life member of All India Management Association (AIMA) and a member of Hyderabad Management Association (HMA) and also an editorial board member for many National and International Journals. He has chaired sessions at various National and International Conferences. Prior joining Mahatma Gandhi University he served reputed Institutes in the capacity of Principal, Training and Placement Officer & Head of the Department. His teaching, research and consulting interests include Organizational Behavior, Consumer Behavior, Strategic Management, Service Marketing etc.,

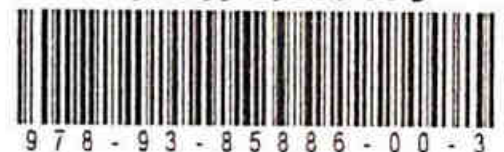


Mr John Paul Mennakanti is working as Academic Consultant in the Department of Management Studies of Mahatma Gandhi University, Nalgonda. Mr John has his Bachelor's Degree in Economics from Chennai Loyola College. Masters in Business Administration and Master's Degree in Economics from Osmania University. For his credit he has put up overall experience of Seven years in Teaching. He has published more than 13 papers in National and International journals. He has presented 15 papers in National and International Conferences. His Area of interest include Marketing subjects like Consumer Behavior, International Business Strategies, Marketing Research and Creativity and Innovation.

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AN ECONOMIC ANALYSIS OF RURAL INDEBTEDNESS IN INDIA AND TELANGANA

Dr. K.V.Sasidhar*, G. Pandaraiah** and Dr. V. Saidulu

ABSTRACT

Agriculture plays a most strategic role from the point of view of supplying food, many raw-materials for industry. It is not only a supplier of goods for domestic and export needs but also a supplier of production factors like capital and labour. But, there are some weaknesses. Firstly, the slow rise in agricultural production and productivity. Secondly, there is a large proportion of agricultural land without proper irrigation and appropriate farming techniques so that productivity is still low. The size of fixed capital like wells, tube wells, dams, ponds, machines, warehouses are inadequate. Moreover, most of the farmers are small and marginal. Because of small farmers their income levels are very low and unable to invest and indebtedness in common legacy of poor farmers.

As per National Sample Survey report (Deccan Chronicle dated 5th Oct 2018) during January-December 2013, Household Indebtedness in India, average amount of debt per indebted household was Rs 1,03,457 and Rs 3,78,238 in rural and urban areas. The incidence of indebtedness was higher in rural areas with 31.4 percent households taking loans in some or other forms while in cities the proportion of such families was 22.4 percent, says a report. The Incidence of Indebtedness (IOI) was about 31.4 percent among the rural households and 22.4 percent among the urban households.

The 70th Round of the National Sample Survey (NSS) on "All India Debt and Investment Survey" report confirms that Telangana is among States with a high incidence of rural indebtedness with 89 percent of agricultural households under debt. More than half the agriculture households in Telangana are in debt, and the worst affected states are southern states like Andhra Pradesh, Telangana, and Tamil Nadu. The average asset value for rural households of Telangana is Rs 6.38 lakh,

*The author has been working as faculty in the department of economics in M.G. University, T.S.
Email: sasidhar237@gmail.com , Mobile: 9396612026 and 7673906463.

** The author has been working as faculty in the department of economics in M.G. University, T.S.
Email: pnadu.vineel@gmail.com , Mobile: 9494812448.

***The author has been working as faculty in the department of economics in M.G. University, T.S.
Email: saiduluvaggu@gmail.com , Mobile: 9885389637.

and that of urban Telangana is Rs 18.45 lakh, which is 2.9 times higher indicating high inequality between the rural and urban population in the State. The survey also points out that the Incidence of Indebtedness (IOI) among the rural households in Telangana is twice the IOI of rural All-India.

Poverty, the debts of farmers ancestors, social traditions and customs, various kinds of disputes related to land, uncertainty in rainfall, and the farmers, are trapped in the hands of the moneylenders are major causes for rural indebtedness. The problem of indebtedness can be solved by two means. The first is to take up measure to reduce the burden of present indebtedness and the second is to prevent the evil from rising again in the future.

Introduction:

Agriculture playing a vital role in the economic development of any country, rich or poor the fact that it is the primary sector of the economy which provides the basic ingredients necessary for the existence of mankind and provides most of the raw materials. Agriculture plays a most strategic role from the point of view of supplying food, many raw-materials for the industry. In addition to that must generate export surpluses. To earn the foreign exchange with which to finance the impact of capital goods and specific kind of industrial raw materials. It is not only a supplier of goods for domestic and export needs but also a supplier of production factors like capital and labour. A rapidly expanding industrial sector necessarily draw some of its labour force from rural areas.

As agriculture is very important for the Indian economy. Its size is very large, and it has the capacity to contribute much to the development of the country. But, there are some weaknesses. Firstly, the slow rise in agricultural production and productivity. Secondly, there is a large proportion of agricultural land without proper irrigation and appropriate farming techniques so that productivity still low. The size of fixed capital like wells, tube wells, dams, ponds, machines, wearing houses etc are inadequate. Moreover, majority of the farmers are small and marginal. Because of small farmers their income levels are very low and unable to invest and indebtedness in common legacy of poor farmers. The usurious capital and rural indebtedness in India a result of the social system or the relations of production prevailing in the agriculture.

Since the decades the Indian peasant has been living the bonded and slave. It is this wretched the existence that is responsible for farmers bankruptcy and consequently for his continued indebtedness. Agriculture credit is a curtail input helping the rural poor in raising their incomes. As most farmers are small, they tend to borrow substantial finance from different sources to improve agricultural output.

The problem of indebtedness worsens when the loans are not put to productive uses. Providing adequate credit to the rural poor has become a problem because of the complex nature of the rural society.

Objectives:

- To Study the extent of rural indebtedness.
- To analyse the rural indebtedness in India and Telangana
- To find the causes of rural indebtedness.
- To examine the status of indebtedness in Telangana state.

Methodology:

This paper is based on secondary data pertaining to rural indebtedness in India and particularly Telangana. The data collected from different sources that comprise books on the Indian economy, Indian agriculture, yearbooks, journals of national and international, the socio-economic survey of Telangana State and daily newspapers etc., Information gathered was tabulated for the study.

Review of literature

Nicholson, F. A. (1887), "the lessons of universal agrarian history from Rome to Scotland is that an essential of agriculture is credit, neither the condition of the country nor the nature of land tenures nor the position of agriculture affects one great fact that farmers must borrow".

United Nations publication (1954), has stressed the need for credit to the farmers when it observed "most of the world farmers have to borrow at some time, many of them nearly. To raise agricultural production, they will have borrowed still more. And is always needed where there is a redistribution of rights on land. It is the interest of agriculture and essential to agriculture and general progress, that credit be available to farmers in adequate amounts and at appropriate costs".

Thomas, E. (1949), in his study found that farmers also borrow from their relatives, friends, landlords or village shopkeepers to overcome temporary difficulties. Private loans are often convenient and also often undoubtedly adequate, but they suffer from at least three disadvantages that are the conveying cost bear high, usually repayable in regular and easy installments and always liable to be foreclosed at short notice and thereby cause considerable inconvenience if not an embarrassment to the borrower.

ArunenduMukhopadyay (1971), states that the essentials of considering the types and adequacy of the security offered and the current indebtedness of loanee

cannot be denied, but at the same time, it must be recognized that adherence to the security as pact alone would fail to infuse dynamism necessary for the development of the agriculture sector.

I J Naidu (1997) pointed out that the supporting services structure also needs to be changed in such a manner as to enable the small farmer to get all inputs, marketing facility, and extension services at places within easy reach.

Kaur and Singh (2006), examined the extent and nature of indebtedness among the small and marginal farmers in Bathinda district of Punjab state. The study concluded that 95 percent of the small and marginal farming households are under debt. The study also revealed that 44.74 percent of the total debt was spent on agriculture and purchase of machinery by an average small and marginal farming household, followed by the purchase of animals 22.57 percent. In the case of the source of credit, institutional agencies are providing 60.98 percent of the total debt and 62.32 percent and 58.24 percent for the small and marginal farmers respectively. The institutional agencies have the upper hand in providing loans to the small and marginal farming households.

Jeromi (2007), tried to examine the extent of the farm crisis, the rise in indebtedness and various magnitudes of suicides of farmers in Kerala state. The study revealed that when the landholding size was less than one acre, cultivation was marginally profitable and loss in the case of landholding above one acre, because of the hiring of labour. Agricultural crisis was the reason in the case of 38.90 percent farmers who committed suicide. Most farmers nearly 60 percent who committed suicide had less than one-acre land. The study also revealed that the incidence of indebtedness in the rural areas of Kerala state was higher than the national average.

Singh and Guptha (2013), states that short-term credit requirements of a farmer can be estimated by taking into consideration the area under cultivation and capital inputs in a given farm. As we have seen that indebtedness is a big problem today and the problem has accentuated due to non-payment of loans by the rural households. Owing to extreme poverty and low-income households are unable to repay loans in time and therefore increasing becoming wilful defaulters.

Rural Indebtedness in India:

Poverty is perhaps a major cause for rural indebtedness. The low level of rural incomes, the uncertain and primitive farming of small landholdings makes it impossible to meet the needs required for their living. Often, rural people take debts to meet these needs. One of the major problems concerning the rural society is indebtedness. This problem is just not related to one individual but is passed on from one generation to the next generation. Taking or incurring debt for agricultural production is indeed necessary as it contributes to production.

However, the rural people incur debts for nonproductive purposes such as to meet the family needs, perform social functions like marriages, birth, death, litigation, etc. Since money taken does not contribute to production but instead to consumption, it drags the rural people into indebtedness. Therefore, it becomes impossible to repay these loans. To clear these loans, the rural people incur debts again. In this way, they are stuck in the clutches of indebtedness, which passes on from one generation to another. For many small farmers, the agricultural production is so less that they are not able to provide for such unproductive expenditure.

Table:1
Extent of Rural Indebtedness in India

Estimators	Year	Credit (in Crores)
Mr. Maclagan	1911	300
M.L. Darling	1925	600
Central Banking Enquiry Committee	1931	990
P.J. Thomas	1933	2,200
R. K. Mukherjee	1935	1,200
Reserve Bank of India	1937	1,100
N.S. Naidu	1938	1,800
Shri Menon	1938	1,800
All India Rural Credit Survey Committee	1951-52	750
National Income Committee	1954	913
S. Thirumalai	1956	1800
Ministry of Finance	1962	2,762
All India Rural Credit and Investment Survey	1972	4,000
Rural Credit Survey Report	1981	6,193

Source: different estimations collected.

Table-1: It reveals that the extent of rural indebtedness as per various estimates has been increasing considerably from Rs 600 crore in 1925 (as per M.L. Darling's estimates) to Rs 1800 crore in 1938 (as per RBI estimate) and to Rs 2,762 crore in 1962 (as per Ministry of Finance's estimates) and then finally to Rs 6,193 crore in 1981 (as per Rural Credit Survey Report).

As per the Rural Credit Survey Report in the last two decades, i.e., between 1961 and 1981, the extent of outstanding rural debt has increased from Rs 1,954 crore to Rs 6,193 crore. Further, the rural indebtedness grew by 97 percent between 1961-71 and by 60 percent between 1971-81. The average debt for an indebted cultivator

family had also increased from Rs 503 in 1971 to Rs 661 in 1981 indicating a rise of 31 percent.

As per National Sample Survey report during January-December 2013, Household Indebtedness in India, average of debt per indebted household was Rs 1,03,457 and Rs. 3,78,238 in rural and urban areas. The incidence of indebtedness was higher in rural areas with 31.4 percent households taking loans in some or other forms while in cities the proportion of such families was 22.4 percent, says a report.

The Incidence of Indebtedness (IOI) was about 31.4 percent among the rural households and 22.4 percent among the urban households. According to the report, Household Indebtedness in India, the average amount of debt (AOD) per indebted household was Rs 1,03,457 and Rs 3,78,238 in rural and urban areas, respectively.

Table:2
Incidence of Indebtedness in percent

Category	1971	1981	1991	2002	2012
Cultivators	46.1	22.3	25.9	29.7	45.9
Non-Cultivators	34.3	12.4	18.5	21.8	28.9
All India	42.8	20.0	23.4	26.5	31.4

Source: www.Indiastat.com Table -2 explores that indebtedness in cultivators is more than non-cultivators.

Table -2 explores that indebtedness in cultivators is more than non-cultivators. Overall indebtedness in India is increasing. It shows that the incidence of indebtedness is more in rural areas.

The table-3 shows that indebted farmer households increased in Uttarakhand by 36.6 per cent, Karnataka by 15.7 per cent, Kerala 13.3 per cent, Andhra Pradesh by 10.9 per cent and in Uttar Pradesh by 10.5 per cent and a large share is decrease in Tripura by 26.3 per cent, Sikkim by 24.5 per cent, Mizoram by 17.4 per cent, Punjab 12.2 per cent and in Haryana 10.8 per cent in 70th than 59th Round.

The table-4 indicates that the maximum increase in the outstanding loan is in Banks i.e., 7.3 percent and minimum in Co-operatives i.e., -4.8 percent followed by shopkeeper/traders i.e., -2.3 percent in 70th than 59th Round.

Table-3

Estimated number of indebted farmer households in each state

State	NSSO 59 th Round	% age	NSSO 70 th Round	% age	Increase/Decrease (percentage)
Andhra Pradesh	49493	82	33421	92.9	(+10.9)
Arunachal Pradesh	72	5.9	206	19.1	(+3.2)
Assam	4536	18.1	5995	17.5	(-0.6)
Bihar	23383	33	30156	42.5	(+9.5)
Chhattisgarh	11092	40.2	9538	37.2	(-3.0)
Gujarat	19644	51.9	16743	42.6	(-9.3)
Haryana	10330	53.1	6645	42.3	(-10.8)
Himachal Pradesh	3030	33.4	2457	27.9	(-5.5)
Jammu & Kashmir	3003	31.8	3463	30.7	(-1.1)
Jharkhand	5893	20.9	6464	28.9	(+8.9)
Karnataka	24897	61.6	32775	77.3	(+15.7)
Kerala	14126	64.4	10908	77.7	(+13.3)
Madhya Pradesh	32110	50.8	27414	45.7	(-5.1)
Maharashtra	36098	54.8	40672	57.3	(+2.5)
Manipur	533	24.8	421	23.9	(-0.9)
Meghalaya	103	4.1	84	2.4	(-1.7)
Mizoram	184	23.6	47	96.2	(-17.4)
Nagaland	294	36.5	65	2.5	(-34.0)
Odisha	20250	47.8	25830	57.5	(+9.7)
Punjab	12069	65.4	7499	53.2	(-12.2)
Rajasthan	27828	52.4	40055	61.8	(+9.4)
Sikkim	174	38.8	97	14.30	(-24.5)
Tamil Nadu	28954	74.5	26780	82.5	(+8.0)
Tripura	1148	49.2	559	22.9	(-26.3)
Uttar Pradesh	69199	40.3	79081	43.8	(+10.5)
Telangana	--	--	22628	89.1	(+89.1)
Uttarakhand	644	7.2	5387	50.8	(+36.6)
West Bengal	34696	50.1	32787	51.5	(+1.0)
Group of UT's	372	50.8	267	37.2	(-13.6)
All India	434242	48.6	468481	51.9	(+3.3)

Source: NSSO 59th and 70th Round

Table 4:
Per 1000 distribution of outstanding loans by source of loan

Source of Loan	59th Round	% age	70th Round	%age	Increase/Decrease (percentage)
Government	25	2.5	21	2.1	(+0.4)
Co-operative Society	196	19.6	148	14.8	(-4.8)
Bank	356	35.6	429	42.9	(+7.3)
Employer/Landlord	9	9	8	8	(-1)
Agricultural/Professional Moneylender	257	25.7	258	25.8	(+1)
Shopkeeper/Trader	52	5.2	29	2.9	(-2.3)
Relatives & friends	85	8.5	91	9.1	(+0.6)
Other	21	2.1	16	1.6	(-0.5)
All	1000	100	1000	100	

Source: NSSO 59th and 70th Round.

Rural Indebtedness in Telangana:

In Telangana, the contribution of the primary sector including agriculture, horticulture and animal husbandry to the Gross State Domestic Product (GSDP) for 2016-17 is only 15.3 percent. Despite, this as much as 55 percent of the working population is still dependent on agriculture which is mostly dependent on rainfall in Telangana. A perusal of the long-term agricultural scenario in Telangana calls for attention to the decline in state support for capital formation, fragmentation of land holdings and high incidence of rural indebtedness. Capital formation is crucial in agriculture as increasing production and productivity is paramount to keep pace with the needs of a growing population. It also has implications for a majority of small and marginal farmers engaged in agriculture against all the odds, especially vagaries of monsoon (THE HANS INDIA).

The long-term agricultural scenario in Telangana calls for attention going by the decline in State support for capital formation, fragmentation of land holdings and high incidence of rural indebtedness. According to the National Bank for Agriculture and Rural Development (NABARD) data, there is a decline in the capital formation for agriculture through public investment. During 2011-12 to 2014-15, the long-term credit, which is used for investment in agriculture and is seen as an indicator for its health, declined from ₹ 11,112 crore to ₹ 8,856 crore. "It is a concern that the share of long-term credit in overall agriculture credit is constantly on the fall (G. Naga Sridhar).

The 70th Round of the National Sample Survey (NSS) on "All India Debt and Investment Survey" report confirms that Telangana is among States with a high incidence of rural indebtedness with 89 percent of agricultural households under debt. More than half the agriculture households in Telangana are in debt, and the worst affected states are southern states like Andhra Pradesh, Telangana, and Tamil Nadu, says the 70th round of NSSO survey. The survey says about 52 percent of agricultural households in the country are estimated to be in debt. Among the major states, Andhra Pradesh had the highest share of indebted agricultural households in the country (92.9 percent), followed by Telangana (89.1 percent) and Tamil Nadu (82.5 percent). The report states nearly 40 percent of households take a loan from non-institutional sources like money lenders.

The survey also showed that a tiny segment of agricultural households utilized crop insurance because of lack of awareness. The report reveals that the average value of the asset for cultivator and non-cultivator in Telangana is Rs 13.9 lakh and Rs. 3.8 lakh respectively while at the all-India level it is Rs 28.7 lakh and Rs 6.7 lakh respectively. The average asset value for rural households of Telangana is Rs 6.38 lakh, and that of urban Telangana is Rs 18.45 lakh, which is 2.9 times higher indicating high inequality between the rural and urban population in the State. The survey also points out that the Incidence of Indebtedness (IOI) among the rural households in Telangana is twice the IOI of rural All-India. Around 59% of rural households are indebted in Telangana State as against 31% at all-India level. Moreover, indebtedness is higher among the cultivators as compared to other occupational categories; about 74% of cultivators in Telangana are indebted. While the debt-asset ratio among the rural and urban areas of Telangana is around 6.1 % and 10.3 % respectively, in case of India, it is as low as 2.5% and 3.8 % respectively (GudipatiRajendera Kumar).

Agricultural indebtedness has always been a major social and economic issue in India, despite the growth of institutional credit to agricultural, indebtedness among farmers persists. This is mainly due to the transcendence of the deficit nature of rural family budgets especially the small holding agriculturists and all other farmers having poor means of income. The unpredictable weather, the burden of old debt, a long time gap between expenditure and income from farming activities, the small size of land holdings, unproductive spending on social-ceremonies, a high rate of illiteracy are some of the important factors responsible for the agricultural indebtedness in India. If the debt is used only to meet the deficit in family budgets and is not utilized for productive purpose, it will entail a dangerous outcome. The amount of indebtedness will go on increasing beyond one's repaying capacity, which will be detrimental to the interest of both, the lender and the borrower. As a

result, suicide cases are increasing day by day. So; Indian agriculture is backward, and this stultifies all talks of agricultural improvements (Reetu).

The debt per household in Telangana ranges between Rs 80,000- Rs1,20,000, with an average outstanding debt of Rs 91,407. While debt by itself is a problem of economic insecurity for these farmers, the source of debt will decide the intensity. For instance, debts pending with private lenders and loan sharks carry far more threats compared to ones taken from banks or micro-finance institutions.

The government-owned NABARD claims that 79 percent of Telangana farmers are struggling to repay their loans on time, based on a survey conducted in 958 households of the State, spread across 48 villages in six districts. No wonder then that the State ranks high on farmer suicides. In Telangana, according to the survey, 40 percent of the loans taken by farmers are from non-institutional sources -- that is, loan sharks and private lenders, or at times from friends and family. Also, the loans are not incurred on farm input like manure or fertilizers but mostly on personal needs like health expenses and domestic needs (Indian Express).

Nearly 52% of agricultural households in India are indebted, and levels of debt are as high as 93% in Andhra Pradesh and 89% in Telangana, shows key indicators from an NSSO (National Sample Survey Organisation) report released. The report, Situation Assessment Survey of Agricultural Households in India, is based on a countrywide survey of nearly 35,000 households by NSSO (70th round) for which data was collected on the agricultural years spanning July 2012 to June 2013. The survey shows that rural India had an estimated 90.2 million agricultural households— about 57.8% of the total estimated rural households in the country (The HINDU)

Causes for Indebtedness:

- Poverty is perhaps, is a major cause for rural indebtedness. The low level of rural incomes, the uncertain and primitive farming of small landholdings makes it impossible to meet the needs required for their living.
- The rural people continue to repay the debts of their forefathers, as they are not fully conversant with the law as they are illiterate. As the traditions and values bind these people, they regard it as their sacred social duty to repay the debts of their forefathers.
- Villagers are mostly bound by social traditions and customs, which are considered to be sacred and had to be performed. Some of these ceremonies are marriage, births, deaths, religious occasions, etc. The expenditure is usually very high for the performance of these ceremonies.

- The agriculturists in India are involved in various kinds of disputes related to land, property, etc., which force them to go to a court of law. Often, they view it important to win the case as it is related to the family prestige and honour. Such litigations involve heavy expenditure and time. In order to meet these needs, the agriculturists take loans that they are not able to repay, and are caught in indebtedness.
- The agriculturists in India are involved in various kinds of disputes related to land, property, etc., which force them to go to a court of law. Often, they view it important to win the case as it is related to the family prestige and honour. Such litigations involve massive expenditure and time. In order to meet these needs, the agriculturists take loans that they are not able to repay and are caught up in indebtedness.
- Indian agriculture is an uncertain business. It virtually depends on unreliable rains for the supply of water. If there are no rains or untimely rains, the entire crop, is lost and the credit invested in the agriculture goes waste.
- Land revenue, where the government levies it in some states and the rent payable to the landowners is becoming an excessive burden on small farmers. In order to pay these land revenue, mid-rent, the farmers take loan.
- The amount of debt increases, the moneylenders are much interested in seizing the farmer's lands, and other valuable assets than the debt being repaid by the farmers. Thus, the farmers are trapped in the hands of the moneylenders.

Measures for the Removal of Indebtedness:

1. Cancelling all the debts paid to the moneylenders by the farmers, which are more than the principal amount.
2. Debts should be properly scaled down. According to law, the inheritors are liable to pay the debts only to the extent they have inherited. Debts that are so excessive and standing are since a long time, should be settled between the concerned parties or through the Lok Adalaths.
3. The debts should be taken over by special institutions such as banks. Such banks pay the amount to the moneylenders on the one hand and recover the same from the debtors on easy terms on the other. These banks also collect funds and provide credit facilities to their members.

Conclusions:

The problem of indebtedness can be solved by two means. The first is to take up measure to reduce the burden of present indebtedness and the second is to prevent the evil from rising again in the future. For this, adequate credit facilities on reasonable

terms should be offered to the farmers. Co-operative credit is a good solution in this regard. Private lending should be eliminated. To solve the land litigations, instead of going to the Courts the problem should be solved with village Panchayats or Lok Adalaths. The government has to take prevention without any preventive measures for the future would not help the situation; moreover, there is every possibility of this evil to rise again and again. Thus, both these measures should go hand in hand so that the problem of rural indebtedness vanishes completely.

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FARMERS/SUICIDES: CAUSES, CONSEQUENCES AND

FARMERS SUICIDES CAUSES CONSEQUENCES AND PREVENTIVE MEASURES

Editor

Dr. A. PUNNAIAH





About the Editor

Dr. A. Punnaiah, is currently working as an Asst. Professor in the Department of Applied Economics, Telangana University, Dichpally, Nizamabad, Telangana state, India. Dr. A. Punnaiah began his career as a Teacher in the department of School Education. He completed M.A.(Economics) in 1994 with distinction. At the M.Phil (Economics) level, he was awarded the Nizam's Gold Medal in 1997. He also completed B.Ed in 1995 and M.A.English in 2002. He undertook a research on the topic "THE TRENDS AND PATTERN OF PUBLIC INVESTMENT IN INDIAN AGRICULTURE" to gain his Ph.D in 2007 from Osmania University, Hyderabad, (T.S.). He was qualified in National Eligibility Test (UGC- NET) in 1996 in Economics. He has 21 years of Teaching Experience. His specialization areas in teaching and research are: Agricultural Economics, Political Economy, Economics of Growth and Development. He has published a book entitled "Public Investment in Indian Agriculture" in 2011. He participated and presented research papers in 25 National and international seminars. He has published 25 articles in various reputed national and international journals. He is editorial collective member of Veekshanam journal of Political Economy and society. And also Editorial board member of International Journal in commerce, IT and social sciences. He chaired number of sessions in national and International seminars. He delivered many Extension lectures at UG and PG level. He has been a resource person at various workshops. He has conducted a Two-Day National seminar on "Farmer's Suicides: Causes, Consequences and Preventive Measures" and this book is the outcome of the seminar.



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47. FARMERS SUICIDE IN INDIA- A VIEW

Dr. K.V. SASIDHAR
Assistant Professor
Department Of Economics
Mahatma Gandhi University

G. PANDARAJAN
Assistant Professor
Department Of Economics
Mahatma Gandhi University

Introduction:

Agriculture is a large sector of the economic activity and has a crucial role to play in the country's economic development by providing food, raw materials and employment to a very large proportion of population, and generating capital for its own development along with surplus for national economic development. Agricultural sector contributes huge share to the national income of India, although it has come down from as high as 36 percent during the 1950s to 17.6 percent in 2014- 15. The trend of the declining share of agriculture in the national income is broadly in consonance with the conclusions derived by development economists; what is, however, amazing is the fact that rate of change has been rather slow. The situation as it obtains presently requires that more of available resources should be devoted to the development of programmes in the agriculture sector as it is this sector that continues to have great potential for reducing poverty and hunger in the rural sector. All calculations indicate that 50 percent of the increase in providing employment opportunities which will have to come from agriculture.

The agriculture sector is a net earner of foreign exchange which is essential for capital and maintenance of imports required in the non- agriculture sector. This sector is the primary source of savings and hence capital formation for the economy. Since independence, large investment, both public and private, has been made in agriculture. In areas as like land and its improvements, tools and implements, farm structures, livestock, crops, irrigation, farm machinery, storage godowns and other infrastructures. However, the agricultural sectors suffer from a few major problems having relevance to long-term growth. The high degree of uncertainty of rainfall together with the relative poverty of the farmers in these areas makes the application of even known improved practices both difficult and risky. The agriculture is facing problems like use of farm inputs, problem of small farmers, decline in productivity, raising cost of production in agriculture, loss of biodiversity, weakening of linkages between agriculture and industry, farmers suicides etc.,

Due to rapid growth of rural population and division of families the farmland has undergone rapid fragmentation. Presently 80% of the farmland holding are with the small and marginal farmers owning land up to 5 acres. For this category of farmers cost of production by way of farm inputs has increased manifold over the years while the productivity of the land remained at the same level and sale price of farm produce has not commensurately increased. These factors have driven farmers to the debt trap and have caused distress leading to suicide.

The distressed economy of small scale crop cultivation is further accentuated by lack of knowledge, scientific application of crop management, diversification practices, inappropriate system such as non availability of quality input material in time, inadequate irrigation facility, non-remunerative prices and dominance of middlemen in Agricultural Marketing Structure. It is encouraging to see that our country is one of the fastest growing economies in the world. Reform process in most of the economic sectors is in place. There is healthy competition in almost all the sectors leading to cost reduction. Government of India has planned to achieve at least 8 % growth by 2016, but all this cannot be achieved unless the targetted growth is ensured for agriculture

Objectives:

- To study the Farmers Suicide in India and Telangana
- To compare the farmers suicides with total suicides in India.
- To analyze the Farmers Suicide in India.

Methodology:

This present paper makes use of primary and secondary data, in order to analyze the above objectives of the study. The primary data collected from the farmers of anneparthi village of nalgonda mandal through focused group discussion. The secondary data has been taken from various sources like Socio economic survey of India, Agriculture sense, Journals, magazines and National Crime Reports Bureau of India etc. The Statistical percentages also employed in the study.

Scope of the paper: This paper is to study the reasons of farmer's suicides in India and find out the remedies to control the same. For this study data regarding farmers suicides of five states i.e. Maharashtra, Telangana, Andhra Pradesh, Karnataka, Madhya Pradesh and Chhattisgarh is shown separately as they are on top in farmers suicides in India and contributed near about two third of total farmers suicides in India. Data of farmer's suicides in all other state are collected and shown together.

Formers Suicides in India- Telangana:

According to the latest National Sample Survey Organization (NSSO) report, Key Indicators of Situation of Agricultural Households in India, released in December, over 89% of all farm households in Telangana, are indebted (compared to 52% for the country) with an average debt of Rs.93,500 (compared to Rs.47,000 for all India). The debt situation of farm households in Telangana is the second worst in the country, next only to Andhra Pradesh, where 93% farm households are indebted. Telangana has become the second among states in the country, where the largest number of farmers' suicides were reported. As many as 898 farmers took their lives due to several reasons in 2014, a new National Crime Records Bureau data reveals. Warangal and Medak districts saw the maximum number of deaths. Inadequate rainfall, dry bore wells, decrease in groundwater levels and poor irrigation facilities leading to crop failure have pushed them to suicide. Since a majority of them are dependent on bore wells, frequent power cuts have also negatively affected the farmers.

The National Crime Records Bureau (NCRB) data for 2013 shows that, in undivided Andhra Pradesh and Maharashtra, with 2,014 and 3,146 farmer suicides, respectively, together accounted for 44% of the 11,744 farmer suicides in India. Interestingly, farmer suicides are rife both in Telangana and in the Vidarbha region of Maharashtra, where cotton is grown without irrigation and hence the crop is entirely dependent on the monsoon.

Telangana has become the second among states in the country, where the largest number of farmers' suicides were reported. As many as 898 farmers took their lives due to several reasons in 2014, a new National Crime Records Bureau data reveals. Warangal and Medak districts saw the maximum number of deaths. Inadequate rainfall, dry bore wells, decrease in groundwater levels and poor irrigation facilities leading to crop failure have pushed them to suicide. Since a majority of them are dependent on bore wells, frequent power cuts have also negatively affected the farmers. The south-west monsoon, the principal source of water for growing crops, was not only delayed but was deficient. The overall rain deficit in the June-September monsoon season was 34% of the long-period average, compared to 12% for the entire country. To make matters worse, the entire

crop season experienced prolonged dry spells.

Even the north-east monsoon, from October to December, crucial for the Rabi crop, was deficient by 52% in Telangana (compared to 33% for the entire country) and 56% of land was unsown as of 14 January. The electoral promise of farm loan waivers compounded the problems for farmers. Banks started turning away farmers, who were already under pressure from accumulated debt, applying for fresh loans, forcing them to fall back on local moneylenders who charge interest rates in the range of 24%.

Review of Literature:

According to the Report of Prof. K. Nagraj of Madras Institute of Dev. Studies, the General Suicide Rate (GSR) (overall suicides per 1 lakh population) in the country between the periods 1997 to 2005 was 10.6, whereas the Farmers Suicide Rate (FSR) was 12.9 and the Ratio of FSR to GSR was 1: 1.2.

In Maharashtra the position was alarming with GSR at 15.1 and FSR at 29.9. According to Prof. Nagraj Annual Compound Growth Rate (ACGR) for all suicides at 2.18% is lower than the Population Growth Rate. The data reveals that the worst position of the farmers in Maharashtra is in Vidarbha region. The Study also shows the alacrity of the problem, so much so that on an average one farmer took his/her life every 53 minutes between 1997 and 2005. State wise position of suicides in other States in critical group was Andhra Pradesh-16770, Karnataka-20093 & Madhya Pradesh (including Chhattisgarh) - 23588.

The National Crime Records Bureau (NCRB) data says that bankruptcy or indebtedness, failure of crop and family problems are the major causes. Illness and drug abuse or alcoholic addiction are also other reasons. 23.2 per cent of suicides in Telangana last year were due to bankruptcy or indebtedness. Human rights activists say most victims were harassed by illegal moneylenders before they ended their lives. A majority of farmers in Warangal and Medak are tenants, who have to pay very high rates to take the lands on lease. When their lands yield nothing, they are left with huge debts. According to Warangal officials last year farmlands dried up as groundwater levels went down. The rainfall in the season was also little and irrigation was affected badly (Deccan Chronicle).

"There has been no significant effort from the government to encourage ID (irrigated dry) crops like oilseeds and pulses while India keeps importing them. Serious fallout of cotton monocrop is that (since the crop yields no fodder) households are unable to rear livestock which are insurance in times of crisis," says Beeram Ramulu, a grassroots activist with Rythu Swaraj Vedika.

Causes for Farmers Suicide in India:

These farmers belong to different caste groups and not only small and marginal farmers but even those owning larger holdings, which in the context of dry agriculture are not enough to enable the farmers' families to take out livelihood. The suicide of the bread winner, whether young or old, leaves the families desolate and disrupts the social order. The causes of farmers' suicides are both economic and social.

I. The economic causes are:

1. Growing expenditure, especially on bought inputs.
2. Low productivity.
3. Inadequate prices of agriculture produce.
4. Difficulties in marketing and marketing hazards.
5. Natural hazards caused by drought.
6. Absence of proper crop planning
7. Insufficient agriculture credit
8. Accumulated debt burden.

- i. Lack of alternative sources of income
- ii. Inferior seeds.
- iii. Low fertility of land.

II. The Social Causes are:

- i. The drinking habit which atrophies the productivity of the farmer.
- ii. Lavish expenditure on marriages.
- iii. Bad health and illness
- iv. Inability to meet the necessary expenditure on medicine and health services.
- v. Other expenses on social functions like deaths, Births etc.
- vi. Illiteracy of farmers.

Farmer's suicides and responsiveness of Governments:

In 2006, the Government of India identified 31 districts in the four states of Andhra Pradesh, Maharashtra, Karnataka, and Kerala with high relative incidence of farmer's suicides. A special rehabilitation package was launched to mitigate the distress of these farmers. The package provided debt relief to farmers, improved supply of institutional credit, improved irrigation facilities, employed experts and social service personnel to provide extension support services, and introduced subsidiary income opportunities through horticulture, livestock, dairying and fisheries. The Government of India also announced an ex-gratia cash assistance from Prime Minister's National Relief Fund to the farmers. Additionally, among other things, the Government of India announced.

Kerala, in 2012, amended the Kerala Farmers' Debt Relief Commission Act, 2006 to extend benefits to distressed farmers with loans through 2011. It cited continuing farmer suicides as a motivation.

In 2013, the Government of India launched a Special Livestock Sector and Fisheries Package for farmer's suicide-prone regions of Andhra Pradesh, Maharashtra, Karnataka and Kerala. The package was aimed to diversify income sources of farmers. The total welfare package consisted of 912 million (US\$13 million).

Patel et al. find that southern Indian states have ten-times higher rates of suicides than some northern states. This difference, they claim, is not because of misclassification of a person's death, for example as homicide, but because of regional causes. The most common cause for suicide in south India are a combination of social causes, like interpersonal and family problems, financial difficulties, and pre-existing mental illness. Suicidal behavior is as culturally accepted in south India as in some high-income countries. The high suicide rates in southern states of India may be, suggest Patel et al in part because of social acceptance of suicide as a method to deal with difficulties.

The Government of Telangana and Andhra Pradesh have been taken measurements to tackle the situation. Both the Governments have announced one lakh and below debt of farmers abolished. And also proposed plans for irrigation water schemes like mission Kakatiya and Pattiseema ect, projects in the year 2015 onwards.

Conclusion:

Repeated crop failures, debt hassles, lack of alternative sources of income, absence of institutional finance have left the farmers with no other solution other than ending their lives. Another disturbing trend has been observed where farmers commit suicide in order to avail relief and benefits announced by the government

FARMERS SUICIDES CAUSES CONSEQUENCES AND PREVENTIVE MEASURES.

to support the families of the farmers who have died. This is true in the case of several farmers in Andhra Pradesh, Telangana and most of the States in India, who committed suicide so that their families could at least benefit from the Government's relief programmes. It is suggested that all the causes are simultaneously dealt with the situation cannot improve. It requires large public investment on irrigation and rural infrastructure, transformation of the cooperative credit, marketing system, strengthening of the agricultural extension services and sympathetic administration working closely with the farming community.

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Operational Challenges of MSMEs in Telangana

Dr. K. V. Sasidhar*

[The Micro, Small and Medium Enterprises (MSMEs) sector constitutes the spine of India's national economy and acts as the bulwark for the national economy, providing it resilience to ward off shocks and adversities. With the enactment of 2006 Micro, Small and Medium Enterprises Development (MSMED) Act, the definition of MSMEs has been changed. The number of MSMEs which stood at 36.1 million in 2006 had risen to 51.6 million in 2014-15. Manufacturing over 6000 products ranging from traditional to high-tech items, the MSME sector contributes around 7% of the manufacturing GDP, about 25% of the GDP from service activities and around 35% of India's manufacturing output. Providing employment to around 45% of India's total workforce, this sector contributes substantially to India's overall exports.]

The new industrial policy of the Telangana State Industrial Project Approval and Self Certification System (TS-iPAS) Act, 2014, is said to be the first policy of its kind in India. As a result of this new policy, Telangana has attracted appreciable investments in industrial sector in a very short span of period. There is significant growth in number of factories registered in Telangana. The number of factories registered in 2008-09 that stood at 7,357 rose to 11,068 in 2013-14, posting 50 percent growth. Similarly, the other indicators have also registered a positive growth during the said period. The percentage of the Telangana State with respect to All India, the share of Net Value Added was 3.47 percent and Gross Net Value was 3.38 percent during 2013-14.

The medium enterprises had grown up to 2014-15 and registered a decline in 2015-16. The micro and small industries which had reached peak in 2013-14, also recorded a fall afterwards. Investments in Micro enterprises had reached high in 2011-12 and thereafter it has remained stable, whereas investments in small enterprises reached at peak in 2013-14 and witnessed downward trend thereafter.

The key problems affecting the MSMEs are classified as financial, raw material,

* Asst Prof, Dept of Economics, Mahatma Gandhi University, Nalgonda, Telangana.

technological, managerial and labour. These problems are classified into as internal and external. The internal problems are outcomes of internal management of an enterprise and related to a single unit. There are so many schemes offered by government, but these enterprises are not aware of it and do not understand how to get benefit out of them.

Mahatma Gandhi had stated that India lived in villages and that only through their salvation, India could regain its growth and prosperity. He emphasized on cottage and small industries as a landmark and strong instrument of attaining rapid economic growth. A significant feature of the Indian economy since independence has been the rapid growth of small scale sector.

The MSMEs have been playing a significant role in Indian economy. The total number of units in MSMEs which stood at 361.8 lakh in 2006 had risen to 516.6 lakh in 2014-15. The MSMEs sector manufactures more than 6000 products ranging from traditional to high-tech items. More than two-thirds of the enterprises (68.21 percent) in the MSMEs sector are service providers, while 34.79 percent are engaged in manufacturing.

Definition of MSMEs

Government of India has revised the definition of small industries over the years, presently as per the enactment of Micro, Small and Medium

Enterprises Development (MSMED) Act, 2006 in terms of which the definition of micro, small and medium enterprises is as under in table-1.

Table-1: Micro, Small and Medium Enterprises Development Act, 2006

Type of enterprise	Investment in Plant and Machinery/ Equipment (excluding land and Building)	
Manufacturing Enterprises	Services Enterprises	
Micro	Up to Rs. 25 lakh	Up to Rs. 10 lakh
Small	More than Rs.25 lakhs and up to Rs. 5 crore	More than Rs. 10 lakhs and up to Rs. 2 up to Rs. 5 crore
Medium	More than Rs.5 crore and up to Rs. 10 crore	More than Rs.2 crore and up to Rs. 5 crore

Source: Ministry of MSME

Objectives of the study

1. To analyze the growth and performance of MSMEs in Telangana and India.
2. To study the major problems faced by MSMEs in Telangana.
3. To study the structure and distribution of industries in Telangana State
4. To understand the performance of industries of Telangana and India

Methodology

This paper is based on secondary data pertaining to micro, small and medium enterprises. The data are collected from different sources that comprise books on Indian economy, yearbooks, journals of national and international repute, socio-economic survey of Telangana State etc. The oral interviews with industrial experts, officials and micro, small and medium enterprises entrepreneurs, in the field discussed variables like financial, managerial, marketing, technological, raw material and labour problems are also considered for the study. Information gathered was tabulated and was analyzed by using percentage and one-way/two-way tables.

Review of Literature

Dr. M.S. Vasu & Dr. K. Jayachandra (2014), in their "Growth and Development of MSMEs

in India- Prospects & Problems", have discussed about the growth and performance of MSMEs and listed out the problems faced by MSMEs in India. They focused on problems in general but not on problems of a particular state or region.

Dr. A.S. Shiralashetti et al., (2014) in their "Prospects & Problems of MSMEs in India", have covered the growth, performance and contribution of MSMEs vis-à-vis GDP and have mentioned about the problems faced by MSMEs located in Dharwad district of Karnataka State.

Rajib Lahiri (2011) in his study has tried to critically analyze the definitional aspect of MSMEs and explored the opportunities and the constraints faced by them in the era of globalization. After analyzing the performance of MSMEs in India during the pre- and post-liberalization period, the study reveals that there is a marginal increase in growth rate in employment generation. The growth rate in other parameters is not encouraging during the liberalization period.

Dr. Padmasani, S. Karthika (2013) has conducted a study on "Problems and Prospects of Micro, Small and Medium Scale Enterprise in Textile Exports with special reference to Tirupur and Coimbatore District". He has examined the problems of MSMEs in the era of global economy and also has identified the factors affecting MSMEs. The study also examines the socio-economic aspects of MSMEs. The survey

reveals that the problems can be overcome if MSMEs get involved in standardization of the business process, and adoption of latest technology to improve the productivity. The author suggests that banks can support the industry by providing credit facilities at low interest rate. The Government and institutions relating to Small and Medium Scale industries should take effective measures to improve the export performance of MSMEs in order to develop economy.

Nishanth P & Dr. Zakkariya K.A. (2014) have reviewed the problems faced by the MSMEs in accessing finance from banks and financial institutions. In their view, this problem may differ from region to region between sectors or between individual enterprises. While focusing on various barriers faced by these units in raising finance, the study also tries to identify various sources of finance other than banks and this study is restricted to Kozhikode district in Kerala.

Dr. Neeru Garg (2014) in the study entitled "the Micro, Small and Medium Enterprises in India: Current Scenario and Challenges", attempts to highlight the growth of MSMEs sector and analyze various problems and challenges faced by MSMEs in India in general.

K. Suneetha and T. Sankaraiah (2014) in their study entitled "Problems of MSMEs and Entrepreneurs in Kadapa District", have conducted a survey on 156 enterprises to study their problems. It was found that 103 enterprises were facing financial problems and among them 62.8 percent are from Micro enterprises. Moreover, 23 percent receive meager assistance from government agencies. In the study, the divisions of Kadapa, Jammulamadugu and Rajampet are covered.

Performance of MSMEs in India

The MSMEs Act came into force from 2006-07 financial year, although the data taken from the year 2001-2002 to make in-depth study of the growth of MSMEs in India. The following Table-2 states that the working enterprises' annual

growth was recorded at 13.33 percent. The Index value is increased from 100 to 464.

Table-2

Growth of MSMEs in India

Year	Working Enterprises (in Lakh)	Growth Index (SSI-MSME)
2001-02	105.2	100
2002-03	109.5	104
2003-04	114.0	108
2004-05	118.6	113
2005-06	123.4	117
2006-07	361.76	344
2007-08	377.36	359
2008-09	393.70	374
2009-10	410.80	390
2010-11	428.73	408
2011-12	447.64	426
2012-13	447.54	425
2013-14	488.46	464
Mean	302.05	
Average Annual Growth Rate	13.33	

Source: Ministry of MSME

During the period of 2006-07 to 2013-14, the number of MSMEs has gradually increased from 361.76 lakh to 488.46 lakh. The growth of index value is progressively raised from 100 to 464. The MSMEs mean value was 302.05 per year. It shows that there are fluctuations in the growth of MSMEs in India.

Share of MSMEs in GDP

The share of MSMEs in the Gross Domestic Product (GDP) has declined over the years. The contribution of MSMEs to total manufacturing

output and gross domestic product in 2006-07 stood at 42.02 percent and declined to 37.33 percent respectively in 2012-13. The following

table-3 Shows that here is a fluctuation in MSMEs' output in total manufacturing output.

Table-3
Share of MSMEs in GDP

Year	Gross Value of output MSMEs Manufacturing sector in Crore)	Share of MSMEs in Total GDP (%)			Share of MSMEs output in total Manufacturing output in percent
		Manufacturing Sector MSME	Services Sector	Total	
2006-07	1198818	7.73	27.40	35.13	42.02
2007-08	1322777	7.81	27.60	35.41	41.98
2008-09	1375589	7.52	28.60	36.12	40.79
2009-10	1488352	7.45	28.60	36.05	39.63
2010-11	1653622	7.39	29.30	36.69	38.50
2011-12	1788584	7.27	30.70	37.97	37.47
2012-13	1809976	7.04	30.50	37.54	37.33

Source: Fourth All India Census of MSME 2006-07

Telangana State has attracted investments rapidly in industries in a very short span of period.

Industrial Sector in Telangana

In order to facilitate growth of Industrial Sector, the Telangana State Government initiated industry-friendly policies. The new industrial policy, that is the Telangana State Industrial Project Approval and Self Certification System (TS-iPAS) Act, 2014, is said to be the first policy of its kind in India. As a result of new policy, the

Structure of the Industries in Telangana State

The structure of industry in the Telangana State is analysed using the data from Annual Survey of Industries (ASI) from 2008-09 to 2013-14. The data cover all units registered under the Factories ACT, 1948 that is, those units employing 10 or more workers with power and 20 or more workers without power, respectively.

Table-3: Industries in Telangana State

S.No	Characteristics	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
1	Factories	7,357	7,729	8,980	9,005	10,279	11,068
2	Fixed Capital (in Crore)	37,710	39,193	52,672	54,094	59,521	57,596
3	Employees (incl. workers)	7,07,487	6,56,438	7,09,863	7,00,357	7,07,738	7,45,005
4	Emoluments (Rs. Crore)	5,042	5,642	7,172	8,267	9,757	9,920
5	Total Input (Rs. Crore)	70,246	71,023	1,12,300	1,18,287	1,20,647	1,33,318
6	GVA (Rs. Crore)	24,117	24,373	31,034	36,476	33,975	35,985
7	NVA Rs. Crore)	21,584	21,428	27,394	31,986	28,728	31,113

Source: Annual Survey of Industries, Directorate of Economics and Statistics, Telangana (Gross Value Added-GVA, Net Value Added-NVA)

There is significant growth in number of factories registered in Telangana State. The number of factories registered in 2008-09 which stood at 7,357 rose to 11,068 in 2013-14, posting 50 percent growth. Similarly, the other indicators

have registered a positive growth during the said period. The percentage of the Telangana State with respect to All India, the share of Net Value Added was 3.47 percent and Gross Net Value was 3.38 percent during 2013-14.

Table- 4: Distribution of industries by Organization, 2012-13 and 2013-14

Organization	No. of Factories		Number of Employees		Net Value Added		Gross Capital	
	2013-14	2012-13	2013-14	2012-13	2013-14	2012-13	2013-14	2012-13
Non-Corporate Sector	7,395	7,018	3,61,378	2,83,115	3,067	2,937	1,132	958
Corporate Sector	3,614	3,214	3,56,252	3,97,048	27,702	25,606	8,163	9,580
Other Sectors	59	47	27,375	27,575	344	186	-17.17	22

Source: Annual Survey of Industries, Directorate of Economics and Statistics, Telangana.

The distribution of industries by organisation in 2013-14 and 2012-13 is shown in Table-4. It is noted that 89 percent of total net value added (NVA) in 2013-14 was contributed by the Corporate Sector alone. The other two sectors (non-corporate and other) contributed only 11 percent. The Non-Corporate sector has seen

growth in number of factories, employees, Net Value Added and Gross Capital formation. The gross capital formation, which is an indicator for investment in the sector, shows that 88 percent of total investment in the state was in the corporate sector in 2013-14, while it was 91 percent in 2012-13. The other sectors have negative gross capital formation in 2013-14.

Table-5: Comparative performance of Industries in Telangana and India in 2013-14

State/ India	Factories	Employees	Total Output (in Crores)	GVA(in Crores)	GCF(in Crores)
Telangana	11,068	7,45,005	1,69,304	35,985	9,278
India	1,85,690	1,35,38,114	65,55,251	10,65,112	3,53,738
Share of Telangana	5.96	5.5	2.58	3.38	2.62

Source: Annual Survey of Industries, 2013-14, Directorate of Economics and Statistics, Telangana.

Table-5 shows that comparative performance of Industries in Telangana and India in the year 2013-14. It is evident that Telangana accounts for about 6 percent of the total number of factories in India and contributes about 3.4 percent of the

total Gross Value added and 2.6 percent Gross Capital Formation in the country. It indicates the low productivity because most of the factories functioning in the Telangana are small in size.

MSME's in Telangana State

The Micro, Small and Medium Enterprises (MSME) sector plays a significant role in the economic and social development of the state. It

is providing direct employment opportunities to 7,82,406 people, with a vast network of around 69,120 units. Its contribution is immense in terms of direct employment, providing /raw material for other sectors and export earnings. Sector-specific issues and inadequate credit have dampened the growth of the micro and small enterprises post-2013-14. The medium enterprises, are in an almost stable state since 2007-08, without much effect from the vicissitudes of time.

Table-6: MSME Units in Telangana State:

Year	Micro	Small	Medium	Total
2007-08	1,792	776	4	2,572
2008-09	1,993	814	2	2,809
2009-10	1,838	945	9	2,792
2010-11	3,103	1,521	15	4,639
2011-12	3,257	2,104	20	5,381
2012-13	3,066	2,030	29	5,125
2013-14	4,312	2,499	33	6,844
2014-15	3,543	2,237	37	5,787
2015-16	2,311	1,451	17	3,779

Source: Commissionerate of Industries, Telangana.

It can be discerned from Table -6 that Micro, Small and Medium enterprises in Telangana continued to record upward growth up to 2014-

15 and in 2015-16 it registered a fall. Investments in micro enterprises reached high in 2011-12 and thereafter remained stable, whereas investments in small enterprises peaked in 2013-14 and witnessed downward trend thereafter. Investment in medium industries is almost stable throughout the period. Decline in growth rate is largely due to the medium and large enterprises steeped in Non-Performing Assets (NPAs), defaulting in payments to the MSE vendors on the one hand and on the other, the ineffective delayed payment redress mechanism, with the governments. PSUs and judiciary not adequately and appropriately responding to the arbitration mechanism of the MSE Facilitation Council.

Employment generation by micro enterprises is less compared to small and medium ones. The employment generation, after reaching high in 2013-14, is in declining pace due to inability of the enterprises to honour contractual payments, the migratory practices of labour, and largely mismatched skills.

The Problems of MSMEs in Telangana

The key problems specifically affecting the MSMEs can be broadly classified as financial, managerial, raw material, technological and labour. These problems can further be classified into internal and external. The internal problems are those outcomes of internal course of management of an enterprise and related to a single unit. Whereas external problems are those which are generally faced by all enterprises in the industry and are beyond their control.

Table-7: Problems of MSMEs

Problems	Internal	External
Finance	<ul style="list-style-type: none"> *High cost of borrowings Management of Finance *Inadequate finance *Insufficient working capital *Recovery from debtors *Diversion of working capital funds *Low promoters contribution *Excessive paper work while availing loan 	<ul style="list-style-type: none"> *Non-availability of Finance *Excessive collateral Security *Discriminative treatment of financial Institutions

Managerial	<ul style="list-style-type: none"> *Lack of technical know-how *Absence of long term Planning *Lack of management Skills 	<ul style="list-style-type: none"> *Locational disadvantage *Government price controls *Change in Government policies *Dealing with Government laws
Marketing	<ul style="list-style-type: none"> *Lack of sales promotion *Limited local market *Less varieties of goods offered to market *Lack of marketing research *Depending of small group of customers *Dependency on large scale industries *Defecting Price Policy 	<ul style="list-style-type: none"> *Market saturation *Weak market demand *Competitive market environment *Availability of better substitutes
Technological	<ul style="list-style-type: none"> *Outdated plant and Machinery / Production process * Inadequate infrastructure of the firm *Poor Capacity of Utilization *High wastage*Transport Bottleneck * Lack of distribution system *Inadequate maintenance 	<ul style="list-style-type: none"> *Delay in Delivery of machines
Raw material	<ul style="list-style-type: none"> *Poor inventory management 	<ul style="list-style-type: none"> *Raw material not available *Low Quality of raw material *Fluctuation in cost of raw material
Labour	<ul style="list-style-type: none"> *Labour Absenteeism *High rates of wages *Excessive manpower *Inefficient handling of labour problems. *Poor industrial relations *Lack of coordination and control 	<ul style="list-style-type: none"> *Unavailability of Skilled Labour

After the discussion with industrial experts, officials and micro, small and medium enterprises in the field from among the above-mentioned variables of financial, managerial, marketing, technological, raw material and labour, ten different factors are considered for the study. The different factors are affecting the operational performance of MSMEs. These have led to poor performance of MSMEs.

Conclusions

The main purpose of the study is to ascertain as to how the entrepreneurs managed the micro, small and medium enterprises and to know as to

what are the various problems faced by these enterprises. While ascertaining the role of MSMEs in assisting in economic development of India, it is revealed that hurdles like financial constraints and issues relating to power, raw material procurement should be more effectively dealt by the government. Further, it is revealed that overall globalized business environment of India has been average favorable for the growth of micro and small-scale industries.

It is found that the MSMEs have played role in employment generation in India. Due to the acute power shortage, industrial units are managing

only less per cent of capacity and the situation has turned from bad to worse without ability to pay even workers' salary. Most of the enterprises complained about non-availability of skilled labour.

The government is also providing promotional programmes and training for MSMEs entrepreneurs. Simple and clear policies and acts are to be made so that these enterprises can understand them and utilize as well as implement them in the business for compliance and secure benefits. There are many government schemes, but these enterprises are not aware and do not understand how they can benefit out of them.

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Rural Indebtedness in Telangana State

By K.V. Sasidhar*

Agriculture plays a most strategic role from the point of view of supplying food, many raw-materials for industry. It is also a supplier of production factors like capital and labour. But there are some weaknesses. Agricultural production and productivity is slow rise, there is a large agricultural land without proper irrigation and appropriate farming techniques so that productivity still low. The size of fixed capital like wells, tube wells, dams, ponds, machineries, wearing houses are inadequate. Moreover, majority of the farmers are small and marginal. Because of small farmers their income levels are very low and unable to invest and indebtedness in common legacy of poor farmers.

As per National Sample Survey report during January-December 2013, Household Indebtedness in India, average amount of debt per indebted household was Rs 1,03,457 and Rs 3,78,238 in rural and urban areas. The incidence of indebtedness was higher in rural areas with 31.4 per cent. The Incidence of Indebtedness was 22.4 per cent among the urban households. The 70th Round of the National Sample Survey on "All India Debt and Investment Survey" report confirms that Telangana is among States with a high incidence of rural indebtedness with 89 per cent of agricultural households under debt. More than half the agriculture households in Telangana are in debt and the worst affected states are southern states like Andhra Pradesh, Telangana, and Tamil Nadu.

* Dr. K.V. Sasidhar, Faculty, Dept. of Economics, M.G. University, Yella Reddy Gudem, Nalagonda-506 254, Telangana State.

The average asset value for rural households of Telangana is Rs 6.38 lakh and that of urban Telangana is Rs 18.45 lakh, which is 2.9 times higher indicating high inequality between rural and urban population in the State. The survey also points out that the Incidence of Indebtedness (IOI) among the rural households in Telangana is twice the IOI of rural All-India. Poverty, the debts of farmers forefathers, social traditions and customs, various kinds of disputes related to land, uncertainty in rain fall, and the farmers are trapped in the hands of the moneylenders are major causes for rural indebtedness. The problem of indebtedness can be solved by two means. The first is to take up measure to reduce the burden of present indebtedness and the second is to prevent the evil from rising again in the future.

Agriculture playing a vital role in the economic development of any country, rich or poor the fact that it is the primary sector of the economy which provides the basic ingredients necessary for the existence of

mankind and provides most of the raw materials. Agriculture plays a most strategic role from the point of view of supplying food, many raw-materials for industry. In addition to that must generate export surpluses. To earn the foreign exchange with which to finance the impact of capital goods and certain kind of industrial raw materials. It is not only a supplier of goods for domestic and export needs but also a suppliers of production factors like capital and labour. A rapidly expanding industrial sector necessarily draw some of its labour force from rural areas.

As agriculture is very important for the Indian economy. Its size is very large, and it has the capacity to contribute much to the development of the country. But, there are some weaknesses. Firstly, it is slow rise in agricultural production and productivity. Secondly, there is a large agricultural land without proper irrigation and appropriate farming techniques so that productivity still low. The size of fixed capital like wells, tube wells, dams, ponds, machineries, wearing houses etc are

Table-3 – Estimated number of indebted farmer households in each state

State	NSSO 59th Round	% age	NSSO 70th Round	% age	Increase/Decrease (percentage)
Andhra Pradesh	49493	82	33421	92.9	(+10.9)
Arunachal Pradesh	72	5.9	206	19.1	(+3.2)
Assam	4536	18.1	5995	17.5	(-0.6)
Bihar	23383	33	30156	42.5	(+9.5)
Chhattisgarh	11092	40.2	9538	37.2	(-3.0)
Gujarat	19644	51.9	16743	42.6	(-9.3)
Haryana	10330	53.1	6645	42.3	(-10.8)
Himachal Pradesh	3030	33.4	2457	27.9	(-5.5)
Jammu & Kashmir	3003	31.8	3463	30.7	(-1.1)
Jharkhand	5893	20.9	6464	28.9	(+8.9)
Karnataka	24897	61.6	32775	77.3	(+15.7)
Kerala	14126	64.4	10908	77.7	(+13.3)
Madhya Pradesh	32110	50.8	27414	45.7	(-5.1)
Maharashtra	36098	54.8	40672	57.3	(+2.5)
Manipur	533	24.8	421	23.9	(-0.9)
Meghalaya	103	4.1	84	2.4	(-1.7)
Mizoram	184	23.6	47	96.2	(-17.4)
Nagaland	294	36.5	65	2.5	(-34.0)
Odisha	20250	47.8	25830	57.5	(+9.7)
Punjab	12069	65.4	7499	53.2	(-12.2)
Rajasthan	27828	52.4	40055	61.8	(+9.4)
Sikkim	174	38.8	97	14.30	(-24.5)
Tamil Nadu	28954	74.5	26780	82.5	(+8.0)
Tripura	1148	49.2	559	22.9	(-26.3)
Uttar Pradesh	69199	40.3	79081	43.8	(+10.5)
Telangana	—	—	22628	89.1	(+89.1)
Uttarakhand	644	7.2	5387	50.8	(+36.6)
West Bengal	34696	50.1	32787	51.5	(+1.0)
Group of UT's	372	50.8	267	37.2	(-13.6)
All India	434242	48.6	468481	51.9	(+3.3)

Source: NSSO 59th and 70th Round

17.4 per cent, Punjab 12.2 per cent and in Haryana 10.8 per cent in 70th than 59th Round.

Table-3 indicates that the maximum increase in outstanding loan is in Banks i.e. 7.3 per cent and minimum in Co-operatives i.e. -4.8 per cent followed by shopkeeper/traders i.e. -2.3 per cent in 70th than 59th Round.

Rural Indebtedness in Telangana

In Telangana, the contribution of primary sector including agriculture, horticulture and animal husbandry to the Gross State Domestic Product (GSDP) for 2016-17 is only 15.3 per cent. Despite, this as much as 55 per cent of working population is still dependent on agriculture which is mostly dependent on rainfall in Telangana. A perusal of the long-term agricultural scenario in Telangana calls for attention to the decline in state support for capital formation, fragmentation of land holdings and high incidence of rural indebtedness. Capital formation is crucial in agriculture as increasing production and productivity is paramount to keep pace with the needs of a growing population. It also has implications for a majority of small and marginal farmers engaged in agriculture against all odds, especially vagaries of monsoon (THE HANS INDIA).

The long-term agricultural scenario in Telangana calls for attention going by the decline in State support for capital formation, fragmentation of land holdings and high incidence of rural indebtedness. According to the National Bank for Agriculture and Rural Development (NABARD) data, there is a decline in the capital formation for agriculture through public investment. During 2011-12 to 2014-15, the long-term credit, which is used for investment in agriculture and is seen as an indicator for its

health, declined from ₹ 11,112 crore to ₹ 8,856 crore. "It is a concern that the share of long-term credit in overall agriculture credit is constantly on the fall (G. Naga Sridhar).

The 70th Round of the National Sample Survey (NSS) on "All India Debt and Investment Survey" report confirms that Telangana is among States with a high incidence of rural indebtedness with 89 per cent of agricultural households under debt. More than half the agriculture households in Telangana are in debt, and the worst affected states are southern states like Andhra Pradesh, Telangana, and Tamil Nadu, says the 70th round of NSSO survey. The survey says about 52 per cent of agricultural households in the country are estimated to be in debt. Among the major states, Andhra Pradesh had the highest share of indebted agricultural households in the country (92.9 per cent), followed by Telangana (89.1 per cent) and Tamil Nadu (82.5 per cent). The report states nearly 40 per cent of households take loan from non-institutional sources like money lenders.

The survey also showed that a very small segment of agricultural households utilised crop insurance because of lack of awareness. The report reveals that the average value of the asset for cultivator and non-cultivator in Telangana is Rs 13.9 lakh and Rs. 3.8 lakh respectively while at all-India level it is Rs 28.7 lakh and Rs 6.7 lakh respectively. The average asset value for rural households of Telangana is Rs 6.38 lakh and that of urban Telangana is Rs 18.45 lakh, which is 2.9 times higher indicating high inequality between rural and urban population in the State. The survey also points out that the incidence of indebtedness (IOI) among the rural households in Telangana is twice the

IOI of rural All-India. Around 59% of rural households are indebted in Telangana State as against 31% at all-India level. Moreover, indebtedness is higher among the cultivators as compared to other occupational category; about 74% of cultivators in Telangana are indebted. While the debt-asset ratio among the rural and urban areas of Telangana is around 6.1% and 10.3% respectively, in case of India it is as low as 2.5% and 3.8% respectively (Gudipati Rajendera Kumar).

Agricultural indebtedness has always been a major social and economic issue in India, despite the growth of institutional credit to agricultural, indebtedness among farmers persists. This is mainly due to the transcendence of the deficit nature of rural family budgets especially the small holding agriculturists and all other farmers having poor means of income. The unpredictable weather, the burden of old debt, a long time gap between expenditure and income from farming activities, the small size of land holdings, unproductive spending on social-ceremonies, a high rate of illiteracy are some of the important factors responsible for the agricultural indebtedness in India. If debt is used only to meet the deficit in family budgets and is not utilize for productive purpose, it will entail a dangerous outcome. The amount of indebtedness will go on increasing beyond one's repaying capacity, which will be detrimental to the interest of both, the lender and the borrower. As a result suicide cases are increasing day by day. So, Indian agriculture is backward and this stultifies all talks of agricultural improvements (Reetu).

The debt per household in Telangana ranges between Rs 80,000-Rs 1,20,000, with an average outstanding debt of Rs

Table-5 – Incidence of Value of asset, Indebtedness and Debt in Telangana and India

Rural	Average Value of Asset (Rs.)	Incidence of Indebtedness (in %)	Amount of Debt (Rs.)	Debt Asset Ratio
Telangana Rural				
Cultivator	13,89,460	74	84,423	6.1
Non-cultivator	3,80,024	54	39,142	10.3
All-India Rural				
Cultivator	28,72,956	46	70,580	2.5
Non-cultivator	6,74,527	29	25,741	3.8

Source – NSSO Report on Debt and Investment (70th Round), Government of India.

Table-6 – Telangana State Credit Plan for 2014-15: Targets and Achievement (Rs in Crore)

Sl No.	Segment	Target 2014-15	Achievement of targets 2014-15	% achievement of targets
1	Crops Loans	18,718	18,420	98%
2	Agri. Term Loans	6,238	5,985	96%
3	Allied Agri. Activities	2,277	2,872	126%
4	Total Agricultural (1+2+3)	27,234	27,276	100%
5	Micro & Small Enterprises	6,588	13,330	202%
6	Total Other Priority Sector	6,725	7,641	114%
7	Total Priority Sector (4+5+6)	40,547	48,247	119%
8	Non-Priority Sector	22,501	65,304	290%
Total Advances (7+8)		63,048	1,13,552	180%

Source: Annual Credit Plan of Telangana 2015-16, State Level Bankers' Committee (SLBC)

91,407. While debt by itself is a problem of economic insecurity for these farmers, the source of debt will decide the intensity. For instance, debts pending with private lenders and loan sharks carry far more threats compared to ones taken from banks or micro-finance institutions.

The government-owned NABARD claims that 79 per cent of Telangana farmers are struggling to repay their loans on time, based on

a survey conducted in 958 households of the State, spread across 48 villages in six districts. No wonder then that the State ranks high on farmer suicides. In Telangana, according to the survey, 40 per cent of the loans taken by farmers are from non-institutional sources — that is, loan sharks and private lenders, or at times from friends and family. Also, the loans are not incurred on farm input like manure or fertilisers but mostly on personal needs like health

expenses and domestic needs (Indian Express).

Nearly 52% of agricultural households in India are indebted and levels of debt are as high as 93% in Andhra Pradesh and 89% in Telangana, shows key indicators from an NSSO (National Sample Survey Organisation) report released. The report, Situation Assessment Survey of Agricultural Households in India, is based on a countrywide survey of nearly 35,000 households

by NSSO (70th round) for which data was collected on the agricultural year spanning July 2012 to June 2013. The survey shows that rural India had an estimated 90.2 million agricultural households — about 57.8% of the total estimated rural households in the country (The HINDU).

Major findings for Telangana state NSS Report on All India Debt and Investment Survey:

70th Round of the National Sample Survey (NSS) on "All India Debt and Investment Survey" (data collected during January 2013 to December 2013) gives a picture of the credit structure, asset holding, liabilities, capital formation of the households etc. Some of the highlights of the report pertaining to Telangana state are listed below:

- The average value of the asset for cultivator and non-cultivator in the rural Telangana household is Rs.13.9 lakh and Rs. 3.8 lakh respectively while at all-India level it is Rs. 28.7 lakh and Rs. 6.7 lakh respectively.

- The average asset value for rural household of Telangana is Rs. 6.38 lakh and that of urban Telangana is Rs 18.45 lakh, which is 2.9 times higher indicating high inequality between rural and urban population in the State.

- The incidence of indebtedness (IOI) among the households in rural areas of Telangana is twice higher than the IOI of rural All-India. Around 59% of rural household are indebted in Telangana State as against 31% in All-India.

- Indebtedness is higher among the cultivators as compared to other occupational category, about 74% of cultivators in Telangana are indebted.

While the debt asset ratio among the rural and urban areas of Telangana is around 7.95% and 8.58% respectively, in case of India it

is as slow as 3.23% and 3.7% respectively.

Rs.48,247 crore was allocated towards priority sector in 2014-15 as against the projected target of Rs.40,547 crore, thus registering 19 percentage point increase. During the same year, Rs.27,276 crore was disbursed, as against projected credit plan of Rs.27,234 for agriculture sector (consisting of crop loans, agriculture term loans and loans to allied activities). However, it may be noted that Rs. 22,501 crore was targeted for non-priority sector and its achievement was about Rs. 65,304 crore showing an increase of about 290 percent.

Causes for Indebtedness

- Poverty is perhaps a major cause for rural indebtedness. The low level of rural incomes, the uncertain and primitive farming of small landholdings makes it impossible to meet the needs required for their living.

- The rural people continue to repay the debts of their forefathers, as they are not fully conversant with law as they are illiterate. As these people are bound by the traditions and values they regard it as their sacred social duty to repay the debts of their forefathers.

- Villagers are mostly bound by the social traditions and customs, which are considered to be sacred and had to be performed. Some of these ceremonies are marriage, births, deaths, religious occasions, etc. The expenditure is usually very high for the performance of these ceremonies.

- The agriculturists in India are involved in various kinds of disputes related to land, property, etc., which force them to go to a court of law. Often, they view it important to win the case as it is related to the family

prestige and honour. Such litigations involve heavy expenditure and time. In order to meet these needs, the agriculturists take loans that they are not able to repay and are caught into indebtedness.

- The agriculturists in India are involved in various kinds of disputes related to land, property, etc., which force them to go to a court of law. Often, they view it important to win the case as it is related to the family prestige and honour. Such litigations involve heavy expenditure and time. In order to meet these needs, the agriculturists take loans that they are not able to repay and are caught into indebtedness.

- Indian agriculture is an uncertain business. It virtually depends on unreliable rains for the supply of water. If there are no rains or untimely rains, the entire crop is lost and the credit invested in the agriculture goes waste.

- Land revenue, where it is levied by the government in some states and the rent payable to the landowners is becoming excessive burden on small farmers. In order to pay these land revenue, mid-rent, the farmers take loan.

- The amount debt increases, the moneylenders are much interested in seizing the farmer's lands, and other valuable assets than the debt being repaid by the farmers. Thus, the farmers are trapped in the hands of the moneylenders.

Measures for the Removal of Indebtedness

1. Cancelling all the debts paid to the moneylenders by the farmers, which are more than the principal amount.

2. Debts should be properly scaled down. According to law, the inheritors are liable to pay the debts only to the extent they have

inherited. Debts that are so excessive and standing are since a long time, should be settled between the concerned parties or through the Lok Adalths.

3. The debts should be handled by special institutions such as banks. Such banks pay the amount to the moneylenders on one hand and recover the same from the debtors on easy terms. These banks also collect funds and provide credit facilities to their members.

Conclusions

The problem of indebtedness can be solved by two means. The first is to take up measure to reduce the burden of present indebtedness and the second is to prevent the evil from rising again in the future. For this, adequate credit facilities on reasonable terms should be arranged to the farm-ers. Co-operative credit is a good solution in this regard. Private lending should be eliminated in this field. To solve the land litigations, instead of going to the Courts the problem should be solve with village Panchayats or Lok Adalath. Government has to take prevention without any preventive measures for future would not help the situa-tion; moreover, there is every possibility of this evil to rise again and again. Thus, both these measures should go hand in hand so that the problem of rural indebtedness van-ishes completely.

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The Economic Times Startup Awards-2019

Award Category	Winner
Startup of The Year	Delhivery(Logistics & Supply chain Services Company)
Midas Touch Award	Bejul Somaia (Light speed Venture Partners)
Best on Campus	Atomberg Technologies(Sibabrata Das & Manoj Meena; Energy-efficient Fans)
Bootstart Champ	Fit & Glow Health Care (Manish Choudhry, Karan Choudhry, Arvind Sokke & Ashwin Sokke)
Woman Ahead	Klay Schools- Pre-school chain (Priya Krishnan)
Top Innovator	Tricog Health Services (Charit Bograj-CEO; Zainul Charbiwalla, Udyan Dasgupta& Abhinav Gujjar)
Comeback Kid	Snapdeal (Kunal Bahal & Rohit Bansal)
Social Enterprise	Social Cops (Prakalpa Sankar & Varun Banka) and First Step Digital (Deep Bajaj-CEO & Mohit Bajaj Solving India-specific problems, making an impact at scale, and convergence of the real world with the digital businesses were the standout themes that the elite jury of The Economic Times Startup Awards 2019 tracked.

Source- The Economic Times, July 22, 2019

Overview on The Affects of Educational Systems Across the World Due to Covid-19

***Dr. S.V. SRINIVASA SASTRY**

****Dr. K.V. S.DHAR**

ABSTRACT

The COVID-19 pandemic has affected educational systems worldwide. As of 12 January 2021, approximately 825 million learners are currently affected due to school closures in response to the pandemic. School closures in response to the pandemic have shed light on various social and economic issues, including student debt, digital learning, food insecurity, and homelessness as well as access to childcare, health care, housing, internet, and disability services. The impact was more severe for disadvantaged children and their families causing interrupted learning, compromised nutrition. Many schools across the world began conducting classes via video telephony software such as Zoom, Google classroom and/ or Google Meet. UNESCO made ten recommendations for engaging online learning. 'Provide support to teachers and parents on the use of digital tools' is one of them states the vulnerability in conducting digital classes in India. Online learning has become a critical lifeline for education as institutions seek to minimize the potential for community transmission. Technology can enable teachers and students to access specialized materials well beyond textbooks, in multiple formats and in ways that can bridge time and space. The construction of the digital education infrastructure by the Government of India presently seems to be troublesome as a consequence of absence of price range. Additional, even when the digital infrastructure is fabricated. The school lunch programmes are the second-biggest anti-hunger initiative after food stamps. Every year, nearly 30 million children rely on schools to provide free or low-cost meals including breakfast, lunch, snacks, and even dinner. In this connection if the Indian education system has to transit to online learning without creating a digital divide, the Centre and state governments must raise the spending on education to at least 6 per cent of GDP. At present, central and state allocations to the sector is less than 3 per cent is not sufficient to meet or overcome the conditions. Hence, this study overviews the conditions and consequences prevailed during pandemic situation across the world as well in response to India and the study purely depended upon secondary data derived from the online and offline available sources.

** has been working as Secondary Grade Teacher in Department of School Education*

*** has been working as faculty, Department of Economics, Mahatma Gandhi University, Nalgonda.*

- ◆ మూసీ సాహిత్య ధార
- ◆ వచన కవితా పితామహుడు 'కందుర్తి ఆంజనేయులు'
- ◆ చినుకు చినుకుల వాన
- ◆ తెలంగాణ రైతాంగ పోరాట నవలలు - ఇతివృత్త పరిచయం
- ◆ రమణ మహర్షి ప్రబోధ సాహిత్యం - శాస్త్రీయ దృక్పథం
- ◆ బి.ఎన్.శాస్త్రి స్మారక పురస్కారోత్సవ విశేషాలు
- ◆ ఉద్యమంలో పాట - మాట
- ◆ వరంగల్ జిల్లా గ్రామనామాలు



మూసీ

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పల్లీక్షణం

సాహిత్య వ్యాస సంకలనం



సంపాదకులు : మద్దిరాల సత్యనారాయణ రెడ్డి

ఈ సంచికలో.....

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కాసుల ప్రతాపరెడ్డి - ఎల్లమ్మ ఇతర కథలు

మద్దిరాల సత్యనారాయణరెడ్డి

అలతి అలతి పదాలతో రచయిత తన మనస్సులో జరిగిన మధనాస్పంత పొందుపరచి తెలిపే ప్రక్రియనే కథ అంటారు. ఈ కథలు నిత్యం సమాజాన్ని చైతన్య పరిచేవిగా ఉంటాయి. ఇలాంటి కథలు రాయడానికి తెలంగాణ కవులు ఎప్పుడు ముందుంటారు. తెలంగాణ కవులు నిత్యం జన చైతన్యం గల కథలను ఎక్కువగా రాస్తారు. భావజాల వ్యాప్తిలోనూ రచయితలు ముందుంటారు. తెలంగాణ రచయితలు చాలా మంది అనేక సమస్యలను తీసుకొని వాటిని అద్భుతమైన ఇతివృత్తాలుగా తీర్చిదిద్దుతారు. అలాంటి రచయితలలో ప్రముఖులు కాసుల ప్రతాపరెడ్డి. తన కథలు వాస్తవ జీవితానికి దగ్గరగా ఉండేలా రాస్తూ, నిత్యం సమాజాన్ని చైతన్యపరుస్తుంటాడు. ప్రతాపరెడ్డి తన చుట్టూ ఉన్నవారి జీవితాలలోని వైరుధ్యాలను, అసంబద్ధతను చెప్పడానికి కథా రచనను ఎంచుకున్నాడు. రెడ్డి కులంలో ఉపకులాల మధ్య ఉన్న వివక్షను ఎత్తి చూపాడు. సాహిత్యంలో ఈ విషయాన్ని వ్యక్తీకరించిన మొదటి రచయిత కాసుల ప్రతాపరెడ్డి.

కాసుల ప్రతాపరెడ్డి 1962 జూలై 10న నల్గొండ జిల్లాలో రాజపేట మండలంలో 'బొందుగుల' గ్రామంలో జన్మించారు. ఆ గ్రామంలోనే మెట్రిక్ వరకు చదివి, ఇంటర్మీడియట్ హైదరాబాద్లో, డిగ్రీ సికింద్రాబాద్లో, ఎం.ఎ., ఎం.ఫిల్ (తెలుగు) ఉస్మానియా విశ్వవిద్యాలయంలో చదివాడు. చదువు అనంతరం ఉద్యోగం వైపు పోకుండా ఉదయం పత్రికలో చేరి తన రిపోర్టర్గా ప్రస్థానాన్ని ప్రారంభించాడు. తరువాత ఆంధ్రప్రదేశ్ టైమ్స్ నల్లగొండ కరస్పాండెంట్గా, సుప్రభాతం వార పత్రికకు అసిస్టెంట్ ఎడిటర్గా ఎదిగి, వన్ ఇండియా ఆన్లైన్ తెలుగు పత్రికకు సీనియర్ ఎడిటర్గా పనిచేశారు. ప్రస్తుతం "ఏసియానెట్" న్యూస్ ఆన్లైన్ పత్రికలో ఎడిటర్గా పనిచేస్తున్నాడు.

జీవితానికి సంబంధించిన పలు కోణాలు స్పృశిస్తూ కాసుల ప్రతాపరెడ్డి అనేక కథలు రాశాడు. అందులో అతనికి బాగా పేరు తెచ్చిన కథలు 'ఎల్లమ్మ ఇతర కథలు'. ఈ కథా సంకలనానికి 'సురమౌళి అవార్డ్' లభించింది. ఈ ఎల్లమ్మ ఇతర కథలలో ఉస్మానియా క్యాంపస్ ప్రస్తావనలు, రైతు ఆత్మహత్యలు, విద్యార్థి ఆత్మహత్యలు, స్త్రీ - పురుష సంబంధాలలో బహుపార్శ్వాలు, రెడ్డి

ఉపకులాల మధ్య ఉన్న వివక్ష, విప్లవ ఉద్యమాలు, మూఢనమ్మకాలు మొదలైన విషయాలు మనకు కనిపిస్తాయి. ఈ కథలలో శిథిలం, దగ్గం, హత్య కథలు ఆత్మహత్యలను చిత్రీకరిస్తే, పక్షులెగిరిపోయిన తోట, ఎచ్చులు కథలలో రెడ్డి కులాల్లో ఉన్న వివక్షను ఎత్తి చూపాయి. “పెనుగులాట, వెన్నెలమెట్లు, పారేసిన కథ” లో విద్యార్థి జీవితంలో ప్రేమ, ఉద్యమాలు ఎంత బలంగా ఉంటాయో మనకు అర్థమౌతుంది. యాక్సిడెంట్, లవ్ 2020, బతుకు చిద్రం, ఆఫ్టర్ ట్వంటీ ఇయర్స్ అను మంచి మిత్రుల కథ, కొన్ని ప్రేమలు, అంతిమం, ఎల్లమ్మ లాంటి కథలలో ఉన్న ఇతివృత్తాలలో మనకు వైవిధ్యత కనిపిస్తుంది.

శిథిలం కథలో వర్షాలు పడక రైతుల బావులు ఎండిపోవడం, కరెంట్ బిల్లుల బలవంతపు వసూళ్ళు, చేసిన అప్పులు తీర్చే మార్గం కనబడకపోవడం వంటి రైతులు పడుతున్న కష్టాలను కాసుల ప్రతాపరెడ్డి కళ్లకు కట్టినట్లు చూపించాడు. ఇందులో రాంరెడ్డి పాత్ర ద్వారా పట్నంలో ఉరుకుల - పరుగుల జీవితాన్ని తేటతెల్లం చేశాడు.

“మా రైతులంతా చచ్చిపోయినంక ఈ దేశం ఎట్లా ఉంటదంటవు?

నోట్లు ముద్రించుకోని వాటిని నమిలి మింగుతారా?

ఈ రోడ్డు వేసిండు. దీన్ని రొట్టె ముక్కల లెక్క కొరుక్కొని తింటామా?”

అని ముసలాయన పాత్ర ద్వారా ప్రతాపరెడ్డి ప్రభుత్వానికి ప్రశ్నలు సంధించాడు. ప్రస్తుతం ఉన్న చెరువులు ఎక్కువగా ఆక్రమణకు గురి కాగా, మిగిలిన కొద్ది చెరువుల్లో సర్కారు తుమ్మలు మొలిచాయని, చెరువులను అప్పటి సర్కార్ పట్టించుకోలేదని, తద్వారా భూగర్భ జలాలు లేక రైతులు బోర్ల మీదా బోర్లు వేయించి అప్పుల పాలయ్యారని ప్రతాపరెడ్డి తన ఆవేదనను ‘శిథిలం’ కథ ద్వారా సమాజం ముందుంచాడు.

రెడ్ల కులంలో అంతర్గత వైరుధ్యాలను పక్షులెగిరిపోయిన తోట కథలో ప్రతాపరెడ్డి స్పష్టంగా చూపించాడు. రెడ్ల కులంలో మోటాటి, గుడాటి, పాకనాటి మొదలైన ఎనిమిది రకాల రెడ్ల గురించి వివరించాడు. తెలుగు కథా సాహిత్య చరిత్రలో మొదటి సారిగా రెడ్ల మధ్య అసమానతలను అంతర్గత వైరుధ్యాలని చిత్రించిన మొదటి వ్యక్తి కాసుల ప్రతాపరెడ్డి. ‘పక్షులెగిరిపోయిన తోట’ కథలో కథానాయకుడు సౌందర్యను పెళ్లి చేసుకోవాలనుకుంటాడు. కాని దానికి ఆర్థికపరమైన, సామాజిక పరమైన కారణాలు అడ్డు తగలడంతో పెళ్లి చేసుకోలేకపోతాడు. కథానాయకుడు ఆ జ్ఞాపకాలతో ఊరికి రావడం బాగా తగ్గించడంతో ఆ ఊరు ‘పక్షులెగిరిపోయిన తోట’ లా బోసిగా ఉందని ప్రతాపరెడ్డి చిత్రించాడు.

పద్మజ, రమణ, ప్రకాంత్ పాత్రల ద్వారా ఉస్మానియా యూనివర్సిటీలో విప్లవ ఉద్యమాలను ‘పెనుగులాట’ కథ ద్వారా ప్రతాపరెడ్డి వెల్లడించారు. భార్య భర్తలుగా కలిసున్నప్పుడు ఒకరిపై మరొకరికి ప్రేమ, ఆరాటం ఉన్నా, అవి నిర్లక్ష్యంగా ఉంటాయి. వారు ఎవరికి వారు ఎడబాటు కాగానే, ఆ

ఆరాటం ఎక్కువ అవుతుందని, మనిషి అహంన్ని వదిలినప్పుడే అది సాధ్యం అవుతుందని 'పెనుగులాట' కథ ద్వారా ప్రతాపరెడ్డి నిరూపించాడు. పారేసిన కథలో సుజాత, సురేఖ, సురేషరెడ్డి పాత్రల ద్వారా మరోసారి క్యాంపస్ విశేషాలను పొందుపరిచాడు. ఈ కథలో కథానాయకుడు సుజాతకు ధైర్యం చెప్పడం, వారింటికి పోయి వ్యాకరణం బోధించడం ద్వారా వారి కుటుంబానికి బాగా దగ్గరవుతాడు. తరవాత సుజాత వివాహం జరగడం, సుజాత తన అనుభవాలతో ఒక కథరాసి కథానాయకుడికి ఇచ్చి దాన్ని చదవమనడం ద్వారా కథానాయకుడి నుంచి ఆమె ఆశించినదేదో అందులో ఉండడం, కథానాయకుడు ఆ కథను చదవకుండానే పారేసుకోవడం ద్వారా కథా నాయకుని మనో వేదనను ప్రతాపరెడ్డి ఈ కథలో చూపించాడు.

క్షణిక ఆవేశం ఎంత ప్రమాదకరమైనదో 'బతుకు చిద్రం' కథలో చూపించాడు. ముఖ్యంగా ఆటోడ్రైవర్ల కష్టాలను, ట్రాఫిక్ కానిస్టేబుల్ల వేధింపులను ఈ కథ ద్వారా సమాజానికి తెలియజేశాడు. రాజయ్య పాత్ర ద్వారా ఆటోనడుపుకునే వారి జీవితాలను, ఆటో తోలితే గాని వారికి పూట గడవదని, వచ్చిన కొద్ది దబ్బుతోనే తన జీవితాన్ని నెట్టుకొస్తూనే, అప్పుడప్పుడు ట్రాఫిక్ కానిస్టేబుల్ కి మామూళ్ళు ఇస్తూ కాలం వెల్లడిస్తుంటారని తెలియజేశారు. రాజయ్య నాలుగు రోజుల పాటు వర్షం కారణంగా ఆటో తీయలేదు. పూటగడవడం కష్టంగా ఉండడంతో ఆటో తీసి బస్టాండ్ వద్దకు వెళ్ళగానే, ట్రాఫిక్ కానిస్టేబుల్ మామూళ్ళు అడగడం, అందుకు కోపగించుకొని రాజయ్య క్షణికావేశంలో తన ఆటోను తగలబెట్టుకొని బతుకును చిద్రం చేసుకున్నాడని ప్రతాపరెడ్డి 'బతుకు చిద్రం' కథ ద్వారా వివరించాడు. వెన్నెలమెట్లు కథలో ఇద్దరు ప్రేమికుల మధ్య ప్రేమ అప్యాయతలను చిత్రించాడు. ఈ కథలో వేణు, శ్రీదేవిలు ఇద్దరు యూనివర్సిటీలో కలుసుకొని, తన ఎం.ఎ. కాలపు విశేషాలను గుర్తుచేస్తూ, చర్చించుకుంటారు. ఇద్దరు సమాజ కట్టుబాటును అతిక్రమించకుండా, ఆదర్శమిత్రులుగా మిగిలిపోతారని ప్రతాపరెడ్డి చూపించాడు.

ఆఫ్ఫర్ ట్యూంటీ ఇయర్స్ అనే మంచి మిత్రుల కథలో కథానాయకుడు, శేఖర్ ఇద్దరు మంచి మిత్రులు. కథానాయకుడు చదువుకునే రోజుల్లో విప్లవ ఉద్యమాలలో తిరగడంవల్ల ఎస్.ఐ. అయిన మిత్రుడు శేఖర్ నన్ను అనుమానిస్తున్నాడా? అని కథానాయకుడు పదే పదే మధనపడుతూ ఉన్న పాత్రను ఈ కథ ద్వారా ప్రతాపరెడ్డి అక్షరీకరించాడు. ఎంత మంచి మిత్రులైనా రాజ్యం విసిరిన పోలీస్ వలలో చిక్కిన శేఖర్ నిత్యం అనుమానంతో ఫోన్ చేయడం ద్వారా పోలీసులు సొంత వారిని కూడా నమ్మలేని స్థితిలో ఉంటారని ఈ పాత్రల ద్వారా ప్రతాపరెడ్డి తేటతెల్లం చేశాడు. భార్య కాకుండా వివాహేతర సంబంధాలకు అలవాటుపడితే పరువు ప్రతిష్ఠలు మంటగలుస్తాయని 'దగ్గం' కథ ద్వారా తెలుస్తుంది. యూనివర్సిటీలో హెడ్ గా పనిచేసిన రాములు తన భార్య సుశీలని కాదని రమాదేవి అనే వ్యక్తికి దగ్గర కావడం, ఆమె చెప్పిన ప్రతి పని చేస్తూ, యూనివర్సిటీలో ఫండ్స్ మిస్యూస్ చేశాడని సస్పెండ్ అవుతాడు. సమాజ ఆమోదంలేని రిలేషన్ షిప్ లో పడి తన పరువు, ప్రతిష్ఠను పోగొట్టుకొని, పదవి పోయి చివరికి తనకు తానే దగ్గం అయ్యాడని ప్రతాపరెడ్డి తన 'దగ్గం' కథ ద్వారా చూపించాడు.

హత్య కథలో విద్యార్థులు ఒత్తిడి భరించలేక ఆత్మహత్య చేసుకునే యైనాన్ని ప్రతాపరెడ్డి సమాజం ముందుంచాడు. ఈ కథలో తల్లిదండ్రులు మార్కులు రావాలనే ఉద్దేశ్యంతో తమ పిల్లలను దూరంగా హాస్టల్లో ఉంచి చదివిస్తారు. పిల్లలకు ఏంకావాలో అడగకుండా, మార్కులు రావడంలేదని మానసిక హింసకు గురిచేస్తారు. తద్వారా ఒత్తిడి తట్టుకోలేక విద్యార్థులు ఆత్మహత్యవైపు మళ్ళుతున్నారని నేటి తల్లిదండ్రులకు కనువిప్పు కలిగేలా, తల్లిదండ్రులే తమ పిల్లలను హత్య చేస్తున్నారని ప్రతాపరెడ్డి వివరించాడు. 'ఎచ్చులు' కథ ద్వారా రాజకీయ నాయకుల ఎత్తులు, చిత్తులు, వారి బోల తనాన్ని తేటతెల్లం చేశాడు. ఈ కథలో రెడ్డి వర్గాల అంతర్గత విభేదాలను మరోసారి చూపించాడు. "వాడు మోటాటి పుటుక పుట్టి, గుడాటోనితోటి జత కట్టిండు" అనే మాటను బుచ్చిరెడ్డి పాత్ర ద్వారా రెడ్ల కులాలో ఆధిపత్య పోరు గురించి ప్రతాపరెడ్డి ప్రస్తుతం చేశాడు.

కథానాయకుడు యాక్సిడెంట్ కథలో ప్రజలకోసం కష్టించి పని చేసే వ్యక్తి. ప్రజలకు తన వల్ల అయ్యే ప్రతి పని చేసేవాడు. అలాంటి వ్యక్తిని నక్కలైట్స్ వచ్చి డబ్బుకోసం బెదిరించడం, ఊరి విడిచి వెళ్ళమనడం ద్వారా నక్కలైట్లు రాజకీయాలలో దోపిడిని ఈ కథ ద్వారా ప్రతాపరెడ్డి ఎండగట్టాడు. కొన్ని ప్రేమలు కథలో ప్రేమికుల మధ్య ఉన్న గాఢతను వివరించాడు. ఈ కథలో నరేంద్ర, మల్లిక్, నరేంద్ర, స్వప్న, రమణి పాత్రలను తీసుకొని వాటికి జీవం పోశాడు. వివిధ మనస్తత్వాలు గల పాత్రలను తీసుకొని వాటికి ప్రాణం పోసి సమాజం ముందుంచాడు. 'అంతిమం' కథలో రాము జీవితంలోనూ, సమాజంలోనూ ఇమడలేకపోతాడు. నిత్యం ఏదో ఒకటి ఊహించుకొని, తనలోతానే మధనపడుతూ, ఎవరికి చెప్పుకోలేక, తనను తానే నిందించుకుంటూ కాలం వెళ్ళదీస్తూన్న పాత్రను ప్రతాపరెడ్డి రమణీయంగా తీర్చిదిద్దాడు.

ముందు ముందు మానవ సంబంధాలు యాంత్రికంగా మారబోతున్నాయా అన్నట్లు ఉంటుంది లవ్ 2020. ఈ కథలో వివాహమైన సీతారాంను వసుంధర లొంగదీసుకొని తనకు అనుకూలంగా మార్చుకుంటుంది. కాని చివరకు సీతారాం వివాహ బంధాన్ని గౌరవించి తన భార్యనే కోరుకుంటాడని ప్రతాపరెడ్డి అక్షరీకరించాడు. గ్రామీణ ప్రాంతాల్లో నేడు జరుగుతున్న మూఢనమ్మకాలపై ప్రతాపరెడ్డి ఎక్కుపెట్టిన బాణం 'ఎల్లమ్మ కథ'. ఈ కథలో సత్య పాత్రను అద్భుతంగా తీర్చిదిద్దాడు. పూజలు జరుగుతున్నా ఇంటికి కోడలిగా అడుగుపెట్టి, ధైర్యంగా ఇంటిని చక్కబెట్టి, అత్తగారు అయిన బాలమ్మ అజ్ఞానాన్ని పోగొట్టి నలుగురికి ఆదర్శంగా నిలబడిన సత్యపాత్రను ప్రతాపరెడ్డి సజీవంగా చిత్రించాడు. నిజానికి ఇప్పటికీ గ్రామాలలో ఈ మూఢనమ్మకాలు రాజ్యమేలుతున్నాయి. సమాజానికి పట్టిన ఈ మౌఢ్యాన్ని వదిలించాలనే ఉద్దేశ్యంతో ఈ ఎల్లమ్మ కథను సంధించాడు కాసుల ప్రతాపరెడ్డి.

ఈ విధంగా కాసుల ప్రతాపరెడ్డి కథలు సుదూరంగా సాగిపోకుండా, పొందికగా, క్లుప్తంగా, సామాజిక స్పృహ కలిగినవిగా ఉంటాయి. ప్రతాపరెడ్డి వివిధ కథల్లో అనేక పాత్రలను తీసుకొని, ఆ పాత్రల అంతర్ మధనాన్ని కళ్ళకు కట్టినట్లుగా ప్రతిభవంతంగా చిత్రించాడు. ప్రతాపరెడ్డి కథలన్ని సమాజ జీవన దర్పణానికి ప్రతిబింబాలు. వాస్తవ జీవితాలను చిత్రిస్తాయి. వీరి కథలలో ఏ పాత్రకు ఆ పాత్ర సహజత్వాన్ని కలిగి ఉంటుంది. మొత్తంగా ఆయన కథలన్ని ఉత్తమంగా ఉన్నాయి.

కరోనాపై
కవిత్వం

కాలం
బంధించిన
క్షణాలు



తెలుగు శాఖ

మహాత్మాగాంధీ విశ్వవిద్యాలయం - నల్లగొండ

కాలం

బంధించిన

క్షణాలు

తెలుగు శాఖ
మహాత్మాగాంధీ విశ్వవిద్యాలయం
నల్లగొండ -508254
తెలంగాణ రాష్ట్రం

KAALAM BANDHINCHINA KSHANAALU

An Anthology of Poems by MGU Students
(In the view of current situation, the book was written to bring public awareness regarding Corona (COVID-19) Virus. It might be helpful to the society).

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Narra Praveen Reddy

Dept. of Telugu, Art's Block

Mahatma Gandhi University

Nalgonda-508254, TS, India

Cell : 9393636405

E- Mail : narramgu@gmail.com

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కాలం బంధించిన క్షణాలు

(కరోనాపై కవిత్వం)

గౌరవ సలహాదారులు

ఆచార్య ఎం.యాదగిరి

రిజిస్ట్రార్, ఎంజీయూ

ఆచార్య కె.అంజిరెడ్డి

ప్రధానాచార్యులు, ఎంజీయూ

గౌరవ సంపాదకులు

ఆచార్య కె.అరుణప్రియ

బాధ్యులు, తెలుగుశాఖ, ఎంజీయూ

ప్రధాన సంపాదకులు

నర్రా ప్రవీణ్ రెడ్డి

అధ్యాపకులు, తెలుగుశాఖ, ఎంజీయూ

సహకారం

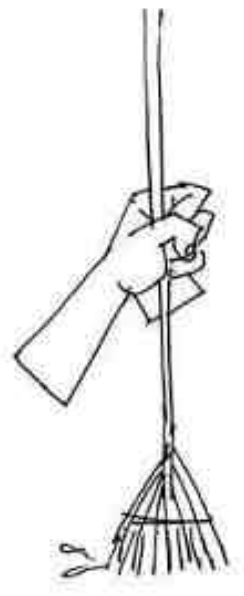
ఎం.ఆనంద్

అధ్యాపకులు, తెలుగుశాఖ, ఎంజీయూ

తెలుగు శాఖ

మహాత్మాగాంధీ విశ్వవిద్యాలయం

నల్లగొండ



జాతినమగ్రతకు పట్టుగొమ్మలైన పల్లెసీమలను
దేశ ఆర్థికాభివృద్ధికి నాడులైన పట్టణాలనూ
ప్రపంచమంతా నిద్రపోతున్నప్పుడు మేల్కొని
శుభ్రంచేసి
ఆరోగ్యకర బాటలు తెరిచే
ఆయుష్షును పెంచే
త్యాగజీవులు
యావత్ సఫాయి కార్మికులకు
ఈ పొత్తం అంకితం.

ముందుమాట

అంతుచిక్కని వ్యాధి కరోనా (కొవిడ్-19) ప్రపంచాన్నే వణికిస్తుండటం చాలా బాధాకరం. ఇటువంటి క్లిష్ట పరిస్థితుల్లో ఎవరూ ఇళ్ల నుంచి రాకూడని పరిస్థితులు అనివార్యంగా ఏర్పడ్డాయి. ప్రభుత్వ నియమాలు పాటిస్తూ, విశ్వవిద్యాలయానికి సెలవులు ప్రకటించుకున్నాం. విశ్వ విద్యాలయం క్వారంటైన్ సెంటర్ గా కూడా మారి సేవలందిస్తుంది.

ఈ తరుణంలో విశ్వవిద్యాలయ తెలుగు శాఖ విద్యార్థులు సామాజిక బాధ్యతనెరిగి తదనుగుణంగా ఔషధంలేని కరోనాకు సాహిత్య ఔషధాన్ని ఇంటినుండే వివిధ సామాజిక మాధ్యమాల ద్వారా పంపిణీ

చేస్తుండటం చాలా గొప్పగా ఉంది. విద్యార్థులు కేవలం చదువులలోకంలో మునిగి పోయి సమాజాన్ని పట్టించుకోవడం లేదనుకుంటే పొరపాటే అనిపిస్తుంది మా తెలుగుశాఖ విద్యార్థులను చూస్తుంటే.

తెలుగుశాఖ ఈ సంవత్సరం (2019-20) లోనే ఏర్పాటైంది. ఇది తొట్టతొలి సంవత్సరం. ఇది మా ఆర్ట్స్ కళాశాలలో ఆరునెలల పసిపాప. అయినా తన ప్రతిభాపాటవాలను ఆకాశం నిండా ఎగుర వేయడం అభినందించదగిన విషయం.

విద్యార్థులను ఆ మార్గంలో ప్రయాణింపజేస్తూ బాధ్యతెరిగిన యువకవులుగా, రచయితలుగా తీర్చిదిద్దుతున్న తెలుగుశాఖ అధ్యాపకులు, పుస్తక ప్రధాన సంపాదకులు నర్రా ప్రవీణ్ రెడ్డిని అభినందిస్తున్నాను.

వచ్చిన సెలవులను దుర్వినియోగం చేసుకోకుండా కవిత్వం ద్వారా సామాజిక శ్రేయస్సును కాంక్షిస్తూ, కరోనా మహమ్మారిపై తిరుగుబాటు చేస్తున్న ఈ విద్యార్థులను చూస్తుంటే చాలా ఆశ్చర్యంగానూ, ఆనందంగానూ ఉన్నది.

మార్పును కోరుకునేది సాహిత్యం. మంచికి మార్గం వేసేది సాహిత్యం. అటువంటి సాహిత్యాన్ని అభ్యసించే విద్యార్థులు మా విశ్వవిద్యాలయంలోనూ ఉండటం ముదావహం. మా తెలుగువిద్యార్థులు రాసిన కవితలు సమాజంలోకి వెళ్ళాలని, కరోనా నివారణచర్యలు ఈ కవిత్వం గుండా ప్రవహించాలని అభిలషిస్తున్నాను. కాబోయే యువకవులైన ప్రియమైన విద్యార్థినీ విద్యార్థులకు మనస్ఫూర్తిగా శుభాకాంక్షలు. ఆశీస్సులు.

-ఆచార్య ఎం.యాదగిరి

-ఆచార్య ఎం.యాదగిరి
రిజిస్ట్రార్, మహాత్మాగాంధీ విశ్వవిద్యాలయం,
ఎల్లారెడ్డిగూడ, నల్లగొండ- 508 254.



అతినవ్యకవితకు స్వాగతం

వి వర్షపుచుక్క ఎక్కడ రాలాలో మబ్బు చెప్పదనుకుంటా. కానీ రాలినచోటుని బట్టి నీటిచుక్క పనితనం తేటతెల్లమవుతుంది. జలభాండంలో పడితే ఎలాంటి ప్రత్యేకతా, స్వతంత్ర ఉనికీలేని 'గుంపుగొర్రె' అవుతుంది. ముత్యపు చిప్పలో పడితే తళతళ మిలమిల మెరిసే యోగం సొంతం చేసుకుంటుంది. మట్టిలో రాలితే ఒక విత్తుకు ప్రాణం పోయడానికి దాని సత్తువనంతా అర్పణ చేస్తుంది.

మనషులూ అంతే. సముద్రంలో వాన చినుకుల్లా పుట్టి, సంపాదించి, సుఖించి భూమ్మీద

లుప్తమయ్యేవారే ఎక్కువ. ఇక రెండవ వర్గం ఏలిక యంత్రంలో ఎక్కడో ఒక సందర్భంలో శిఖరం సాధించి మురిసి ముక్కలై మెరిసిపోయామని భ్రమిస్తారు. మిగిలిన వాళ్ళు మట్టిలో పడ్డ చినుకుల్లాంటి మనుషులు. వాళ్ళు ఏదీ ఊరకే చేయని సృజనశీలురైన రచయితలు, కవులు. వాళ్ళు సృజనను ఎంత ప్రేమిస్తారంటే దానికోసం ఎంతటి త్యాగాలకైనా వెనుకాడరు. భర్తూహరి 'సుకవితా యదస్తి రాజ్యేన కిం' అన్నది అందుకే.

దార్మనికత సృజనకారుడి సృష్టి పరాకాష్ట. జరిగే దాన్ని కాకుండా జరుగుతున్న దాని హేతువును పసిగడతాడు. 2008లో సిల్వీయా బ్రౌన్ 'The End of Days' అనే నవలలో వూహాన్-400 అనే వ్యాధి గురించి రాసింది. 2020 ప్రాంతం 'A Flue like disease will spread rapidly all over the world, and will disappear suddenly as it come' అని చెప్పింది. తిరిగి పది సంవత్సరాల తర్వాత మళ్ళీ వచ్చి ఆ తర్వాత శాశ్వతంగా కనుమరుగవుతుందని చెప్పారావిడ.

ప్రస్తుతం విస్తరించిన కరోనా మూలాల్ని, లోతుల్ని అన్వేషిస్తున్నారు కవులు. అది జీవా యుధమనే అనుమానాలతోపాటు, దాని విజృంభనకు మానవ జాతి నిర్వహించిన తప్పిదాలనూ తవ్విపోస్తున్నారు. ప్రకృతిలో మనిషి కూడా ఉన్నాడని చూడకుండా మనిషి, ప్రకృతి వేరు వేరనుకొని మనిషి దాన్ని స్వాధీనపరుచుకోవడానికి చేసే విఫలయత్నానికి కరోనా ఒక తిరుగుబంతి (Reverse ball) అని కవులు తెలుసుకున్నారు. జీవరాశిలో మనిషి ఒకడనికాక మనిషి కోసమే మిగతా జీవులన్నీ అనే ఆలోచనల వికటించిన రూపమే (bad face) కరోనా అని కూడా తెలుసు. కరోనా నుండి ఇవ్వాల కాకపోతే రేపు మనిషి తప్పించుకుంటాడు. రేపు మరో వైరస్ ఇంకా వికృత రూపంలో రావచ్చు. అందుకు మనిషి ఏం చేయాలి? ప్రకృతితో మనిషి ఎలా సహజీవనం చేయాలి? అని కవి ఆలోచిస్తున్నాడు.

మహాత్మాగాంధీ యూనివర్సిటీ తెలుగుశాఖ విద్యార్థులంతా 'కరోనా' కోసం కలం పట్టడం ఆహ్వానించదగ్గది. కరోనా పదనిసలు చాలా వింతగా కూడా ఉన్నాయి. గుళ్ళూ, చర్చిలు, మజీదులు మూసివేసారు. బాబాలు, స్వాములు జనాలను అజ్ఞానంలో ముంచెత్తే అవకాశాన్ని కోల్పోయారు. కులం, గోత్రం, మతం, మాయతో సంబంధం లేకుండా అందరూ సమాన దూరం పాటిస్తున్నారు. ఇది ఎప్పటికీ కొనసాగితే ఎంతబాగుండు. ఈ 'కాలం బంధించిన క్షణాలు' కవితా సంకలనంలో కొన్ని కవితలు ఈ అంశాలనే స్పృశిస్తున్నాయి.

చరిత్రలో జరిగిన చాలా జ్ఞాపకాలు శకలాలుగా మన హృదయంలో నిలిచిపోతాయి. స్పైలాబ్ పతనం, సంపూర్ణ సూర్యగ్రహణం జీవితాంతం జ్ఞాపకం...

...ఉండేవే అయినా అవి ఎన్నడు జరిగాయో ఇప్పుడు చెప్పలేం. అలాగే ఓ యాభై సంవత్సరాల తర్వాత కరోనా విధ్వంసాన్ని పెద్ద వయసు వారి ఊహల్లోనే తలపోసుకోవలసి ఉంటుంది. కానీ ఇలాంటి కవితా సంకలనాలు ఆ సందర్భాలను నిఖార్సుగా రికార్డు చేస్తాయి.

కురుక్షేత్ర యుద్ధంలో సూర్యాస్తమయం జరిగిందని వాగ్దానభంగమయిందని చింతలో ఉన్న అర్జునుడికి శ్రీకృష్ణుడు సూర్యుడికి అడ్డంగా తాను వేసిన సుదర్శనచక్రాన్ని తొలగించడంతో అర్జునుడు శత్రు సంహారం చేసిన సంగతి మహాభారత పాఠకులకు తెలిసిందే. తెలియని విషయమల్లా ఏమిటంటే క్రీ.పూ. 2500 కాలంలో మహాభారత యుద్ధ సమయంలో వాయువ్య భారతదేశంలో సూర్యగ్రహణం సంపూర్ణంగా కనిపించిందనే పరిశోధన.

కరోనా వైరస్ విపత్తు వల్ల మానవజాతి చాలా రకాలుగా మేల్కొన్నది. చాలా కవిత్వం వివిధ మాధ్యమాలలో వచ్చింది. అయితే దాన్ని నమోదు చేయడానికి చాలా కాలం పట్టవచ్చుకాని మహాత్మాగాంధీ విశ్వవిద్యాలయం మాత్రం చాలా వేగంగా స్పందించింది. విభిన్న కోణాలలో యువ కవులచే కవిత్వం రాయించడమేగాక కవితా సంకలనం తక్కువ సమయంలోనే ఇలా పుస్తక రూపం సంతరించుకోవడానికి ప్రధాన కారణం విశ్వవిద్యాలయ తెలుగు అధ్యాపకులు నర్రా ప్రవీణ్ రెడ్డి. ఆయన చురుకుదనానికి అభినందనలు. గౌరవనీయులు రిజిస్ట్రార్ ఎం. యాదగిరి, ప్రధానాచార్యులు డా॥కె.అంజిరెడ్డి, కె. అరుణప్రియ గార్లకు శుభాకాంక్షలు. సంకలనానికి స్వాగతం.

- డా॥ ఏనుగు నరసింహారెడ్డి



డా॥ ఏనుగు నరసింహారెడ్డి
సుప్రసిద్ధ కవి, విమర్శకులు, అనువాదకులు
తెలుగు విశ్వవిద్యాలయ సాహిత్య పురస్కార గ్రహీత
ప్రధాన కార్యదర్శి, తెలంగాణ సాహిత్య అకాడమీ

కాలం మీద సంతకం

కరోనా...ఇప్పుడు ఈ పేరు తెలియని వారు ప్రపంచాన లేరు. ఎలాంటి విచారణ లేకుండానే విశ్వ మానవాళిని ఖైదు చేసిన నిరంకుశ క్రిమి ఇది. రాకెట్లు వేసుకొని గ్రహాలచుట్టూ తిరుగుతున్న మానవ మేధస్సును మరణభయంతో నేలకు దించి వికటాట్టహాసం చేస్తోంది ఈ రోగం. అయినా సరే కరోనా చేస్తున్న నృత్యకేళికి చరమగీతం పాడటం ఖాయం. మనిషికి మనిషికి మధ్య కట్టుకున్న తారతమ్య గోడలు నేడు ప్రాణభీతితో పెడుతున్న కేకలకి కూలిపోయాయి. కలుషితంకాని గంగానదిలా భూగోళంపై నేడు మానవత్వం స్వచ్ఛంగా ప్రవహిస్తోంది. ఈ ప్రవాహంలో మేము భాగమవుతామంటూ పిల్లకాలువలా జతకడుతుంది కవిత్వం.

ఔను కవిత్వం జోరందుకుంది. గుండెలోపల గూడుకట్టుకున్న మృత్యుభయాన్ని అక్షరాలతో కడిగేస్తుంది నేటి కవిత్వం. నలుదిక్కుల నుండి వచ్చిన పాయలన్నీ ఒక

మహానది అయినట్లు ఇందులోనూ కవులు, కవయిత్రులు, అధ్యాపకులు, రాజకీయ నాయకులు, సామాజికవేత్తలే కాక ఎం.వి మొదటి సంవత్సరం చదువుతున్న విద్యార్థులూ తమ కలాలను కదిలిస్తున్నారు. అట్లా ఉమ్మడి నల్లగొండజిల్లా మహాత్మాగాంధీ విశ్వ విద్యాలయం తెలుగుశాఖ విద్యార్థినీ విద్యార్థుల చేతిలో పురుడు-పోసుకున్నవే ఈ “కాలం బంధించిన క్షణాలు”.

ఇటీవలే ఈ విశ్వవిద్యాలయంలో తెలుగు శాఖ ప్రారంభమైంది. ఇంతలోనే అక్కడి నుండి తెలుగుశాఖ విద్యార్థుల కవితాసంకలనం వెలువడుతోందంటే ఎంతో ప్రశంసించదగ్గ విషయం. అందుకు కారకులైన ప్రతి ఒక్కరికీ అభినందనలు. శుభాకాంక్షలు.

ఇక పుస్తకం విషయంలో ముందుగా చెప్పుకోవాల్సింది శీర్షిక గురించి. లాక్ డౌన్ తో ఇంట్లో బందీలైన మానవజాతి స్పందనలకి అద్దంపట్టిన కవితా సంకలనం ఇది. ఈ సందర్భాన్ని అచ్చు గుద్దినట్లు చిత్రించిన డ్రాయింగ్ చిత్రంలా ఉంది ఈ శీర్షిక. సాహిత్యంలో గుర్తుండిపోయే పేరు పెట్టిన ప్రధాన సంపాదకులకు అభినందనలు. ఇందులోని కవితలు ప్రపంచవిపత్తుకు సాక్ష్యంగా నిలిచాయి. వీరంతా యువ కవులే... సందేహం లేదు. అయినప్పటికీ ఎంతో అందంగా, ఆకర్షణీయంగా కవితల్ని రాశారు. వీరిలో అమ్మాయిల (కవయిత్రుల) సంఖ్య ఎక్కువగా ఉండటం మంచి పరిణామం.

కాలు కదలక పొద్దుపోక వినోదం ఏమీలేక ఇంట్లోనే విశ్రాంతి తీసుకుంటున్న మనుషుల అంతరంగాలను చిత్రించింది ఈ కవిత్వం. అంతేకాక జీవితంపై చూపాల్సిన ఆశని, మానవాళి ఒక్కటై చెయ్యాల్సిన పోరాటాన్ని, నిశ్శబ్దంలోంచి గెలవాల్సిన యుద్ధాన్ని ఇలా ఒక్కటేంటి ఎన్నింటినో స్ఫురించాయి ఈ చిన్నారుల కవితలు.

35కిపైగా కవితలతో కూర్చబడిన ఈ సంకలనంలో ప్రతి కవితా మనల్ని చదివింపజేస్తుంది. ఈ స్ఫూర్తితోనే విద్యార్థులు నిరంతరం కవితాసేద్యం చేస్తే గనుక కవిత్వమే శ్వాసగా నడిచిన, నడుస్తున్న డా.సినారె, డా.ఎన్.గోపిల కవిత్వమార్గంలో చేరగలుగుతారనిపిస్తుంది. ఇందులోని కొన్ని కవితాపంక్తులు నాకు ఆ నమ్మకాన్ని కలిగిస్తున్నాయి. ‘విషపుపూత’ అనే కవితలో “నాఊరి శెలకల / మొలకెత్తిన నా చేతులకు / ఇప్పుడు విషపుపూత / నన్ను బాధిస్తుంది” అంటుండో కవయిత్రు ఆర్థ్రతగా. ఇంకా బూడిద చేసేదాంక, కన్నీటిశోకం, ఏమని రాయను?, గడకతిని... బతుకుబండి..., పో...! వంటి కవితల్లో కదిలించే వాక్యాలు వున్నవి. నర్రా ప్రవీణ్ రాసిన ‘కాలం బంధించిన క్షణాల’లో “పిట్టల్లా రాలే శవాలు/ గుప్పిట్లో ప్రాణముంచమని చెప్పే నియమాలు/ కాన్వాస్ పై కనిపించే/ ప్రస్తుత బ్లాక్ అండ్ వైట్ చిత్రాలు! / దృశ్యం పోయమైజ్ కాని క్షణంలో/ కాలం బంధించిన దేహాలపుటలజోలే/ చదివినా అర్థంగాని ఉద్గ్రంథం!!” లాంటి కవితాపంక్తులు ఉత్కృష్టమైన కవితాశిల్పానికి

మచ్చు తునకలు. అందుకే కాబోలు ఇది బంజారా, ఇంగ్లీష్ భాషల్లోకి అనువాదమై ప్రశంసలు పొందింది. అనువాదకులకు శుభాకాంక్షలు. ఇట్లాంటి మేలైన కవితలెన్నో దీంట్లో కనపడతాయి. అన్నీ చదవదగినవే. ఆశ్వాదించదగినవే.

“ఆధునిక కవిత్వం అర్థం కాలేదంటే -ఆధునిక జీవితం అర్థం కాలేదు అన్న మాట” అన్న శ్రీశ్రీ వచనాల్లోని అర్థం రెండోదాన్ని అర్థం చేసుకుంటేనే మొదటిది సృష్టించగలమని! ఈ విద్యార్థులు ఆధునిక జీవితాన్ని అర్థం చేసుకోవడంలో సఫలీకృతులు అయ్యారని వారి కవిత్వం నిరూపిస్తుంది. అందుకు నిదర్శనమే వారి కవితావస్తువులు. వైద్యుల బాధలు, మానవ నిర్లక్ష్యం, రైతులబాధలు, బతుకుబండి, పేదరికం, ఆత్మవిశ్వాసం.. ఇట్లా అనేకాంశాలను కాలం కిటికీలోంచి కవిత్వంలో ఆవిష్కరించారు. వీరందరికీ మంచి భవిష్యత్తు ఉంది. అభినందనలు. ఆశీస్సులు.

ఇక ఈ సంకలన సంపాదకుడు మా చిరంజీవి ప్రవీణ్ కవిత్వం రాయగలడు, కథలు రాయగలడు, పరిశోధనాత్మక వ్యాసాలూ రాస్తాడు. కష్టపడేతత్వం, క్రమశిక్షణ, నిరంతర సృజన, పెద్దలపట్ల గౌరవం, గురువులపట్ల భక్తి ప్రవీణ్ లో నాకు నచ్చిన అంశాలు. ఒకపక్క పరిశోధనలోనూ మరోపక్క బోధనలోనూ ఉత్తమంగా రాణిస్తున్నాడు. సమకాలీన అంశాలపై స్పందిస్తూ, విద్యార్థినీ విద్యార్థులతో కవితలు రాయించి దానిని గ్రంథరూపంలో పాఠకుల ముందుకు తెస్తున్నందుకు మనస్ఫూర్తిగా అభినందిస్తున్నాను. ఇదే స్ఫూర్తితో మరిన్ని రచనలు వారి కలంనుండి జాలు వారేలా చేయాలనీ ఆశిస్తూ వర్ధిష్టువు ప్రవీణ్ ను అభినందిస్తున్నాను. పుస్తకానికి విశిష్టమైన బొమ్మలు వేసిన ప్రముఖ చిత్రకారులు కూరెళ్ళ శ్రీనివాస్ గారికి అభినందనలు. ప్రధానాచార్యులకు, శాఖాబాధ్యులు డా.కె. అరుణప్రియగారికి శుభాకాంక్షలు.

-ఆచార్య సూర్యా ధనంజయ్

ఆచార్య సూర్యా ధనంజయ్
అధ్యక్షులు, తెలుగుశాఖ,
ఉస్మానియా విశ్వవిద్యాలయం-హైదరాబాద్.



ప్రకృతి ఆత్మఘోషను వినాల్సిన సందర్భమిది

“పర్యావరణాన్ని కాపాడడానికి మనస్వంత ప్రభుత్వాలతో మనం పోరాడాల్సి రావడమే అత్యంత భయానకమైనది”

-అన్నెల్ ఆడమ్స్, ప్రముఖ పర్యావరణవేత్త

“పర్యావరణం నాశనమైపోతుంది. ప్రజలు చనిపోతున్నారు. కానీ మీకు ఇవేమీ పట్టవు. డబ్బు, వృద్ధిఅంటూ కథలు చెప్తారు. మీకెంత ధైర్యం? మిమ్మల్ని క్షమించం” అని స్వీడన్ కు చెందిన 16యేండ్ల బాలిక గ్రెటా థెన్ బర్గ్ ఐక్యరాజ్య సమితిలో ప్రపంచదేశాల అధినేతలను హెచ్చరించింది. కానీ దానిని నేతలు అంతగా పట్టించుకోలేదు. ఫలితంగానే ఆరు నెలలు తిరగక ముందే ప్రకృతి వైపరీత్యపు మహమ్మారి కరోనా దెబ్బకు ప్రపంచం విలవిలలాడి పోవడం మనం చూస్తున్నాం. దీనికి ముందు 67 కోట్ల హెక్టార్లలో ఉండే ప్రపంచానికి ఊపిరితిత్తుల్లాంటి అమెజాన్ అడవి కార్చిచ్చులో కాలి బూడిదవడం మనం చూశాం. అంతకుముందు సునామీలొచ్చి వదరల్లాంటి ఉపద్రవాలొచ్చి తీరప్రాంతాల్ని ముంచేయడం మరిచిపోలేని ఘటన. ఇలా ప్రకృతి లెక్కలేనన్నిసార్లు మానవాళిని ఏదోఒక రూపంలో హెచ్చరిస్తున్నా మనం పట్టించుకోకపోను మరింత ప్రకృతి విధ్వంసానికి పూనుకొంటున్నదానికి మూల్యమే ఈ కరోనా.

ఇలాంటి ప్రకృతి వైపరీత్యాలను పసిగట్టి జాగ్రత్తలను లోకానికి చాటి చెప్పేందుకు మహాత్మాగాంధీ యూనివర్సిటీ విద్యార్థులు పూనుకోవడం అభినందించాల్సిన విషయం. కాలానికి వేగులు

విద్యార్థులు. కడలి కెరటాలకు నిలువెత్తు రూపం విద్యార్థులు. కపటత్వాన్ని చీల్చి వేనవేల సైన్స్ వెలుగురేఖల్ని విరజిమ్మే కిరణాలు విద్యార్థులు. అలాంటి పాత్ర ఎంజీయూ తెలుగుశాఖ విద్యార్థులు పోషిస్తున్నారని ఈ 'కాలం బంధించిన క్షణాల'ను చదువుతున్నప్పుడు అర్థమైంది.

ప్రకృతి విపత్తులకు కారణాలు అన్వేషిస్తే కాలం ముందు పెట్టుబడిదారుల మితిమీరిన అత్యాశయే మొదటి ముద్దాయిగా నిలబడుతుంది. దాని అంతులేని స్వార్థమే యావత్ ప్రకృతి విధ్వంసానికి కారణం.

అందుకు గ్రేటా థెన్ బర్గ్ నిలదీసినట్లు ప్రపంచదేశాల నేతలను నిలదీయాల్సిందే. కానీ నిలదీతలను తప్పించుకోవడానికి, ఎదురీతలను ఎదుర్కొనడానికి బదులు రాజకీయ రంగస్థల కుట్రల గంతులను ఈ సందర్భంగా మనం చూశాం. చావు ముంగిట్లో నిలబడిన ఓ అగ్రరాజ్యధినేత హైడ్రాక్సీ క్లోరోక్విన్ మాత్రలకోసం మనపై ప్రతీకారం తీర్చుకుంటామనడం మనం విన్నాం. అభివృద్ధి చెందిన సరిహద్దు దేశం మన దేశ రక్షణకు లక్షల పీఈపీలు, ఉచితంగా పంపించడం ఇంతటి ప్రమాదకర సందర్భాల్లోనూ మనం కన్నాం.

ఇలాంటి పరిస్థితుల్లో ఎలాంటి భావోద్వేగాలకు లోనుకాకుండా, రొచ్చురాజకీయవాదాలకు తావివ్వకుండా యూనివర్సిటీ విద్యార్థులు యూనివర్సల్ దృక్పథంతో కవిత్వం వెలువరించడం వారి ప్రగతిశీలతకు, ప్రకృతిపై వారికున్న ప్రేమకు నిదర్శనం.

'ప్రాణాలను నీటిబుడగల్లా చేశావ్/ గుడిలో దైవం ఉందో లేదోగానీ/ వైద్యశాలలో ఉండే డాక్టర్ మా దైవమెప్పటికీ' అని ప్రకటించిన గునపంలాంటి కవితను చూస్తే విద్యార్థుల సైంటిఫిక్ చూపు కనిపిస్తుంది. నేడు ఒక్క వైద్యాలయమే తలుపులు తెరిచి కరోనా బారిన పడినవారిని ఆహ్వానిస్తుంది. మాప్రాణాలను అడ్డేసైనా సరే మీ ప్రాణాలను కాపాడుతామని వైద్యులు శ్రమిస్తున్నారు.

'ప్రకృతికి కోపం వస్తే నీలా ఉంటదేమో/ ప్రపంచాన్ని మొత్తం గడగడలాడిస్తున్నావు' లాంటి కవితావాక్యాలు ఈ కరోనా విపత్తుపై పాఠకుడు ఒక అంచనాకు రావడానికి దారితీసేలా ఈ పుస్తకంలో ఉన్నాయి.

"తేనెటీగలు భూమిపై అదృశ్యమైతే ఆ తర్వాత మనిషి జీవించడానికి నాలుగు సంవత్సరాలు మాత్రమే మిగిలి ఉంటుంది"

- మారిస్ మాటర్లింక్

ఈ మాటవింటేనే ఒంట్లో వణుకుపుడుతుంది. కానీ ఇలాంటి మాటలేవి ఒంటబట్టించు కోకుండా తేనెటీగలు, సీతాకోకచిలుకలు, ఎర్రలు, నత్తలు వీలైనంత

త్వరగా అంతమయ్యే ప్రమాదకర పద్ధతులలో పోతున్నాం. ఇదే గొప్ప అభివృద్ధిని ఉ విక్సూరుతున్న ఫలితమే ఇది. అలా అభివృద్ధి మోజులో ప్రకృతి నియమాలను మర్చిపోయి మా తెలివితో ప్రకృతినే లొంగదీసు కుంటున్నామని మురిసిపోయిన ఫలితమే ఈ కరోనా. నదులను తోడేసి, కొండలను తొవ్వేసి, భూమీద బతుకుతున్న తన సహజీవులను చంపేసి, అడవులను బూడిద చేసిన పాపం ఇప్పుడు చేతులు కడిగేసుకుంటే పోతుందా? ఒకవేళ కరోనాను దాటినా రేపు ఇంకో వైరస్ రాకమానదు. కాబట్టి ఇప్పుడు కడుక్కోవాల్సింది చేతులు మాత్రమేకాదు ప్రకృతికి అతీతులమనుకునే అహంభావంతో కలుషితం అయిపోయిన మనసును కూడా కడుక్కోవాలి.

ప్రకృతి చాలా సున్నితమైనది. ఇప్పుడే పుట్టిన పసిపాప ఎంత సున్నితమైనదో, కంట్లో కనుపాప ఎంత సున్నితమైనదో అంత సున్నితమైనది ప్రకృతి. అలాంటి ప్రకృతిని తమకు తెలివి ఉందని ఇష్టం వచ్చినట్టు ధ్వంసం చేస్తే దాని పరిణామాలు ఇలా ఉండడం సహజం. ప్రకృతిని మనం ఎంత నాశనం చేస్తే దానికి వందరెట్లు ఆగ్రహంతో తిరగబడుతుంది.

ప్రకృతికి పచ్చని సుతిమెత్తని శరీరం, మనస్సు, హృదయం, అందమైన స్పందనలు ఉంటాయి. ఆరుద్రపురుగులా సుకుమారంగానూ, సముద్రమంత సమరంగానూ ఉంటుంది. ప్రకృతిని ముట్టుకుంటే పాలు కారినట్టే గాయపరిస్తే నెత్తురూ చిమ్ముతుంది. మనిషివలె ఎత్తుగడలు తెలియకపోవచ్చు కానీ సమతగా సహజంగా సమధర్మంగా అందరినీ చూస్తుంది. తన స్పందనలుకూడా మన చేతలనుబట్టే ఉంటాయి. పద్ధతిగా ఉంటే మన పాదాలను తాకి ముద్దాడుతుంది. ప్రకృతికి విరుద్ధంగా ప్రవర్తిస్తే పగబట్టిన ప్రవాహమై అది బుస్సున లేచి ముంచేస్తుంది. కస్సున ఎగిసి కాటేస్తుంది. కన్ను తెరిచే పరిస్థితి కూడా ఉండదప్పుడు. మన వ్యధ చెప్పుకోజాలం.

‘ మందులేదు మాకులేదు

బొందపెట్టు వారులేరు

తుమ్మితేనే రాలిపోయే

అల్పజీవులైనాము ’

ప్రకృతితో ఆటలాడొద్దు. మన వెలుగుచీకట్ల ప్రయాణంలో ప్రకృతే మనకు తోడూనీడ. వెలుగుల జాడ. అలాంటి తల్లిగోడు వినకుండా మన ఆశ ఈ లోకాన్ని నింపేసింది. ఆ ఆశపు పొరలను, మన స్వార్థపుతెరలను చీల్చివేసి ప్రకృతి ఆత్మఘోష ఒకసారి వినాల్సిన అవసరం ఇప్పటి తరానికి ఉంది. ఆ తరం ఎంజీయూ నుండి తయారవుతున్నట్లనిపిస్తుంది వారి కవిత్వం చదువుతుంటే.

‘ఒకనాడు విజేతగా విరాజిల్లే నేను

నేడు కలుషితమైపోయాను
 నాపై జీవించే సమస్త జీవరాశి
 కనుమరుగయ్యే కాలం ఆసన్నమైంది
 నేను కట్టుకున్న ఓజోన్ చీర చినిగిపోయింది
 శరీరం జ్వరంతో మండిపోతుంది
 కాళ్ళు గతితప్పుతున్నాయి
 చేతులు పని చేయకున్నవి
 చూపు తగ్గిపోతున్నది
 చెవులు వినిపించకున్నాయి
 హృదయం స్పందించలేకుంది'

రోజురోజుకు నిర్జీవమైపోతున్నాం మనం. ఇప్పుడు మనం పర్యావరణ పరిరక్షకులం కావాలి. ప్రకృతిని మించిన దైవంలేదు. ఈ తల్లి కొంగుచాటున హాయిగా, ఆనందంగా బ్రతికి వెళ్ళి పోవడానికి మించిన మరో మార్గంలేదు. కాబట్టి తల్లీ నన్ను దీవించు అంటూ ప్రకృతికి సాగిలబడి ఎంగెల్స్ చెప్పినట్టు సేంద్రీయ పరిణామాక్రమదారుల్లో సాగిపోవడమే సమస్త మానవాళికి అత్యున్నత పరిష్కారమని ఈ 'కాలం బంధించిన క్షణాల'ను గుప్పిట పట్టి జైకొడుదాం.

నా ఎనుకటి చరిత్రను రేపటితరానికి అందించే ఓ కవి కావాలని ప్రకృతి కోరుకుంటుంది. తను కోరుకుంటున్నట్టే మహాత్మాగాంధీ విశ్వవిద్యాలయ తెలుగుశాఖ తొలి బ్యాచ్ సాహిత్య విద్యార్థులు విశ్వజనీన ఆలోచనలతో ముందుకు సాగుతున్నట్లు ఈ కవిత్వం ద్వారా నిరూపించుకునే ప్రయత్నం చేస్తున్నారు. విశ్వవిద్యాలయంలో తెలుగుశాఖకు వెలుగులు అద్దే ఆశయంతో విద్యార్థులను ఉన్నత సాహిత్యంవైపు ప్రయాణింపజేస్తున్న కవి, రచయిత, తెలుగు అధ్యాపకులు, నాకు ఇష్టమైన తమ్ముడు నర్రా ప్రవీణ్ కు అభినందనాత్మక శుభాకాంక్షలు. ఆచార్యులు కె.అరుణప్రియ గారికి అభినందనలు.

జయరాజు
 ప్రకృతి కవి, తాత్వికుడు,
 సుప్రసిద్ధ ప్రజావాగ్గేయకారుడు



పసుపుపూత

కాలంతో పరిగెత్తడం, పరిగెత్తే కాలాన్ని అలవోకగా గుప్పిటపట్టి సాహిత్యం గుండా సమాజంలోకి ప్రవహింపజేయడం నేటితరం సాహిత్యకారులకు అవసరం. సమకాలీన సాంఘిక సమాజిక పరిస్థితులకు నిలువుటద్దంగా సాహిత్యాన్ని వెలువరించాల్సిన కనీస బాధ్యత నిజమైన సాహిత్యకారులకున్నది.

కవిత్వాన్ని సృజించి వాస్తవిక ప్రపంచాన్ని అందులో సృష్టించి ప్రజను చేయిపట్టినదిపించాల్సిన గురుతర బాధ్యత

కవులకున్నది. గుండెల్లో ధైర్యాన్ని నింపడం, దారి చూపడం కవుల నైతికవిధి.

మహాత్మాగాంధీ విశ్వవిద్యాలయంలో నిర్మితమవుతున్న మా యువకవులు, రచయితలు అదే లక్ష్యంతో సాగుతున్నారు. యదార్థ సంఘటనలకు అక్షరరూపం తొడగాలని నిశ్చయించు కున్నారు. ప్రపంచానికి, దేశానికి పట్టిన చీడలను, పీడలను కడిగి పారెయ్యాలనుకుంటున్నారు. ఆ తొవ్వలో నడుస్తూనే కనిపించని శత్రువు కరోనాతో యుద్ధానికి సిద్ధమయ్యారు. కలం, కమ్మ ఆయుధాలైనయ్. ఊహల్లో పూసిన నిజమైన రెమ్మ నేడు మానై 'కాలం బంధించిన క్షణాలు' గా మీ ముందుకొచ్చింది.

అన్యాయానికి సవాలు విసురడమేగాదు కాలంపై కాటువేసే కరోనా లాంటి రోగాల్ని కవిత్వపు పసుపుపూతతో నిర్మూలిస్తామని పట్టుబట్టారు. చెప్పినవెంటనే సరిగ్గా పదిరోజుల్లో కవితలు అందించారు. ప్రసిద్ధులైన పెద్దలందరూ అతితక్కువ రోజుల్లో అమూల్యమైన, విశిష్టమైన, స్ఫూర్తివంతమైన ముందుమాటలందించారు. వారందరికీ విద్యార్థుల పక్షాన మట్టిచేతులతో శెనార్తులు.

అడిగిన వెంటనే చాలా వేగంగా స్పందించడమేగాక విద్యార్థులపట్ల ఎంతో నెనరుతో ఒకే ఒక్కరోజులో కాలం బంధించిన క్షణాలను ఒడిసిపట్టి తన కుంచె ద్వారా చిత్రాల్లో బంధించిన తెలంగాణ గర్వించదగ్గ చిత్రకారుడు కూరెళ్ల శ్రీనివాస్ గారికి యువకవులందరి తరపున హృదయ పూర్వక కృతజ్ఞతలు.

ఈ పుస్తకంలో వున్న ఒకరిద్దరు తప్పితే అందరూ తొట్టతొలిసారిగా తమ కవిత్వాన్ని వెలువరించారు. కవిత్వానికి పదునుపెట్టుకునే మార్గంలోకి వెళ్ళే ప్రయత్నం చేస్తున్నారు. అట్లా కవులుగా ఎదుగుతున్న శిష్యురత్నాలందరికీ శుభాభినందనలు, ఆశీస్సులు. తోటి అధ్యాపక మిత్రులందరికీ ధన్యవాదములు. ఈ అనుకోని సందర్భంలో రాష్ట్ర, జిల్లా సాహితీవేత్తలందరికీ నమస్సులు.

తెలుగు శాఖ ఏర్పడి నిండా ఆరునెలలు కాలేదు. అయినా మేము ఏర్పాటైన తొలిరోజుల్లోనే ప్రముఖ చరిత్రకారులు, సాహిత్యవేత్త అయిన బి.ఎన్. శాస్త్రి గారి జయంతి సభను జయప్రదంగా నిర్వహించాం. అది శాఖా ప్రస్థానంలో ప్రత్యేకతగా తలచాం. నేడు ప్రకటిస్తున్న ఈ పుస్తకం చారిత్రక విశేషంగా నిలుస్తుందని తలుస్తున్నాం.

కరోనా వ్యాధిపట్ల అవగాహనను పెంచడానికి, నివారణా చర్యలు సమాజానికి అందించడానికి ఈ కవిత్వం దోహదపడుతుందని మనస్ఫూర్తిగా ఆకాంక్షిస్తున్నాం.

-సంపాదకులు

కాలం పేర్చిన కవితల వరుస

1. కుప్పగరి సుజాత - గునపంలా
2. పి.భాగ్యలక్ష్మి - ప్రతివ్యూహం
3. చిరుమర్తి ఉమారాణి - స్వహస్తాలతో...
4. నిరసనమెట్ల సంధ్యారాణి - విషపుపూత!
5. మోదుగు ప్రణీత - సాక బోస్తం!
6. మహేశ్వరం రేణుకాదేవి - ఇకనైనా విను!
7. చింతపల్లి సంధ్యారాణి-బూడిదె చేసేదాంక!
8. ఎం.మహేశ్వరి - మాటే ఆగిపోయింది!
9. మైనంపల్లి రాధిక - కన్నీటి శోకం
10. ఆర్.సరిత - దర్జాగా కూర్చున్నాం!
11. వేముల మమత - చీకటి నక్షత్రాలు
12. జంగం గంగమణి - బాధ్యతగా...
13. బానోతు లక్ష్మి - కాకూడదు!
14. గునగంటి గౌతమి - ప్రేమతో..!
15. పోలకట్ల శైలజ -గుండెలకు తాళాలు పెట్టి..!
16. తలారి సతీష్ - విషం!
17. కంఠం రామాంజనేయులు - ఏమని రాయను?
18. ఎ.హరికృష్ణ - నివారిణి
19. ఎం.దుర్గేశ్ -రక్ష!
20. తాళ్ళపల్లి శివకుమార్ - కరోనా కన్నీటి చినుకులు
21. పిల్లుట్ల మధు -హైరానా వద్దు
22. తొనుకునూరి సంపత్ -గటకతిని బతికేటోళ్ళం!
23. ముదావత్ లోకేందర్ -అస్త్రాలు
24. సి.రవికిరణ్ -జాగ్రత్త పడుతున్నాం!
25. కె.శ్రీనివాస్ -విషాదస్మృతులు!
26. దర్శనం రవీందర్ -మాయదారి కరోనా
27. కె.నరేందర్ -బతుకుబండి నడవడం ఎలా?
28. చెరుకు రమేష్ - 'గాంధీ' విద్యార్థులం!
29. వల్లపు అనిల్ కుమార్ - సంకెళ్లు!
30. ఎన్.శ్రీశైలం-కరోనా! తూ బంద్ కరోనా..!
31. పందిరి సతీష్ -రాజ్యమేలుతున్నయ్!
32. సుధగోని ప్రశాంత్ - విజయం మనదే!
33. గడ్డమీది అనిల్ కుమార్ - అనుకోని యుద్ధం!
34. గండమళ్ళ వీరబాబు- పో..!
35. తానెం రాఘవేందర్- నెమలి
36. ముదావత్ శంకర్- దాడొ ఘట్రోకోని జకోన్ ఘడి!!
37. జూలూరు నవీన్ - Span of Captured Moments!!
- 38.నర్రా ప్రవీణ్ రెడ్డి - కాలం బంధించిన క్షణాలు!!

గునపంలా...

-సుజాత కుప్పగరి

కరోనా...!

కనురెప్ప వాల్చినంత క్షణంలోనే
మా గుండెల్లో గునపంలా దిగిపోతున్నవు!

పదిమందిలో కలిసితిరిగే
మనస్తత్వాన్ని పటాపంచలు చేశావ్!

కరోనా...!

ప్రపంచాన్నే
జైలులో బంధించినవ్!
కుటుంబాలను విడగొట్టినవ్!!

తుమ్మినా, దగ్గినా
ఒంటరిగా చేసి
చీకటిగదిలాంటి
ఐసోలేషన్లో
మా ఆత్మీయులను బంధించినవ్!
ప్రాణాలను
నీటిబుడగల్లా చేశావ్!!

గుడిలో దైవం ఉందో లేదో గానీ
వైద్యశాలలో ఉన్న
డాక్టర్ మా దైవమెప్పుడీకీ!
నీ పాలిట యముడు!!



ప్రతివ్యూహం!

-పి.భాగ్య

ఎందుకు వచ్చావే
ఐనవాళ్ళ అకలి తీర్చనియ్యవు!
కన్నవాళ్ళను కడచూపు చూడనియ్యవు!!
నా అనే వాళ్ళతో నాలుగు నిమిషాలు ..
నవ్వుతూ మాట్లాడకుండా చేశావు!

పురుడు పోసిన అమ్మకి
పుట్టెడుదుఃఖం మిగిలింది నీ రాకతో!

కరోనా...
ఐనా... నీ అంతు చూస్తాం!
నువ్వు విసిరిన ఈ కాలరాత్రికొగిలలో నలిగిపోవడానికి
ఇక్కడ ఉన్నది సామాన్యులు కాదు
యావత్ విశ్వానికి వెలుగు పంచిన భారతీయులు!!
అఖండ జంబూద్వీప వెలుగులో
నువ్వు నిలబడి ఉండలేవు!
వెళ్ళిపో...!!

కరోనా...
నువ్వు పన్నిన పద్మవ్యూహంలో చిక్కుకోవడానికి ఇక్కడ ఉన్నది
అభిమన్యులు కాదు!
పద్మవ్యూహంలో అర్జునుడిలాంటోళ్ళం!
ఇక్కడ నుండి పోకుంటే
వ్యూహంకే ప్రతివ్యూహం పన్ని
తరిమి తరిమి కొడతాం!
భారత్ పవర్ చూపిస్తాం!!



స్వహస్తాలతో...!

- చిరుమర్తి ఉమారాణి

కరోనా విజృంభిస్తున్నావ్
విశాలవిశ్వం మొత్తంపై!
జన్మించినవ్
ఈశాన్యంలో ఉన్న చైనా దేశాన!!
కంటికి కనబడవు గాని
విసురుతున్నావు విషపుగాలిని!!
తనువు చాలిస్తున్నారు నరులు నీ వల్ల!
ఇటలీ శవాలదిబ్బగా మారినది నీ వల్ల!!
అమెరికా అస్తవ్యస్తం అవుతుంది నీ వల్ల!!!
మాది భారతావని...అనేక ఔషధాలగని!!

కర్కశపు కరోనా...!
నీ బారినపడి అవస్తపడుతున్న
అభాగ్యులు ఎందరో ఈ జగత్తున!!

కొవ్వొపారతో రక్షణ ఉందని విర్రవీగుతున్నవా?
కరోనా..
నీ దాటికి అందరు ఓడిపోయారు
క్వారంటైన్లోన మాత్రమే!

విసురుతున్నవు సవాలు!
చూపిస్తున్నావ్ నీ ప్రతాపం మా ఊపిరితిత్తులలోన!





తీస్తున్నావ్ మా ప్రాణాలు నిలువునా!!

మా క్షేమం కోసం శ్రమిస్తున్నారు

వైద్యులు

కర్షకులు

రక్షకులు!!

వారి త్యాగం మరువం ఏ నాటికైన !!

వారికి ఇవే మా పాదాభివందనాలు !!

గడప దాటకుండా

వందనంతో

మా ఆరోగ్యమనే ధనాన్ని

కాపాడుకుంటాం ఏది ఏమైనా !!

కరోనారహిత భారతాన్ని చూస్తాం !!

ఉంటాం..!

ఈ నెల రోజుల హెమాం క్వారంటెన్లో

విడిపిస్తాం..!

మా భారతమాతకు

నీవేసిన

సంకెళ్లు

మా స్వహస్తాలతో...!!

విషపుపూత!

-నిరసనమెట్ల సంధ్యారాణి

కనిపించని అగాధం వెంటాడుతుంది!

దారి నిండా కరోనా విషపు

ఆనవాళ్ళే కనిపిస్తున్నయ్!

గుండెలో బాధకు కారణమెవరు?

కాలం చేతిలో అనుకోకుండా బందీ చేసిందొవరు!

నా ఊరి శెల్లల

మొలకెత్తిన నా చేతులకు

ఇప్పుడు విషపుపూత

నన్ను బాధిస్తున్నది!

నాయ్నను

అమ్మనూ

ఇన్నాళ్లూ చదువులలోకంలో

మునిగి వదిలిన!

ఇప్పుడు... నా వూరిఒడికి చేరిన!

నిన్న మొన్న నా పల్లె గూడు

చెదిరింది అనుకున్న!

ఇప్పుడు... లోకపుమలుపులే చెదిరినయ్

కరోనా వల్ల!

పిడికిల్లు బిగించాం!

సొంతగూటిలో ఉండే నీకు సమాధి కట్టేస్తం కరోనా!!



సాక బోస్తం!

జన్మనిచ్చింది తల్లి
ప్రాణాలు తీసే హక్కు నీకెక్కడిది!!
కరోనా...

-ప్రణీత మోదుగు

నడక నేర్చేది తండ్రి అయితే
బయటికి రాకుండా చేసే హక్కు నీకెక్కడిది!
మహమ్మారి కరోనా...

గోరు ముద్దలు అమ్మ పెడితే
తినడానికి తిండి లేకుండా చేసే హక్కు నీకెక్కడిది!

ఓ కంకరరాయి...! కరోనా...!!
ఎందుకు నీకు అంత పగ?
నిన్ను తలిస్తేనే
ఒళ్లు గుగురు పొడుస్తుంది !
పట్టణాల్లో ఉన్న వాళ్ళను
పల్లెల్లోకి చేర్చావు!!
ధిల్లీ నుండి గల్లీ దాక అన్నీ మూయించావు!!

ఓ కరోనా..
ఈ దీనప్రపంచం మీద
కాస్త దయ చూయించు!!
తల్లి లాంటిదానివనుకుంటాం!!
దేశమూ దీనంగా ఉంది!

వెళ్లిపో తల్లి వెళ్లిపో
కల్లు సాకబోస్తం !!
వెళ్లిపో తల్లి..
వెళ్లిపో..!



ఇకనైనా విను!

-రేణుకాదేవి మహేశ్వరం

నరుడా ఓ నరుడా!

ఎందుకు ఇంత అసహనం?

ఎందుకు ఈ అసమర్థత?

వినవా ఇకనైనా ప్రభుత్వమాట!

ఓ నరుడా!

ఉండలేవా

నినుగన్న నీ తల్లి కోసం!

ఉండలేవా సమాజశ్రేయస్సు కోసం

నీ ఇంటిలో!!

ఓ నరుడా!

కంటివా కరోనారక్కసిని!

వింటివా ప్రపంచహృదయఘోషని!!

మరణమృదంగాన్ని!!!

ఓ నరుడా మేలుకో!

సమాజశ్రేయస్సుకై

భావితరాలకై

ఆకలితో అలమటించే ఆర్తులకేకలకై

కరోనారక్కసి చావుకై!!

ఇకనైనా మేలుకో కాపాడు దేశాన్ని

కాపాడు భావితరాల భవిష్యత్తుని!

ఉండు ఇంటిలో!

అదే దేశానికి శ్రేయస్కరం!!



బూడిదె చేసేదాంక!

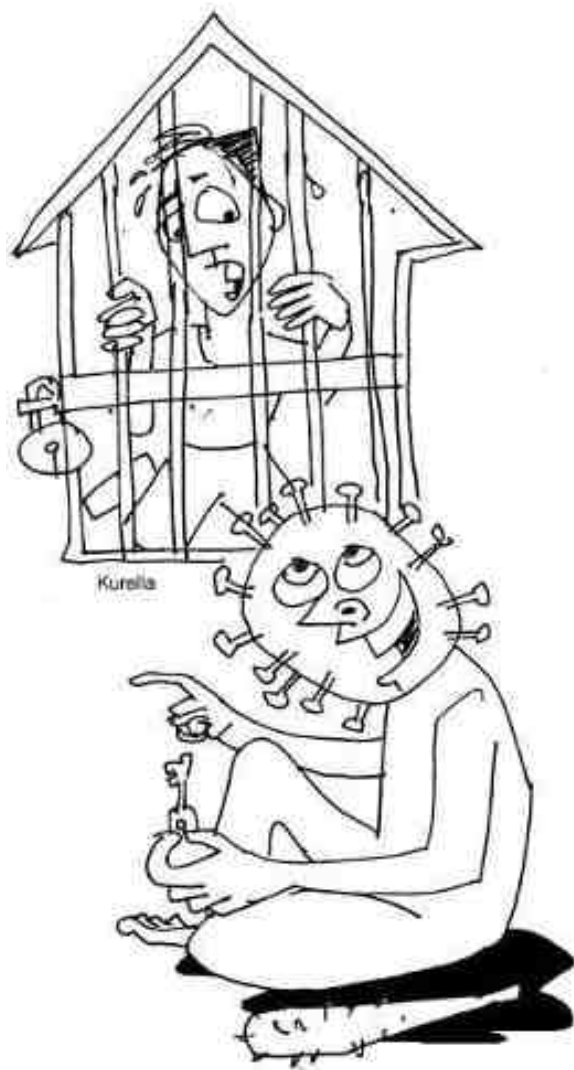
- చింతపల్లి సంధ్యారాణి

వణుకుతున్నది నీ దాడికి లోకం
ఎదురు నిలబడలేనంటుంది నీ
అఘాయిత్యాలకు!

బానిసలను చేసినవ్ గదే!
మా బతుకులను!!

గడపదాటకుండా
నలుగురితో మాట్లాడకుండా
మమ్ముల చీకట్లో బందీచేసినవ్!!

మేం వెలుగులనియమాల్లో
నిన్ను బూడిదె చేసేదాంకా వదలం!



మాటే ఆగిపోయింది!

- ఎం. మహేశ్వరి

పుట్టినచోట
స్థిరంగా ఉండక
ప్రపంచం అంతటా వ్యాపించినవ్!
మా ఆయువు తీస్తావా?
నీ వల్ల మేం
కొట్టుమిట్టాడుతున్నం!

ఎప్పుడూ ఊహించలేని
బాధాసంఘటనలను
మాకిచ్చినవ్!!

ఒకరి మీన్నుంచి మరొకరి మీదికెక్కినవ్
దేశాన్నే చేతిలపట్టినవ్!!

దేశాలన్నీ మూత!
ఆర్థికం ఇక అటకెక్కింది!!
మా నోటి మాటే
ఆగిపోయింది!!



కన్నీటి శోకం

-మైనంపల్లి రాధిక

కన్నీటిశోకం పెట్టిస్తూనే
పల్లెసీమల అందాలు చెరిపినవ్
ప్రకృతిని మా నుండి దూరంజేశ్వవ్!

పసిడిపంటల నిలయం
పాడిపంటలకు చిహ్నం
మా ఊళ్లు!!
ఇప్పుడు
కన్నీటికి చిరునామా అయినయ్!!

ఒక బిచ్చగాడు ఆకలికేకలు
పెడుతున్నడు
ఒక పేదవాడు ఆకలితో
అల్లాడుతున్నడు
రైతు పండించిన పంట నేలపాలు
అవుతుంది!!

ఇకనైనా మమ్ముల వీడు!!



దర్జాగా కూర్చున్నాం!

-సరిత బాయ్ రాథోడ్



కంటికి కనిపించని పిశాచి
ప్రజల ప్రాణాలు తీస్తున్నది
దేశాలపై ఎగబడి
అమాయకుల రక్తాన్ని పీలుస్తున్నది!

కన్నులుకు పంపినపు
సంతోషంతో కాదు
కలవరపుగుండెతో!!

ఇప్పుడు ఇంట్లో ఉన్నాం
దర్జాగా
కూర్చున్నాం
ఇదే
నీపై చేసే యుద్ధం !!

చీకటి నక్షత్రాలు

-వేముల మమత

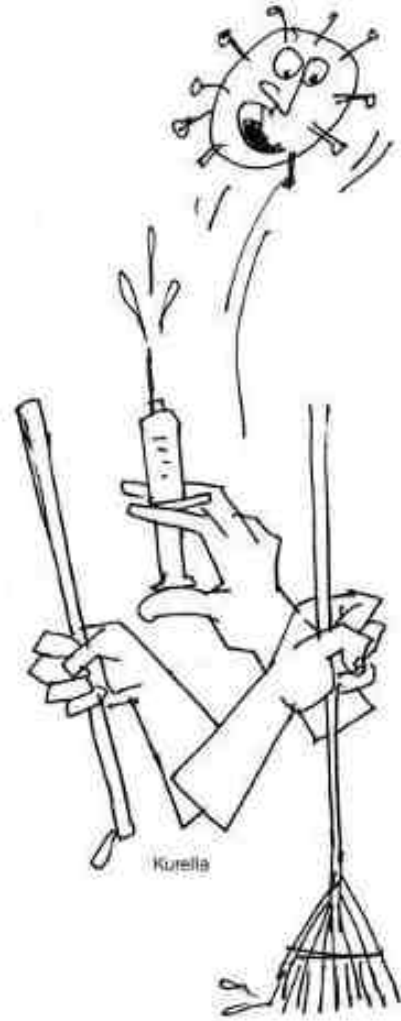
జీడిగింజలు పోసుకున్న నీ కనులు
ఈ జగత్తుపై పడి చీకటిపోరలను కమ్ముకుంది!

ఆ చీకటికొలనులో పడటానికి నా దేశం
మిగతా దేశాలలా కాదు..!
అగ్రరాజ్యాల జనాల ప్రాణాలు మింగావు..!

అలాగని
భారత్ ప్రజల ఆత్మలను నీకు అప్పజెప్పడానికి
నా జనాలు సాధువులు కారు!
ఒక్కొక్కరు ఒక్కో నిప్పుకణం..!!
నీ చీకటివిశ్వాన్ని
ఎగబాకే నక్షత్రపుజ్వాలలు..!!

నువ్వు ఏ దిక్కు నుండి వచ్చినా
ధనస్సులాగా వెనక్కి గట్టిగా బిగిసి
లాక్డౌన్ తో వెలుగులు నింపడానికి
ముందుకు ఎగసిపడతాం..!!

మా కన్నీళ్లు కడగటానికి
పారిశుధ్య కార్మికులు
పోలీసులు
డాక్టర్లు
నిరంతరం నీ చావుకబుర్లు చెప్పడానికి ప్రసారమాధ్యమాలు
మాకు ఆత్మవిశ్వాసాన్నిస్తున్నయి!
నీ గుండెల్లో గుబులు పెడుతూనే ఉంటయి!!



బాధ్యతగా...

- జంగం గంగమణి

జలుబు, దగ్గు వచ్చురా!

బయట అడుగు పెట్టకురా
కరోనాని కొని తెచ్చుకోకురా!!

మాస్కు లేకుండా
సుట్టమని సెంతకు బోమాకురా!!
రోగం అంటిబెట్టుకోకురా!!

షేక్ హ్యాండుతోని సోదరా
సాపు కొనితెచ్చుకోకురా!
బాధ్యతగా ఉండురా!
నేటితరం పోరడా!!



కాకూడదు!

-లక్ష్మి బానోతు



కరోనా
నీ వల్ల
పడుతున్నాం తిప్పలు!!
కారుస్తున్నాం కన్నీళ్లు!!
మాలోని ఆనందం బుగ్గిపాలు!!
ఇంటి గనుమలకే
అయ్యాం బందీలు!

మిత్రమా..!

బయటికి వస్తే
పడతాం కరోనా బారిన
కాకూడదు కరోనాతో భారత్
మరో ఇటలీ, అమెరికా, చైనా!!!

ప్రేమతో..

గునగంటి గౌతమి

మట్టి
నన్ను పిలిచింది!
నా స్పర్శ లేక
ఎలా ఇంట్లోనే వుంటున్నావంటూ
ప్రశ్నించింది!

కలుద్దామనుకున్న..

ఇంతలోనే...

ఈ దుస్థితిలో
నన్ను కలవకున్నా
నేను నిన్ను కలగంటూనే ఉంటా..!
నువ్వు మాత్రం
బయటికి రాకుండా ఇంట్లోనే ఉండు
అంటూ హితువే పలికింది
ప్రేమతో!!



గుండెలకు తాళాలు

పోలకట్ల శైలజ



అడుగులు కదలని
చేతులు కలువని సమయమిది!

గుండెలకు తాళాలు పెట్టి
గదిలో కూర్చునే రోజులివి!

దీపాలలో ముసిముసినప్పులు కావవి
నవ్వే ప్లాస్టిక్ మెరుపులు!

ఎన్నడొస్తాయో
చితకగొట్టిన మా మనసులకు
బంగారుపూతలు...!!

ఏమని రాయను?

- కంఠం రామాంజనేయులు

ఏమని రాయను?

ఎలా రాయను?

కరుణేలేని ఈ కరోనా గురించి!

చైనాలో పుట్టిందని రాయనా?

పుట్టగొడుగులా పెరిగి

ప్రపంచాన్ని చుట్టిందని రాయనా??

ఏమని రాయను?

ఎలా రాయను??

కరుణేలేని ఈ కరోనా గురించి

నమస్కారమనే సంస్కారం నేర్పిందని

రాయనా??

మనిషి మనిషి కలవకుండానే

మానవులంతా ఒక్కటేయని

చాటిందని రాయనా??

వైద్యులను దేవుళ్ళు చేసిందని

రాయనా

ఇంతకుముందున్న దేవుళ్ళను

బొమ్మలు చేసిందని రాయనా?

అగ్రరాజ్యాలకు ఉగ్రరూపమైందని రాయనా?

చిన్నరాజ్యాలను చిధిమేస్తుందని రాయనా?

బయటికొస్తున్న

దాతల గురించి రాయనా?

దీనుల గురించి రాయనా??



కల్మషంలేని ప్రకృతి కాలుష్యాన్ని తగ్గించిందని రాయనా?
మానవ ప్రవర్తన ఎవల్యూషన్ పెంచిందని రాయనా??

జీవితాల జీతాలలో పడిన కోతల గురించి రాయనా?
ఈ విధిరోతపై రాస్తున్న రాతల గురించి రాయనా??
ఏమని రాయను?
ఎలా రాయను?
కరుణేలేని ఈ కరోనా గురించి
ఈ పోరాటాన్ని జయించిన మృత్యుంజయుల గురించి రాయనా?
పోరాడలేక చావుకు ఆరాటపడుతున్న దేహాల గురించి రాయనా??

ఏమని రాయను?
లాక్ డౌన్ అయిన లోకం గురించి రాయనా!!
ఏ 'కీ' లేని ఈ కల్లోలం గురించి రాయనా!!

ఏమని రాయను?
ఎలా రాయను?
కరుణేలేని ఈ కరోనా గురించి!?

నివారిణి!!

- ఎ. హరికృష్ణ

కర్కశ కరోనా... నేటి మహమ్మారి
దేశదేశాలకయ్యింది నేడు అది యమపాశం!

భారత్ నూ తాకుతున్నవి కరోనాకోరలు!
అయినా మేమంతా ఎదిరించి నిలబడతాం
ఏకలక్ష్మంగా!

మిత్రులారా!
ప్రభుత్వాలకు మనమంతా సహకరిద్దాం!
కరోనాను కలిసి కట్టడిచేద్దాం!!
ఇంటి గడపే మన లక్షణరేఖ!
మరిచి దాటిబోకు!
కరోనా ఓ కాలసర్పం!!

వ్యక్తిగతశుభ్రతే నీకు వరం!
సామాజికశుభ్రతే దేశంకు సంజీవని!!

నేస్తమా!
పోలీస్, డాక్టర్, ఆర్మీలకు సహకరిద్దాం!
సమూహసరదాలు వీడుదాం!
బహిరంగసంచారం నీకు భారం!
బాధ్యతే నీకు ఆత్మీయబంధువు!!

మసులుకోవాలి నువ్వు కర్తవ్యాన్ని ఎరిగి!
నువ్వే సరైన కరోనా నివారిణి!!



రక్ష!

-ఎం.దుర్గేశ్

ఇంట్లో ఉండు
బయటతిరిగి బకరాగానివి కాకు!
ఇతరులతో చెయ్యి కలిపి చెంచాగానివి కాకు!
గుంపులుగుంపులుగా వుండి గుణహినుడివి కాకు!!
కరోనాకోరల్లో చిక్కుకొని
మట్టిగొట్టుకపోకు!

మిత్రమా!
పోలీసులమాట వినక
లాక్డౌను పాటించక
సంఘవిరోధివి కాకు!
కుటుంబాన్ని కోల్పోకు!!
చైనా-ఇటలీ -అమెరికాల
గోస వినపడుతలేదా?!!

ఓ భారతీయుడా బాధ్యతగా
మసలుకో
వైరస్ను అరికట్టు!
గుర్తుంచుకో
లాక్ డౌన్
నీకూ-నాకూ రక్ష!!



కరోనా కన్నీటి చినుకులు..!

-తాళ్ళపల్లి శివకుమార్

విదేశాల్లో పుట్టి దేశాలను వణికిస్తున్న
నీ రూపం కోవిడ్-19
నీ పేరు వింటే అందరూ వణకుతురు..
నీకు ఇంతైన జాలి లేదానే..!
తన,మన అనే బేధం లేదు..
పేద, ధనిక అనే హెచ్చుతగ్గులు లేవు..
అందరినీ బెంబేలు ఎత్తిస్తున్నవ్..
నా దేశాన్ని పట్టి పీడిస్తున్నవ్..
అందరినీ ఇంట్లో ఉడకపెట్టినవ్!

కానీ..!
బిచ్చగాని ఆకలి వేధింపులు నీ కళ్ళల్ల
పడ్డలేదా..!
దీనంగా చూసే చూపులు..
నీళ్ళతో నింపుకున్న పొత్తి కడుపులకు
నా సర్కార్ బయటికి రావొద్దు అంది
నీ బారిన పడొద్దు అంది..!

కానీ
కాగితాలు..
నా సోపతిదారుడు ఇంకా రాలేదు
వాని దూప ఎలా తీరిందో అని ప్రశ్నించుకుంటున్నాయి..?
ఆ ప్రశ్నల తాకిడి నీ ఒంటికి తాక్తలేదా!
అందరి ఇంట్లో ముసలి అవ్వల నవ్వులకు వెలుగులు నింపినవ్!
వాళ్ళ బిడ్డలతో ఉండే అవకాశాన్ని ఇచ్చినవ్!



పగోని లాగా సంపుతా అంటావ్!
స్టైతస్కోపులకు నిద్రలేదు
లారీలకు నొప్పి లేదు..
మా జనానికి చస్తాం అన్న బాధలేదు..!

ఒకవేళ నువ్వు నా దేశంతో యుద్ధం చేస్తానంటే
మేము అంతా ఒక్కటే అని మరచిపోకు!
పేదోని ఆకలే నీకు ముప్పు..
ప్రతి కన్నీటి సినుకులు నీ సావుకు ముసుగులు..
స్టైతస్కోపులే నీకు ఉరితాడులు..
లారీలే నీకు చితి పేర్చే కట్టెలు..
కాగితాలు నీ రోగాన్ని సంపే నిప్పురవ్వలు!

గుర్తుపెట్టుకో....!
యుద్ధం గెలువడానికి పాండవులే అజ్ఞాతవాసం చేశారు..
నా జనాల జోలికొచ్చిన నిన్ను సంపడానికి..
రోజులు కాదు..
ఎన్ని యేళ్లు అయిన అజ్ఞాతవాసానికి మేమంతా సిద్ధం!

హైరానా వద్దు!

- మధు పిల్లుట్ల

నమస్కారమనే సంస్కారంతో
సంస్కారం యొక్క సహకారంతో
అశుభ్రతనే ఆస్కారం లేకుండా
పరిశుభ్రతే
పరిష్కారంగా
కరోనాని కడిగేద్దాం!
భావిభారతంకోసం అడుగేద్దాం!!

అడుగులు తడబడొద్దు!
కడుగుడు కుంటుపడొద్దు!
జాగరూకంగ
కరోనాని కాలరాయాలె!!

ఎందుకోయ్
ఇంత హైరానా!!
భాగ్యనగరాన్ని
యాదుంచుకో

కబలించిన 'ప్లేగు'ను పెకలించలేదా మనం!
మరకలద్దిన 'కలరా'ను తుడిచేయలేదా మనం!!
మరిచావ గతం!
గతం మరిస్తే భవిష్యత్ లేదుకదా నేస్తం!!
ఇదే మనకు అవగతం కావాలె!!

సామాజికదూరమే ముద్దంటూ
కరోనాకి హద్దులు గియ్యాలె!



నిర్బంధమనే యుద్ధం చెయ్యాలె!!
అంతర్జాలమే యుద్ధభూమిగా
ఫేస్బుక్, వాట్సప్లు స్పందించాలె!!
జనచైతన్యాన్నే నినదించాలి!!

సమాజహితమే సందేశంగా
సామరస్యమే సౌభాగ్యంగా
నెత్తుటి కత్తులు లేకుండా
యుద్ధభూమిని రగిలించాలె!!
కరోనాను మనం కబళించాలె!!
అజ్ఞానాన్నే తొలగించాలె!!
విజ్ఞానదివిటీలు వెలిగించాలె!!

కరోనాపై మాటు వేసి
వేటు వెయ్యాలె!!
మనమేందో రుజువుజెయ్యాలె!!

గటకతిని బతికెటోళ్ళం!

- తొనుకునూరి సంపత్

ఏందమ్మా ! గింత పనిజేశ్శవ్
గంజి తాగి బతుకుతున్నం
గటకతిని బతికెటోళ్ళం
మా ప్రాణాలు తీయకమ్మా !!

ఆరు కాలాలు కష్టపడ్డం
ఇప్పుడు
అరణ్యవాసం మేం చేస్తున్నం
మమ్మల్ని వదలవమ్మా !!

నాగలి కట్టి పొలం దున్నాం
మోట గొట్టి నీళ్లు తోడించాం
చేతులు అన్ని కాయలు కాస్తయ్
మోటు కష్టం చేసేటోళ్ళం మేం!!
తట్టిలో బువ్వ పెట్టుకున్నాం
ఎందుకమ్మా తన్నుకపోతావ్ !!

బాధ లేకుండా ఉందామనుకున్నం
ఎవరినుంచి సోకుతవో అనే భయంల
బతుకు ఈడ్చుతున్నం
గోస చూసి
వెళ్ళిపో..
కరోనా వెళ్ళిపో !!



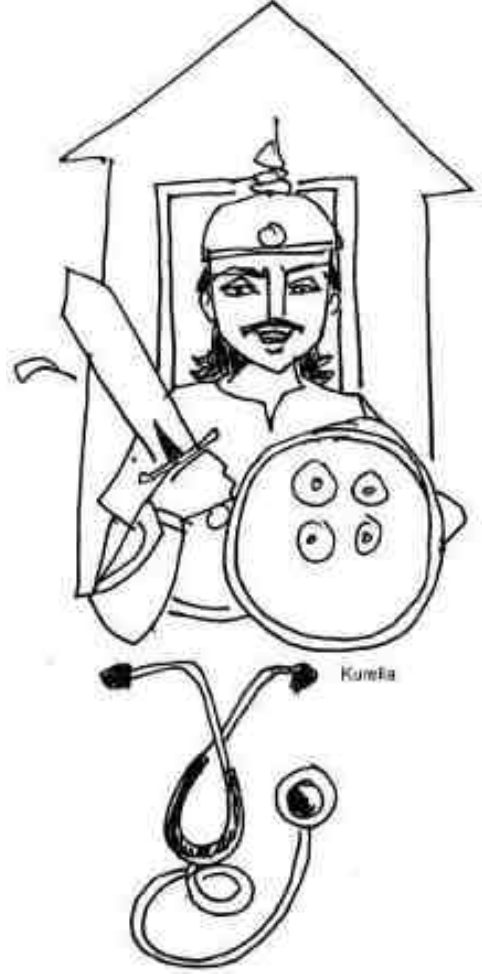
అస్త్రాలు

-ముడావత్ లోకేందర్

భారతమాత బిడ్డలారా మేలుకోండి
కర్ఫూనే మనకు కవచం!

లాక్ డౌన్
మనకు లక్షణరేఖ
రక్షణ కంచె!
సూచనలే
మనకు అస్త్రాలు!!

వైద్యులు
మనకు అండ!
స్వయం నిర్భంధం
మనకు రక్ష!!



జార్లత్త పడుతున్నాం

- సి. రవికిరణ్

పేపర్ పై నా కలం కదలట్లేదు!

ఓ కరోనా...!

నీ పేరు పలకాలంటే ఇంత భయమా!

నీ పేరుతో ప్రపంచాన్ని గడగడ వణికిస్తున్నావ్ కదా!

నీ ఊసే తెలియని దేశాలపై విరుచుకుపడటం నీకు న్యాయమా?

ఓ కరోనా..!

ఒక్కటి గుర్తుపెట్టుకో

నువ్వు చంపుతున్నది మనిషి ప్రాణాలే కాదు

మానవులకు ఉన్న ఆత్మీయబంధాలని

ఆశయాలనీ!!

కంటతడి పెడుతున్న

కరోనాను చూసి కాదు

మనిషి నిర్లక్ష్యవైఖరిని చూసి!!

బాధ్యతారహిత ప్రవర్తన

అవగాహనలేని వారిని చూసి!!

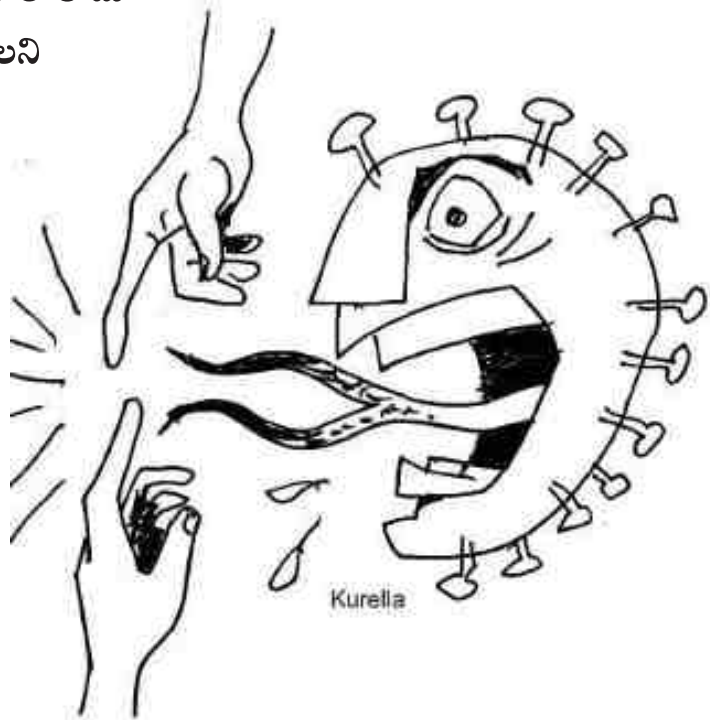
కంటతడి పెడుతున్న

రోజురోజుకీ విస్తరిస్తున్న

కరోనాను చూసి!

నిర్మానుష్యంగా మారిన

అందమైన ఇటలీని చూసి!!



గుర్తుచేశావ్...

సంపద మీద ఆశ

పట్టణాలకు దారి తీస్తే

బతుకు మీద ఆశ

గ్రామాలకు దారితీస్తుందని!!

అయినా

కరోనా మహమ్మారి

నిన్ను తరిమి కొడతాం!

విడివిడిగా ఒక్కటై పోరాడుతాం!

అత్యవసరమంటేనే బయటికొస్తాం!

రక్షకభటులకు

నర్సులకు సహకరిస్తాం!!

మేము

భయపడలేదు

జాగ్రత్తపడుతున్నాం!



విషాద స్మృతులు!

- కె. శ్రీనివాస్

పలకరించడానికి వచ్చినవా?
వచ్చిన దానివి పలకరించిబోక
అందరినీ పట్టుకొని బోతుంటివి!

ఇది నీకు న్యాయమా
చిన్నాపెద్దా అనే తేడా లేకుండా
అందరిలో కలిస్తివి!
ఆరోగ్యానికి హాని చేస్తావి!!

నీ
గుణం-అలవాట్లు
మాలో ఇమిడింపచెయ్యకు!
జీవితాల్లో చీకటిని నింపకు!!
మానవజాతి హద్దులని చెరిపెయ్యకు!!

ఆకలి,కన్నీళ్లు
మాకు విషాదస్మృతులైనా
చీకటితెరల్ని చీల్చుకుంటూ
డాక్టర్ల వెలుగులమాటల్తో
నిన్ను మసిచేసే వరకు
మేం కునుకుతీయం!



మాయదారి కరోనా

-దర్శనం రవీందర్

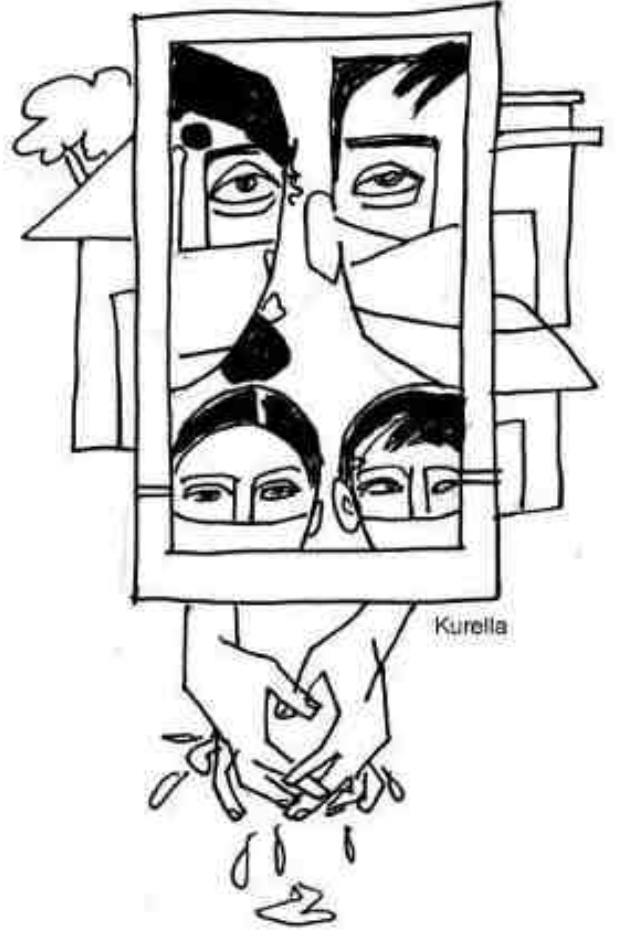
కరోనా కరోనా మాయదారి కరోనా
మాయదారి కరోనా మహమ్మారి కరోనా

మన దేశం వచ్చింది మన పల్లెకి వచ్చింది
నియంత్రణ నివారణ పరిశుభ్రతలే పాటించు
మనిషికి మనిషికి మధ్య దూరాన్ని పెంచుకో
నిన్ను నువ్వు కాపాడుకో

కరోనా కరోనా మాయదారి కరోనా
చెయ్యి చెయ్యి కల్పవద్దు షేక్ హ్యాండ్ ఇవ్వవద్దు
కాలు బయట పెట్టబోకు ఆగం నువ్వు కాబోకు
మూతికి గుడ్డే నీకు రక్ష చేతుల శుభ్రతే నీకు
సురక్ష

పెంచండి పెంచండి దూరాన్ని పెంచండి
దేశాన్ని కాపాడండి

కరోనా కరోనా మాయదారి కరోనా
మాయదారి కరోనా మహమ్మారి కరోనా



బతుకుబండి నడవడం ఎలా..!?

-కె.నరేందర్

ప్రకృతికి కోపం వస్తే అది నీలా ఉంటదేమో!
ప్రపంచం మొత్తాన్ని
గడగడలాడిస్తున్నవు !
నీ లక్ష్యం మనిషి ప్రాణం తియ్యడమేనా!

మానవత్వం లేదా
పసిమొగ్గల్లాంటి పిల్లల మొదలు
పండుముసలి అవ్వల దాకా
తనమన భేదం లేకుండా
అందరినీ చంపేస్తున్నవ్!

కరోనా ఆలోచించు!
తిండి లేక అలమటిస్తున్న అనాధల
పేదల బతుకుల మనుగడ ఎలా..!?

చాలీచాలని బతుకులతో కూలీనాలి
చేసుకునేటోళ్ళ బతుకుబండి నడవడం ఎలా..!?

వాళ్ళ కుటుంబాలు రోడ్డున పడుతున్నాయి
వాళ్ళకి భరోసా ఎవరు ? పెద్దదిక్కు ఎవరు??

కరోనా ఆలోచించు !

ఎవరికి వారిమి సామాజికబాధ్యతతో బందీలుగా ఉన్నాం!
ఇది చాలదా.. మా నిబద్ధతను చూపడానికి!!
చాలు ఇక వెళ్ళిపో!!



‘గాంధీ’ విద్యార్థులం!

- చెరుకు రమేష్

దండం పెద్దం
ఇంట్లనే ఉండురి!
నమస్కారం నేర్వండి!
ఐక్యతను చూపుండి!

పరిశుభ్రత ముఖ్యం
క్రమశిక్షణ అవసరం!!
‘గాంధీ’ విద్యార్థులం
కలిసి కరోనాను కట్టడి చేస్తం!



సంకెళ్లు!

-వల్లపు అనిల్ కుమార్

నీ వాసన తెలియదు
నీ కొమ్ములు చూడలేదు
నీ తుంపరలతోనే
అందరినీ కాటికి పంపుతున్నవు!

అమ్మప్రేమ కనుమరుగైంది!
నాన్న చేతిస్పర్శ మూగబోతుంది!

ఆరోగ్యానికి అర్థం చెప్పినవ్
వైద్యానికి ఆయుశ్శు పెంచినవ్ !!

యుద్ధరహస్యాలు నేర్పించినవ్
వీరమరణం గొప్పతనాన్ని వివరించినవ్ !
బుద్ధి చెప్పినవ్!
కాలానికి సంకెళ్లెసినవ్!!



ఓ కరోనా..! తూ బంద్ కరోనా..!

-ఎన్.శ్రీశైలం

సుందరమైన ఇటలీని సృశానంగా మార్చితివి
అమెరికాని అంతం చేస్తానని పంతంబడితివి!

విశ్వమానవ శ్రేయస్సుకోరే
భారతదేశాన్ని రెక్కలువిరిచి బందిస్తావి!!

ఓ కరోనా! తూ బంద్ కరోనా!
పసిగుడ్డు, పడుచు పిల్ల, పండు ముసలి వీరిలో
ఏ ఒక్కరినీ వదలకున్నావు!!
వీళ్ళు నీకు ఏం ద్రోహం చేశారు!?

కడుపులో బిడ్డ
కన్నతల్లి.. కన్నెపిల్ల
నీకు ఏం అపకారం చేశారు !?
ఓ కరోనా! తూ బంద్ కరోనా!

అన్నమో రామచంద్ర అంటూ వీధుల్లో తిరిగే
అన్నార్తులు నీకెం అన్యాయం చేశారు?
పొట్టకూటికై కడుపు చేతబట్టుకొని వలస వెళ్ళిన
పల్లెబిడ్డలు నీకెం కీడు చేశారు?

ఓ కరోనా! తూ బంద్ కరోనా!
నీకు కూసింతైనా జాలి లేదా!
రవ్వంత అయినా కరుణ లేదా!?
ఇసుమంతైనా శాంతి లేదా!?
ఓ కరోనా !తూ బంద్ కరోనా!



విషం!

- తలారి సతీష్



నా తల్లి
పయనిస్తుంది
కల్మషమెరుగని హంసై!

కరోనా
పామై ఎదురొచ్చె!
నా తల్లిపై ఏమాత్రం కరుణలేదాయె దానికి!
కాటేసి
కాటికి బాటలుతెరిచె!
ఒళ్ళంతా విషమెక్కే!!

ఇప్పుడది కాలకంఠుని
కంఠాన దాచిన
కాలకూట విషమైంది!!
జీవి మనుగడగకే
పెను విపత్తైంది!!

రాజ్యమేలుతున్నయ్!

- పందిరి సతీష్

ఉచ్చులో చిక్కిన షావుకారు
గుమ్మం వాకిట నిలబడ్డాడు!

రసగుల్లాలకై చూసే పసివాడు
పయనమై సాగిపోతుండు!

దేశాలు పట్టుక తిరిగేవాడు పైకి
పోతుండు
పల్లెల్లో బతికేవాడు బయటికి
పోతుండు!

చిన్నపురుగులు రాజ్యమేలుతున్నయ్
కండ బలిసిన
ప్రాణాలకై కొట్టుమిట్టాడుతున్నయి!!



విజయం మాదే!

-సుధగోని ప్రశాంత్

కరోనా

ఓ కరోనా... !

కనికరం లేదా నీకు

కన్నీళ్లు రాలుతున్నట్లు రాలుతున్నాయి

ప్రపంచప్రాణాలు....!

నీ పుట్టినిల్లు చైనా అయినా

నీ మెట్టినిల్లు ప్రపంచదేశాలన్నీ అయినయి!!

ఇంకా ఎందరి తల్లుల కడుపుకోత చూడాలో

ఎన్ని పసిమొగ్గలు రాలుతాయో

ఎన్ని తాళిబొట్లు తెగుతాయో

ఎవడు చేసిన పాపం ఇది!!

భూమి మీద మా మనుగడ లేకుండా చేయడమే

నీ లక్ష్యమా!!

ఇటలీ విలపిస్తుంది

అమెరికా అల్లాడుతుంది

ప్రపంచమంతా ఘోషిస్తుంది!

నీ వల్ల యుగాంతమే జరిగేనా....!

కంటికి కనిపించని శత్రువు నీవు!

మా స్వీయ నియంత్రణతో నీపై

యుద్ధం చేస్తున్నాం!

మలేరియానే మట్టి కరిపించిన దేశం ఇది!



ష్లేగు వ్యాధికి పేరే లేకుండా చేసిన గడ్డ ఇది!!
అంతటి మా సంకల్పం ముందు
నీ సమరం ఎంత?

ఓ కోవిడ్..!

నీ 19 కోరలు తెగుతయి చూడు!

ఓ గబ్బిలంలా మమ్మల్ని మీటర్ దూరం పెట్టానని
గృహనిర్బంధం చేశానని విర్రవీగుతున్నావ్..!

నీ నిర్బంధం నిన్ను దూరంగా
ఆ చీకటిగుహలో నిర్బంధించుటకై అని మరిచావు!
మా భాషలు, మతాలు వేరైనా
మాకు మనోదైర్యం ఎక్కువే అని మరిచావు!
మా స్వీయనియంత్రణతో నిన్ను కడిగేస్తాం.....!

మిత్రులారా.....

నిత్యం మనం బతుకుపోరు చేస్తాం!
ఇప్పుడు మనం బతికి ఉండటానికి
ఈ నియంత్రణపోరు చేయలేమా...!

చేద్దాం..

నియంత్రణతో మన విజయాన్ని
ఆ చీకటిగుహలోకి వినపడేలా
చేద్దాం....!!

మళ్లీ ఏ చీకటిగుహ నుండి ఏ గబ్బిలం రాకుండా
దాని కోరలను తెగనరుకుదాం!

మిత్రమా.....!

ఈ కంటికి కనిపించని శత్రువుతో జరిగే యుద్ధంలో
తుదివిజయం మనదే !!

అనుకోని యుద్ధం!

-గడ్డమీది అనిల్ కుమార్

ఉప్పెనలా వీస్తున్న విషపుగాలి
మనుషుల ఊపిరిని హరిస్తున్నది!

కలవరపడుతున్న జాతి
తనను తాను
ఉత్తేజపరుచుకుంటున్నది!
నడవడికను సరిదిద్దుకుంటున్నది!!

అజ్ఞానసంకెళ్లు తెంచుకుంటూ
పోనిలే...అనే అలవాట్లు మానుకుంటూ
తనను తాను
కాపాడుకుంటున్నది!!

ఈ అనుకోని యుద్ధంలో
లాక్డౌన్ !
సామాజికదూరం!
శుచి!
మా అస్రాలు!!



పో...!

-వీరబాబు గండమళ్ళ

అసలు నువ్వొస్తావనీ అనుకోలేదు!
వచ్చి ఇంత గందరగోళం సృష్టిస్తావని ఊహించనేలేదు!
కుల మత వర్గభేదం లేకుండా వచ్చినావ్!!
ప్రపంచం గుండెళ్ళో భయంనింపినవ్!
ఇకనైనా ఈ లోకాన్ని విడిచిపెట్టు!!

జ్వరం, దగ్గు, జలుబు
నీ లక్షణాలు!
క్వారంటెన్, ఐసోలేషన్, లాక్డౌన్
అనే కొత్తపదాలకు నేర్పావు అర్థాలు!!
ప్రపంచం గుండెళ్ళో భయంనింపినవ్!
ఇకనైనా ఈ లోకాన్ని విడిచిపెట్టు!!

ప్రతిఒక్కరూ నీ వల్ల ఇళ్లకే
పరిమితమయ్యారు!
అందరూ నీ వల్ల
ఇంటి, ఒంటి పనుల్లో లీనమయ్యారు!
పేద, ధనిక, మధ్యతరగతి అనే భేదం
లేకుండా వచ్చినవ్!
దేశాల గుండెళ్ళో భయంనింపినవ్!
ఇకనైనా ఈ లోకాన్ని విడిచిపెట్టు!!

నీ రాకతో దేవుడు లేడని
విజ్ఞానం అవసరం అని నిరూపించినవ్!
మూఢనమ్మకాలతో మూసుకుపోయిన
కన్నులను తెరిపించినవ్!!



పోలీసులు, డాక్టర్లు, నర్సుల
సహనానికి పరీక్ష పెట్టినవ్!
జగత్తు గుండెళ్ళో భయంనింపినవ్!
ఇకనైనా ఈ లోకాన్ని విడిచిపెట్టు!!
భయం ముసుగులో భయపడుతున్న
ఈ జనాలను బందీగా ఉంచుతున్నవ్!!
బరితెగించి పారిపోతే బందిఖానాలో బంధిస్తున్నవు!!
ఆశ, ఆశయం, ఆర్థికవ్యవస్థల మీద
దాడి చేశావ్!
మా గుండెళ్ళో భయంనింపినవ్!
ఇకనైనా ఈ లోకాన్ని విడిచిపెట్టు!!

విదేశాల్లో పురుడుపోసుకున్న నీవు
మెట్టిల్లు అనుకున్నావా మా దేశానికి వచ్చావ్?
వృద్ధులు, కూలీలు, అనాధల
ఆకలిబాధలను రెట్టింపు చేశావ్!!

అందరి గుండెళ్ళో భయంనింపినవ్!
ఇకనైనా ఈలోకాన్ని విడిచిపెట్టు!!
ఇకచాలు
అన్నీ మూసుకు పో..!



నెమలి

తానెం రాఘవేందర్

గంతులేసిన నెమలి
గూటిలో కిక్కిరిసినట్లు కూర్చుంది!

పాడే గొంతును
ఆడే వయస్సును
గుర్తుచేసింది!!

కాలం విలువను నేర్పింది
మంచికీ
చెడుకీ అర్థాల్ని మార్చింది
నెమలి!!



దాడొ ఘట్టోకోని జకోణ్ ఘడి

బంజారా అనువాదం: ముదావత్ శంకర్

మూలం: నర్రా ప్రవీణ్ రెడ్డి

ఫాణీర్ హళోళో దాసజూ దాసజె టాంగేన్ బేడి గాల్నినెజు వేగి!
హపనేర్ జిందగీ ఓదామ జారేజుచ్ ఓ ఓదాన్ తీరం దికవతోయి హపణ్ హెూటో
అమతోజ్ సాదీంచాచ!

సప్దాకరేని జకోణ్ వాటే ముండో బుర్రేన్ రెజోకన్ సమాదానం కెరీచ్!
అన్ ఆచారకన్ సికారీచ్!
వాళ్ పాణీ దాడొ హపణ్ కెల్లె కోని జకోణ్ దుస్మణ్ యేగెచ్!
పరజకోణ్ కున్ని మన్ క్యన్ దేకతో కరోనార్ రూపెనయిజ్ దికారేచ్!

తారన్ మార్ వచ్ దికావ్ జకోణ్ కరోనా పరదా కోని పణన్ ఫాంసిర్ పందాచ్!
ఓ పాంసిమా పడ్గోచి కతో పొస్ట్ మార్తం కరేని కాందేని!
తార్ చ్ జకోణ్ పామణ్ దేకేన్ని ఆయేని తార్ గరేబగలే వాళ్ బొలాయేన్ ఆయేని!
కరోనార్ ముండాగ్ జాడ్ గొళి తప్పు కర్లెన్ హుబిజూ వేగీచ్!

గర్ బారేన్ జానేన్ చోడ్ దేన్ ఆరో జకోణ్ డాక్టర్ కరోనాన్ కాయి కర్ సక్రోకోన్తి!
దేఖ్ సకచ్ పణన్ జానేన్ బరోసా దే సకేని
తోన్ మజార్ బొలావ్ జకోణ్ బోలిబీ పాయిజన్ యేజావచ్!
దల్ బరన్ హసజకో ముండేమా విషమేర్ పాణీర్ చినుకుల్ అతానిన్ చమ్ కారిచ్!

పెంప్రేమా బరాగి జకోణ్ కరోనా పెంప్రేన్ అదోయి ఖాలజు కర్నక్రీచ్!
వాళ్ కెంచుతోయి పెంప్రో బరాయేని వాళ్ చోడుతోయి ధయి వేని!
జీవ్ పాదేపర్ చ్ జు ఆంకీమా దికావచ్!
కత్తీబి కరోనా కమ్ వజూ నయి కరాతో హెూత్ నాశనం హళజ్ వచ్!

పిట్టి పట్టార్ నయి మర్ రే జకోణ్ ఆద్యీ ముట్టిమ జాన్గాలేన్ రెవణు కేలజు అబ్
కాన్వసెపర్ ఖాళో దోళో బోమ్మ నయి దికారేచ్!

యె రూపమేన్ లకేన్ ఆయేని జకోణ్ వేళ దాడా ఘట్ రో కోని జకోణ్ ఘడీ మర్ గే
జకోణ్ ఆద్మిర్ బోడ్డా పేపర్ యెతి బరోజకోణ్ జోళో నయి చ్!

సద్ వా తోయి అర్థం వేని జకోణ్ మోటో గ్రండ్ చ్!

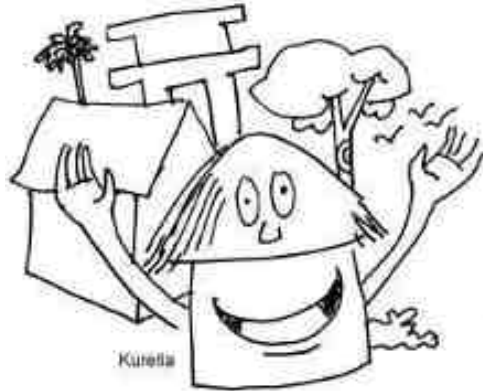
లడాయి మారుకతోయి దుశ్ మన్ దిఖాయేని తోయి లడాయి మారణు!

హతేమా కాయి రతోయి కాయి కరసకేని జే వేళమా!

యె మారో గోర్ భాయి అబితోయి మాన్ ల్

దల్ బరన్ హిమ్మతేతి ఏక్ లొ రజ్ తోజ్ యె కరోనా పర్ కర్ రో జకోణ్ లడాయి మా
తార్ సేతి మోటో హత్యార్ వియే!

హన్ను కరిస్టోజ్ యాడీ, భా, బాయి, బీయ, బేన్,పరివార్ హపణ్ తాండల్ సే అచ్
రీయే!



Span Of Captured Moments!!!!

ఆంగ్లానువాదం: జూలూరు నవీన్ (పిహెచ్.డి)

ఆంగ్ల అధ్యాపకులు, ఎంజీయూ

మూలం: సర్రా ప్రవీణ్ రెడ్డి

*Life self imprisoned
Rushing foot tethered!*

*Triumph in departure
Even ship sees shore!*

*Lanes unburstling, street
teaches hygiene,
Answers in Silence!!*

*Forgo Enemies-
Wind- Drop- Span!
Corona silhouettes in ever
roaming man!*

*Purardha not,
bait corona, invisible
inbetween you and I !
If bait fits tightly,
No autopsy to Corpse!
No Kith & kin,
No chatter to the dead!*

*O Corona! Medicament,
accused before you!*



*Doctors never judge but
Evidences!!*

*Intimate Calls turned toxic!
Poison drops in belly Laughs!
Screaming in Laughing faces!*

*Corona infects you,
If Enters Lung Track
No Expansion to inhaled lung
No Decrease to Exhale Lung!
Eye visualizes burial ground!!*

*No remedy in Therapy!
Disaster , Destruction, Devastation Dear!*

*Corpses piling up,
Instructions in hands,
Black and white figures on Convey!!*

Moments unpoemaized,

*Moments Encaputred in Sac of
folio as incomprehensible valume!!*

*Enemy disappres
but war must be!!*

*Dare in heart ,
Virtue in Seclusion
Hands as weapons!!!*

కాలం బంధించిన క్షణాలు!!

-నర్రా ప్రవీణ్ రెడ్డి

అలలా పరిగెత్తే కాళ్ళకు
స్వయం నిర్బంధ సంకెళ్ళు!
గమ్యంలో ఉన్న జీవితనౌకకు
తీరం కనబడినా
తిరోగమిస్తేనే విజయం!

చప్పుడు చెయ్యని రోడ్లు
మౌనజవాబును నేర్పిస్తున్నవి
పరిశుభ్రతా పాటవాన్ని బోధిస్తున్నాయి!

గాలి-నీరు-కాలం
మనకిప్పుడు అనివార్య శత్రువులు!
తిరిగే ప్రతిమనిషీ
ఇప్పుడు కరోనాకు మరో రూపం!

నీకూ నాకూ మధ్య కనిపించని
కరోనా
తెర కాదు!
ఉచ్చు!!
ఉచ్చు బిగిసిందో దేహం పోస్టుమార్టంకు కూడా పోదు!
చుట్టం చూడడు
పక్కవాడు పలకరించడు!

వైద్యం కరోనా ముందు నిలబడ్డ ముద్దాయిప్పుడు!
కుటుంబాన్ని వదిలి ముందుకొచ్చిన డాక్టర్లిప్పుడేమ్
జడ్డే చేయరు!
సాక్ష్యం పలుకుతరంతే!!



ఆత్మీయ పలకరింపుల్లో
పాయిజన్ పిలుపినిపిస్తుంది!
కడుపుబ్బా నవ్విన ముఖంలో
విషజలాల చినుకులు రొద పెడుతున్నయ్!!

లంగ్ట్రాక్తో లోపలబద్ధ కరోనా
నిన్ను చెదలెక్కిస్తది!
గాలిని పీల్చినా బెలూన్ పెరగదు
గాలిని వదిలినా బెలూన్ తగ్గదు!
కాటికి సిద్ధమైన దేహమే కళ్ళలో కనిపిస్తది!!

నివారణాతనం లేని చోట
విధ్వంసమే - విషాదమే - విఘాతమే సుమా!!

పిట్టల్లా రాలే శవాలు
గుప్పిట్లో ప్రాణముంచమని చెప్పే నియమాలు
కాన్వాస్పై కనిపించే
ప్రస్తుత బ్లాక్ అండ్ వైట్ చిత్రాలు!

దృశ్యం పోయమైజ్ కాని క్షణంలో
కాలం బంధించిన దేహాలపుటలజోలె
చదివినా అర్థంకాని ఉద్రంధం!!

ఈ యుద్ధంలో
శత్రువు కనబడడు!!
అయినా యుద్ధం చెయ్యాలె!

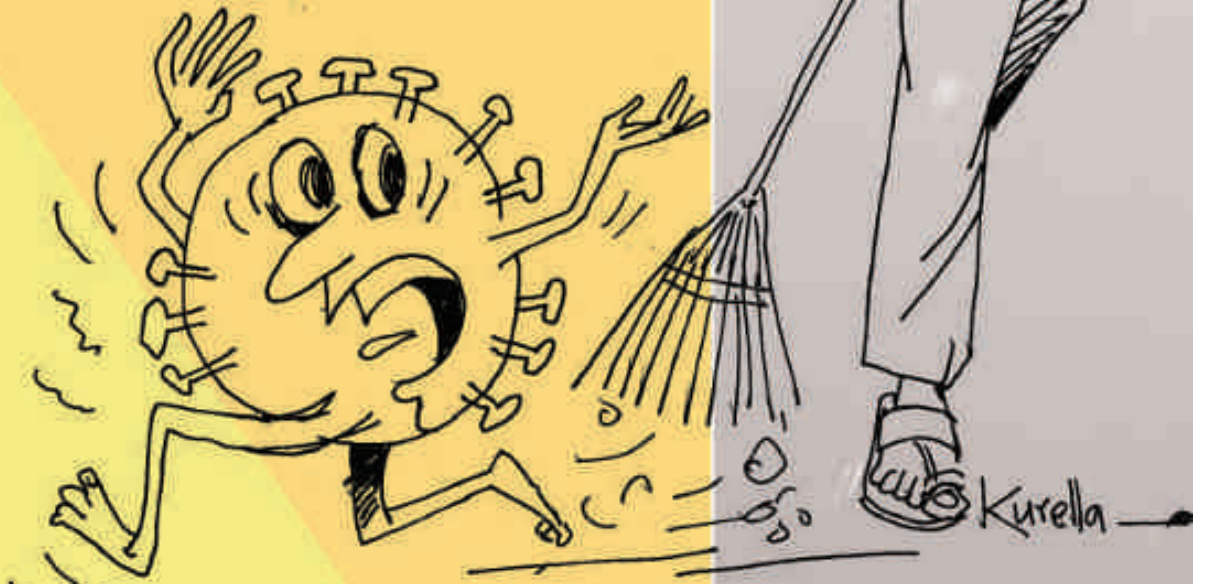
గుండెదైర్యం-ఒంటరయ్యే మంచితనం
చేతులున్నిప్పటి ఆయుధాలు!!

కాలం బంధించిన క్షణాలు

ఎంజీయూ విద్యార్థుల కవితవ్వం

ఈ రోజు కాకపోతే, రేపు

మేం విద్యార్థులం
ఇది విజ్ఞాన భారతం!
దేశానికి పడుతున్న చీడలను
భ్రష్టుపట్టిస్తున్న వైరస్లను
విజ్ఞానంతోనే తరిమికొడతాం!
అది కరోనా అయినా
మరొకటేదైనా!!



తెలుగు

వైజ్ఞానిక శ్రేమాసిక పత్రిక

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తెలుగు అకాడమి
హైదరాబాదు



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అంబేద్కర్లు నిర్వహించిన పాత్ర
సింగతి వెంకటేశం

హైదరాబాద్ సంస్కృతి ప్రతిబింబం - నెల్లూరి కేశవస్వామి సాహిత్యం

మద్దిరాల సత్యనారాయణరెడ్డి

అత్యద్భుతమైన కథలు తెలంగాణలో అనేకంగా ఉన్నాయి. ఈ కథలలో వస్తు ప్రాధాన్యత ఎక్కువగా ఉండి, చక్కని కథా కథనం, శైలీ, శిల్పంతో ఉండి, చదివే పాఠకునికి ఉత్కంఠ కలిగిస్తాయి. తెలంగాణలో ప్రస్తుతం ఎంతోమంది రచయితలు సమకాలీన అంశాలతో కూడిన, ప్రసిద్ధమైన కథలని సమాజానికి అందిస్తున్నారు. కాని తొలితరం రచయితలు కథలు రాసేనాటికి అనేక సమస్యలు ఎదుర్కొనే వారు. నాటి కాలంలో అక్షరాస్యత తక్కువ కావడం చేత కథలు రాసే రచయితలు చాలా తక్కువగా ఉండేవారు. ఉర్దూ మీడియం కావడంచేత తెలుగు కథలు రాసేవారు కాదు. రాసినా అచ్చయ్యేవి కావు. ఇలా వందల కొద్దీ కథలు సమాజంలోకి రాకుండా పోయాయి. అలా మరుగున పడి ఉన్న 1600ల కథల పేర్లను సేకరించి 2007 లో సంగిశెట్టి శ్రీనివాస్ 'దస్తం' అనే పేరుతో ప్రచురించి తెలంగాణ సాహిత్యాన్ని భద్రపరిచే ప్రయత్నం చేశారు. తెలంగాణా అస్తిత్వాన్ని కథల రూపంలో నిక్షిప్తం చేసిన తొలితరం కథకులలో నెల్లూరి కేశవస్వామి సుప్రసిద్ధుడు. నెల్లూరి కేశవస్వామి తెలంగాణ గర్వించదగ్గ గొప్ప కథకుడు. హైదరాబాద్ వాస్తవ్యుడైన కేశవస్వామి నిజాం పరిపాలన కాలం నాటి పరిస్థితులను తన రచనల్లో ప్రతిబింబింపజేశాడు. తెలంగాణ భాష, సంస్కృతి అస్తిత్వం కోల్పోతున్న ఆ రోజుల్లో నెల్లూరి కేశవస్వామి తన రచనల ద్వారా సమాజాన్ని మేల్కొల్పే ప్రయత్నం చేశాడు. ఆయనకు హైదరాబాద్ నగర సంస్కృతి అంటే ఎంతో అభిమానం. రచనలన్నీ హైదరాబాద్ నగర సంస్కృతిని, హిందూ - ముస్లిం సఖ్యతను, స్నేహభావాన్ని, జీవన విధానాన్ని, సాదక బాధకాలను తన రచనల్లో చూపించిన కథకుడు నెల్లూరి కేశవస్వామి. కేశవస్వామి అనేక రచనలు చేశారు. వీటిలో ఎక్కువ రచనలు అముద్రితాలు. ఇటీవల 'నెల్లూరి కేశవస్వామి రెండు కథా సంపుటాలు ఆయన పసిడిబొమ్మ, చార్మినార్లను నెల్లూరి కేశవస్వామి కథా సర్వస్వం' అనే పేరుతో పుస్తకాన్ని విశాలాంధ్ర పబ్లిషింగ్ హౌస్ వారు ముద్రించారు. నేషనల్ బుక్ ట్రస్ట్ (ఎన్.బి.టి) వారు "నెల్లూరి కేశవస్వామి ఉత్తమ కథలు" అనే పుస్తకాన్ని ముద్రించారు. ఈయన ఒక చారిత్రక నేపథ్యాన్ని, ఒక సాంస్కృతిక నేపథ్యాన్ని తన కథల్లో నిక్షిప్తం చేసిన రచయిత. ఆయన ప్రతిభ ఉన్న రచయిత ఆయనప్పటికీ ఎందువల్లనో ఆయన రచనలపై జరగాల్సినంత చర్చగాని, పరిశోధన గాని జరగలేదు. నెల్లూరి కేశవస్వామి రచనలు కొన్ని తప్ప అముద్రితాలే ఎక్కువ ఆయన రచనలు అనేకం ఆ కాలం నాటి భారతి ప్రగతి, కృష్ణా, యువ, విపుల, గృహలక్ష్మి, ఆంధ్రజ్యోతి, విశ్వరచన, స్వామి, జ్యోతి, ఆంధ్రప్రదేశ్ మొదలైన పత్రికల్లో అచ్చయ్యాయి. ఆయన నవలలు, కథలు, గల్పికలు, నాటికలు ఇలా ఎన్నో రాసినప్పటికీ ఆజ్ఞాత రచయితగానే ఉండిపోయారు.

నెల్లూరి కేశవస్వామి హైదరాబాద్ నగరంలో 1920లో జన్మించారు. హైదరాబాద్లోనే పుట్టిన కేశవస్వామి ప్రీ-డిగ్రీ నిజామ్ కాలేజీలో చదివాడు. ఈయన ఉస్మానియా విశ్వవిద్యాలయం నుంచి ఇంజనీరింగ్ పట్టా సొంది, ఆంధ్రప్రదేశ్ పబ్లిక్ వర్క్స్ డిపార్ట్మెంట్ నీటి పారుదల శాఖలో ఇంజనీర్గా పని చేసి రిటైర్ 1984లో పరమపదించారు. ఇంజనీర్గా పనిచేస్తూనే ప్రజల జీవితాలను దగ్గరగా పరిశీలించి రచనలు చేశాడు. ఒక వైపు ఉద్యోగిగా విధులు నిర్వర్తిస్తూనే మరొకవైపు రచనలు చేస్తూండేవారు. నెల్లూరి కేశవస్వామికి సమకాలికులుగా బూర్గుల రంగనాథరావు, చరుకుపల్లి రఘోత్తమరావు, పొట్లపల్లి రామారావు, భాస్కరభట్ల కృష్ణారావు, నందగిరి ఇందిరాదేవి, గుండవరపు హనుమంతరావు, గూడూరి సీతారాం మొదలైన రచయితలు కథలు రాసేవారు. ప్రత్యూష పత్రిక ప్రచురణలో నెల్లూరి కేశవస్వామితోపాటు జమ్మలమడుక పూర్ణచంద్రరావు, సూర్యా ప్రకాశరావు సోదరులు, విష్ణుభట్ల కామేశ్వరరావు, బూర్గుల రంగనాథరావు, పువ్వాడ పార్థసారథిలు ప్రధాన భాగస్వాముల. 'సాధన సమితి' అనే సంస్థ ప్రత్యూష ప్రచురణల కోసమే ఏర్పాటైంది. బాగి నారాయణ మూర్తి, పిల్లలమర్రి వెంకట హనుమంతరావు, నెల్లూరి కేశవస్వామి తదితర ప్రముఖ రచయితలకు 'సాధన సమితి' చక్కని ప్రోత్సాహానిచ్చింది. నెల్లూరి కేశవస్వామి రాసిన 'ప్రేమ్చంద్ అనువాద కథలని' సాధన సమితి ప్రచురించింది.

నెల్లూరి కేశవస్వామి తొలి కథల సంపుటి 'పసిడి బొమ్మ'. ఈ సంపుటంలో పసిడిబొమ్మ, చోటాలీదర్, అలవాటు, నిట్టూర్పు, అభిమానం, ప్రజ - ఉద్యోగి - మంత్రి, పాలపొంగు, కవి సమ్మేళనంలో, అక్కయ్యపెళ్ళి, ప్రతిష్ఠాపరుడు, పరీక్ష, రాజర్షి, అతిథి, రాజు గురించిన కథ అనే కథలున్నాయి. ఈ కథా సంపుటాన్ని 1969 ఆగష్టులో సాధన సమితి వారు ప్రచురించారు. ఈ కథా సంపుటానికి ముందుమాట పోతుకూచి సాంబశివరావు రాశారు. ఈ పసిడి బొమ్మ కథల సంపుటిని ఆప్తమిత్రుడు, కథకుడు భాస్కరభట్ల కృష్ణారావు దివ్యస్మృతికి అంకితమిచ్చాడు. మరో కథల సంపుటి 'చార్మినార్'. ఈ కథల సంపుటిలో విముక్తి, కన్నెరికం, రూపీ - ఆపా, షరీఫా, అదృష్టం, ప్రతీకారం, వంశాంకురం, కేవలం మనుషులం, భరోసా, ఆఖరికానుక, యుగాంతం కథలున్నాయి. దీనిని 1981లో ప్రచురించారు. ఈ కథా సంపుటిని చిన్ననాటి మిత్రుడు పాకిస్తాన్ వెళ్ళిపోయిన 'అజ్జర్ ఉద్దీన్ అహమ్మద్'కు అంకితం ఇచ్చాడు. ఈ చార్మినార్ కథల సంపుటికి 'జలతారు మేలి ముసుగు' పేరుతో డి. రామలింగం ముందుమాట రాశారు. హైదరాబాద్ జీవన విధానంతో ఒక సంస్కృతిని రూపొందించుకుంది. దానికే హైదరాబాద్ సంస్కృతి అని పేరు. ఈ సంస్కృతిని చిత్రిస్తూ నెల్లూరి కేశవస్వామి చార్మినార్ కథలు రాశాడు. అయితే తెలుగు కథానిక సుసంపన్నమై ఉన్నదంటే ఆ ప్రక్రియపై శ్రద్ధాసక్తులతో జీవితేశ్వరిని వలె కొందరు రచయితలు ఆరాధించి ఎడతెగకుండా రచన చేస్తూ ఉండడమే కారణమని చెప్పి రామలింగం తన ముందు మాటలో కేశవస్వామిని అటువంటి కథారాధకుడని ప్రశంసించాడు. ఈ చార్మినార్ కథా సంపుటానికి 'ఆంధ్రప్రదేశ్ సాహిత్య అకాడమీ అవార్డ్' లభించింది. 13-17 సెప్టెంబర్ 1948న యూనియన్ సైన్యాల హైదరాబాద్ నగరాన్ని చుట్టిముట్టి ఆక్రమించుకోవడం, నిజాం లొంగిపోయి, తన స్వాతంత్ర్య రాజ్యాన్ని ఇండియన్ యూనియన్లో విలీనం చేయడం. ఆక్రమంలో వచ్చిన మార్పులని స్వయంగా చూసి, అనుభవించి వాటిని పూసగుచ్చినట్లు యుగాంతం కథలో అక్షరీకరించిన రచయిత నెల్లూరి కేశవస్వామి. ఆక్స్ ఫర్డ్

యూనివర్సిటీ వారు భారతీయ భాషల్లో ముస్లిం సంస్కృతిపై వచ్చిన కథల్ని సేకరించి, ఇంగ్లీషులోకి అనువదించి ప్రచురించారు. తెలుగులో నుంచి కేశవస్వామి రాసిన యుగాంతం, విముక్తి అనే రెండు కథలు ఈ సంపుటిలో చోటు చేసుకున్నాయి. ఈ కథల్ని ఆచార్య కేతు విశ్వనాథరెడ్డి అనువదించాడు. కేశవస్వామి రాసిన ఇతర కథలు విధి వంచితలు (1982), వెలుతురులో (1974), గొప్పింటి బిడ్డ (1941), కాపి (1940), బడిగంటలపై విమర్శ కథ (1936), సంస్కారం (1938), ప్రజాకవి (1950), మిత్రత్రయం (1947), చతురస్రం (1947), ఊబి (1981), ఆఖరి ఆశ (1982), కపోతము - కావేశము (1983), అసలేం జరిగిందంటే (1982), సవతి (1983), పిరికివాడు (1982), పాపం (పాలవెల్లి సంకలనం)గా ఉన్నాయి. ఇంకా పరిష్కారం (1968), బ్రతుకు భయం (1960), కొత్తగొళాలు (1961), పరివర్తనం (1961), అనే నాటికలేకాక, ఎన్నో రేడియో నాటికలు కేశవస్వామి రాశారు. కేశవస్వామి రాసిన నవల వెలుతురులో చీకటి. నెల్లూరి కేశవస్వామి రచనలు అచ్చయినవి ఇవి అయితే, అచ్చు కానివి ఇంకా ఎన్నో ఉన్నాయి.

నెల్లూరి కేశవస్వామి సృష్టించిన పాత్రలు ఆనాటి సమాజానికి సజీవ సాక్ష్యాలుగా నిలిచాయి. ఆయన సృష్టించిన షరీఫా కథలో వేశ్యా పాత్ర అయిన షరీఫా పొట్టకూటి కోసం విధిలేని పరిస్థితిలో భర్త అనుమతితో వ్యభిచారం చేస్తూ డబ్బు గడిస్తుంది. అలాగే సుల్తాన్ అనే మరో పాత్ర తన మక కట్టుబాటుకు వ్యతిరేకంగా ప్రవర్తించి, మతం కంటే మానవత్వమే గొప్పదని చాటి చెబుతాడు. ఇంకా దిలావర్, నజ్బీ, అమీనా, లిబ్నా, రజీయ, కమలరాయ్, బిల్కిస్, మెహబూబ్ రాయ్, సక్సేనా, ఇక్బాల్, గులాం, రమనీ, బిందు, రాధ, లోకయ్య, సరస్వతి, సుశీల, షరీ, సిరాజ్, జుగ్గు, రమణీ, షాషు, దుల్హన్ పాషా, నవాబి పాషా, భాసీం, మేర్ ఇస్లాం అలీఖాన్, ఇబ్రూన్, నజ్మా, కరీం, హసన్, ఖాజీసాద్, సులేమాన్, అమేనా, సూరీ, విజయ, విశాల, రంగా, గంగాదరం, ప్రసాద్, ప్రసూన, కమల, సరళ, రామయ్య, వెంకన్న, లీల, రామం మొదలైన పాత్రలు నేటి సమాజంలోని విభిన్న మనస్తత్వానికి ప్రతీకలు. నెల్లూరి కేశవస్వామి పాత్రలన్నీ హిందూ - ముస్లిం సఖ్యతను, సంస్కృతిని కాపాడే విధంగా ఉన్నాయి. ప్రతి పాత్రను ఉత్తమంగా తీర్చిదిద్దాలనే తపన ఆయన రచనల్లో కనిపిస్తుంది.

తెలంగాణలో ఉన్న ఆనాటి ఆచార వ్యవహారాలు, కట్టుబాట్లు, సంప్రదాయాలు, సమాజ పోకడలు నెల్లూరి కేశవస్వామి రచనల్లో ప్రస్ఫుటంగా కనిపిస్తాయి. ముఖ్యంగా ఆనాటి సమాజంలో వేశ్యావృత్తిని, రిక్షా వారి బ్రతుకులను, కూలి వారి జీవితాలను, అస్పృశ్యతను, వివాహాలను, బహు భార్య వ్యవస్థ, నవాబుల విలాసాలను, నిరుద్యోగితను, ఉద్యమాలను, పంతాలు - పట్టింపులను, బానిస బ్రతుకును, మానవ సంబంధాలను, సమాజ పోకడలను వాటిని కళ్ళకు కట్టినట్లు చిత్రించారు. పసిడిబొమ్మ అనే కథలో రాధ పాత్ర, విముక్తి అనే కథలో ఆనాటి సమాజంలో ముక్కుపచ్చలారని ఆడపిల్లలను తీసుకవచ్చి వాళ్ళతో వెళ్ళిచాకిరి చేయిస్తూ, వాళ్ళను లైంగికంగా వాడుకోవడాన్ని చిత్రించారు. ప్రజా - ఉద్యోగి - మంత్రి కథలో సమాజంలో మంత్రులు, ఉద్యోగస్థుల మధ్య ఏ విధంగా సలిగిపోతారో అక్షరీకరించాడు. అభీమానం అనే అంటరానితనం ఏ విధంగా దళితులను అభద్రతా భావానికి గురి చేస్తుందో చిత్రించాడు. అలవాటు అనే కథలో సమాజంలోని కార్మికుల సమస్యలు, వారి హక్కులు, పోరాటాలు గురించి వివరించాడు. నిట్టూర్పు అనే కథలో అటెండర్ల జీవితాలు ఏ విధంగా ఆఫీస్ గోడల మధ్య సలిగిపోతున్నాయో వివరించే ప్రయత్నం చేశాడు. పాలపొంగు

20వ శతాబ్దం - తెలంగాణ పద్య ప్రతిభ

సాహిత్య సదస్సు

పరిశోధన పత్ర సంచిక



తెలుగు విభాగం

ప్రభుత్వ డిగ్రీ & పి.జి.కళాశాల (స్వయంప్రతిపత్తి)

సిద్దిపేట, తెలంగాణ రాష్ట్రం.

రాత్రనక, పగలనక, ఎండనక, వాననకా కష్టించి, ప్రపంచానికి అహారాన్ని అందించేవారు కర్షకులు, అలాంటి కర్షకుల గురించి వ్రాసే కావ్యాలను “పల్లీయ ప్రకృతి” కావ్యాలు అంటారు. వీటినే కొందరు ‘కృషిక’ కావ్యాలుగా కూడా పేర్కొన్నారు. ఆంగ్లంలోని ‘ప్యాస్టోరల్ పొయెట్రీ’కి సమానర్థకంగా తెలుగులో ‘పల్లీయ ప్రకృతి కవిత్వం’ని వాడుతున్నారు.

ప్రాతఃకాలము నుండి రాత్రి నిద్రపోయే వరకు కర్షకులు చేసే అన్ని పనులను ప్రస్తావిస్తూ అనేక కావ్యాలు వెలువడ్డాయి. తెలుగు సాహిత్యంలో కర్షకుల జీవితాలను సమగ్రంగా చిత్రించిన కవులుగా దువ్వూరి రామిరెడ్డి, కవికొండల వెంకటరావు, వానమామలై జగన్నాథాచార్యులు, ఏటుకూరి లక్ష్మీనర్సయ్య, కొప్పరపు దుర్గా ప్రసాదరావు, తుమ్మల సీతారామమూర్తి చౌదరి, పింగళి కాటూరి కవులు, బొడ్డు బాపిరాజు, కొండవీటి వెంకటకవి, పెద్దబోయిన ప్రసాదరావు మొదలైన వారు మనకు కనిపిస్తున్నారు. వీరి సరసనే చేరుతూ తెలంగాణలో కర్షక జీవితాన్ని సమగ్రంగా చిత్రించిన కవి ‘గంగుల శాయిరెడ్డి’

గంగుల శాయిరెడ్డి జన్మించిన గ్రామం రామచంద్రగూడెం - జీడికల్లు శివారు పల్లె. ఇది ఒకప్పుడు జనగామ తాలుకా నల్గొండ జిల్లాలో వుంది. ప్రస్తుతం లింగాల ఘనపురం మండలం వరంగల్ జిల్లాలో వుంది. 1932వ సంవత్సరంలో ‘కాపుబిడ్డ’ అనే 147 గద్య పద్యముల లఘు కావ్యాన్ని రచించి 1937వ సంవత్సరంలో ముద్రించారు.

ఆ తరువాత అది 1950, 1967లో రెండుసార్లు ఇది పునర్ముద్రితమైంది.

ఈ కావ్యాన్ని ‘వ్యవసాయ పద్య కావ్యమని’ ఆయనే స్వయంగా పేర్కొన్నారు. ఈ కావ్యానికి సురవరం ప్రతాపరెడ్డి పీఠిక రాస్తూ... “కాపువారి కడగండ్లు, దినగండములు, బలవంతుల వలస ఇబ్బందులు, వారి యుషాయకత్వము, వారి స్త్రీల నిరంతర కష్టములు, వ్యవసాయము నందు కూలి నాలి చేసి బ్రతుకు బీదల ఆట పాటలు, వినోదములు చక్కగా, హృదయ రంజక మగునట్లుగా వర్ణించినారని” శాయిరెడ్డిని ప్రశంసించారు.

తెలంగాణ రైతును ఆదృతంగా చిత్రించిన కావ్యం ‘కాపుబిడ్డ’. కర్షకులకు ఉపయోగపడే ఋతువుల గురించి, వారు పండించే పంటల గురించి, రైతుల కాంక్షలూ, ఆధారాలూ, రీతులూ, సంప్రదాయాలు అన్నీ ఈ కావ్యంలో మనోహరంగా చిత్రించబడ్డాయి. రైతులను చులకన చేసి మాట్లాడే వారికి ఈ కావ్యం ఒక కనువిప్పు అని చెప్పవచ్చు.

కర్షక జీవితాలలో ఉన్న అనేక వైవిధ్యమైన విషయాలను శాయిరెడ్డి ఈ గ్రంథంలో సమగ్రంగా చిత్రణ చేశారు. తాను రైతు బిడ్డ కాబట్టి, వారి జీవితాలను కళ్లారా చూసి కాపుబిడ్డ కావ్యంగా మలిచారని చెప్పవచ్చు.

ఆయన పద్యాలు సమగ్రంగా పరిశీలన చేస్తే రైతుకు సంబంధించిన అనేక విషయాలు తెలుస్తున్నాయి.

మండు వేసవి యెండ, మంటలోం గ్రాగుచు టానిన పని సేయు, మూసులెవరు?

వానలో నానుచు, వణకుచూ హలమూని

చలియందు దున్నెడి, సాధులెవరు?

రాళ్ళలో నడవిలో, రాతిరింబవలును

తెలుగువిభాగం, ప్రభుత్వ డిగ్రీ & పి.జి. కళాశాల(స్వయంప్రతిపత్తి)-సిద్దిపేట.

తడూలు లేనట్టి, తపసులెవరు?
 తలక్రింద చేయిడి, గులక శీలలపైన
 వెతలేక నొరిగిన వేళ్లెవరు?
 కష్టసుఖముల నొకరీతి, గడుపువారు
 శత్రుమిత్రుల సమముగా, సైచువారు
 సైరికులు దప్పనంతటి శాంతులెవరు,
 కాన చేమోడ్చి వారినే, గౌరవింతు

“మండుటెండకు ఎందుతూ చేపట్టిన పనిని చేసే ఋషులెవరని, వానకు వణుకుతూ, రాత్రింబవళ్ళు, రాయనక రప్పనక తిరుగుతూ కష్టించే సహన స్వరూపి ఎవరని, ఎన్ని బాధలున్నా లెక్క చేయక రాతి నేలపై పవళించే విజ్ఞులెవరని, కష్టసుఖాలను సమానంగా స్వీకరించేవాడు శత్రుమిత్రులను సమానంగా చూచు శాంత స్వభావి కర్నకుడు కాక మరెవడు! అని”, “అందుకే చేతులు జోడించి వారికి మొక్కి గౌరవిస్తాను”. అని శాయిరెడ్డి పై పద్యంలో అలతి అలతి పదాలతో కర్నకుని కష్టం గురించి వివరించారు.

రైతుల సంస్కృతి సంప్రదాయాను గురించి శాయిరెడ్డి మనోహరంగా వర్ణించారు. రైతులు అనుభవిస్తున్న యధార్థ జీవితాన్ని విప్పి మన కళ్లముందుంచాడు. కృషీవలుడు తినే పచ్చజొన్న గట్టే, అతనికి పరమాన్నం అయిందని, పలుచని చల్లనే అమృతం, అతని చేతిలో ఉన్న ముండ్ల కర్ర అతనికి వజ్రాయుధం అని వివరిస్తూ.... పశుసంపదే అతని పరివారం అని, అతను పండించే పంటనే నిధి నిక్షేపాలని, అతనికున్న పశుసంపదే అతని పరివారమని రైతు ఎదుర్కొంటున్న యధార్థ జీవితాన్ని శాయిరెడ్డి చిత్రించినంత సహజంగా మరెవరూ చిత్రించలేదని చెప్పవచ్చు. కర్నకులు పడుతున్న అష్టకష్టాలను వారి దైనందిన జీవితాలను సమగ్రంగా చిత్రించారు.

“ఎండల వేడికి నెత్తు మేడలు లేక
 చెట్టుల నీడకు చేరినావు

.....
 కర్నకా ! చేతులెత్తి నే గౌరవింతు.”

“కర్నకునికి ఎత్తైన మేడలు లేవని, ఎండ వేడిమి నుండి కాపాడుకోవడానికి చెట్టునీడకు చేరావని, చలి బాదు నుండి నిన్ను నువ్వు కాపాడుకోవడానికి గడ్డి వాములను ఆశ్రయిస్తావు” అని వివరిస్తూ... కటిక చీకటిలో రాత్రులందు పుట్టలపై, మిట్టలపై పని మీద సంచరిస్తారు. విష పురుగులు క్రూర జంతువులు ఉన్నా మునులపై ఎల్లవేలలా సంచరిస్తావు కాబట్టి “ఓ కర్నకా! నీకు చేతులెత్తి నమస్కరిస్తున్నాను” అని శాయిరెడ్డి పై పద్యంలో అన్నాడు.

“కార్పిచులోబడి కంటకంఘల త్రొక్కి
 వడగండ్ల దెబ్బల వడదు నీవు

.....
 కర్నకా, నీకు చేమోడ్చి గౌరవించు”.

కష్టాలను కూడా ఇష్టాలుగా మార్చుకొని కష్టించేది కర్నకుడు అని రచయిత ఈ పద్యంలో వర్ణన చేశాడు. కర్నకా ! ఎండ వేడిమిని సహించి, ముండ్ల మీద నడిచి, వడగండ్ల వాన పాలొతావు. ఆకలి దప్పికలను ఓర్చుకొని, కటిక చీకటిలో సంచరిస్తావు. ఇన్ని కష్టాలను భరించి ఇంటికి వస్తే భార్యా పిల్లలు ఆకలితో అలమటించినా ఏ మాత్రం చలనం లేకుండా ఉంటావు. అందుకే నీకు చేతులు జోడించి నమస్కరిస్తున్నాను. అంటాడు రచయిత. కర్నకులు ఎంత కష్టమైనా భరిస్తూ ఎన్ని విఘ్నాలు ఎదురైనా అధైర్యపడకుండా పంటలు

తెలుగెత్తి జైకోట్టు

శతాధిక తెలుగు సాహితీవేత్తల జీవితం-సాహిత్యం



63.	బుచ్చిబాబు	-	రఫీ	-	374
64.	పొట్లపల్లి రామారావు	-	రాయలింగు ఓర్పు	-	377
65.	దేవులపల్లి రామానుజారావు	-	స్పూర్తి	-	389
66.	ఇల్లించల సరస్వతి దేవి	-	యం. మాధవి	-	392
67.	తిక్కవరపు పట్టాభిరామిరెడ్డి	-	వల్లభపురం జనార్ధన	-	398
68.	గడియారం రామకృష్ణశర్మ	-	డా॥ వేముల శేఖరయ్య	-	403
69.	నందగిరి ఇందిరాదేవి	-	ముదిగొండ సంతోష్ కుమార్	-	411
70.	ఆరుద్ర	-	డా॥ మండవ సుబ్బారావు	-	417
71.	భద్రిరాజు కృష్ణమూర్తి	-	వెంకటరమణ	-	424
72.	దేవరకొండ బాలగంగాధర్ తిలక్	-	మైత్రి సుధారాణి	-	429
73.	ఆత్రేయ	-	తంగిరాల చక్రవర్తి	-	437
74.	పి.వి.నరసింహారావు	-	బానోత్ స్వామి	-	443
75.	రావిశాస్త్రి	-	రంగు శ్రీకాంత్ గౌడ్	-	447
76.	కుందుర్తి ఆంజనేయులు	-	సి. హెచ్. ఉషారాణి	-	453
77.	జ్ఞానానందకవి	-	జె. రాయమల్లు	-	457
78.	హీరాలాల్ మోరియా	-	కల్లెబోయిన కుమారస్వామి	-	461
79.	అనిశెట్ట సుబ్బారావు	-	ఫణి మోరంపూడి	-	465
80.	ఆవంత్స సోమసుందర్	-	డా॥ పెళ్లూరు సునీల్	-	469
81.	దాశరథి కృష్ణమాచార్య	-	మూడ్ రాజు	-	475
82.	బిరుదురాజు రామరాజు	-	రాఘవాచారి	-	480
83.	నెల్లూరి కేశవస్వామి	-	మద్దిరాల సత్యనారాయణరెడ్డి	-	485
84.	కవిరాజమూర్తి	-	గౌతమ్ లింగ	-	490
85.	రావూరి భరద్వాజ	-	సర్పరాజ్ అన్వర్	-	495
86.	రావెళ్ల వెంకటరామారావు	-	డా॥ ఎం.వి.రమణ	-	499
87.	గుంటూరు శేషేంద్రశర్మ	-	తిరునగరి శరత్ చంద్ర	-	501
88.	సామల సదాశివ	-	మంత్రి శ్రీనివాస్	-	511
89.	దాశరథి రంగాచార్య	-	తండ హరీష్ గౌడ్	-	516
90.	కపిలవాయి లింగమూర్తి	-	నారాయణదాసు మంజులచారి	-	522
91.	ఇస్మాయిల్	-	వహీద్ ఖాన్	-	531
92.	పాకాల యశోదారెడ్డి	-	డా॥ అడువాల సుజాత	-	534
93.	డా॥ ముకురాల రామారెడ్డి	-	డా॥ మంగళగిరి శ్రీనివాసులు	-	540
94.	డా॥ పి. శ్రీదేవి	-	సయ్యద్ ముజాహిద్ అలీ	-	545
95.	వేముగంటి నరసింహాచార్యులు	-	డా॥ నమిలకొండ సునీత	-	549

నెల్లూరి కేశవస్వామి

మద్దిరాల సత్యనారాయణరెడ్డి

అత్యాధునమైన కథలు తెలంగాణలో అనేకంగా ఉన్నాయి. ఈ కథలలో వస్తు ప్రాధాన్యత ఎక్కువగా వుండి, చక్కని కథా కథనం, శైలీ, శిల్పంతో వుండి, చదివే పాఠకునికి ఉత్కంఠ కలిగిస్తాయి. తెలంగాణలో ప్రస్తుతం ఎంతో మంది రచయితలు సమకాలీన అంశాలతో కూడిన సుప్రసిద్ధమైన కథలని సమాజానికి అందిస్తున్నారు. కాని తొలి తరం రచయితలు కథలు రాసే నాటికి అనేక సమస్యలు ఎదుర్కొనే వారు. నాటి కాలంలో అక్షరాస్యత తక్కువ కావడం చేత, కథలు రాసే రచయితలు చాలా తక్కువగా వుండేవారు. ఉర్దూ మీడియం కావడం చేత తెలుగు కథలు రాసేవారు కాదు. రాసేనా అచ్చయ్యేవి కావు. ఇన్ని సమస్యలు ఎదుర్కొంటూనే తెలంగాణ రచయితలు కథలు రాసేవారు. తెలంగాణ తొలి తరం కథలలో తెలంగాణ అస్తిత్వాన్ని నిక్షిప్తం చేసిన అతి కొద్ది మంది రచయితలలో నెల్లూరి కేశవ స్వామి సుప్రసిద్ధుడు.

నెల్లూరి కేశవస్వామి సాహిత్య జీవితం

నెల్లూరి కేశవస్వామి 1925లో హైదరాబాద్ లో జన్మించాడు. ఆయన ప్రాథమిక విద్య ముగించుకొని ఉన్నత విద్యలో ప్రవేశించగానే 1937 నంచే అంటే ఆయన పన్నెండో యేట నుంచే రచనలు చేయడం ప్రారంభించాడు. హైదరాబాద్ లో వుట్టిన కేశవస్వామి ప్రీ-డిగ్రీ నిజామ్ కాలేజీలో చదివిన ఆయన ఉస్మానియా విశ్వవిద్యాలయం నుండి ఇంజనీరింగ్ పట్టా పొంది, ఆంధ్రప్రదేశ్ పబ్లిక్ వర్క్స్ డిపార్ట్ మెంట్ నీటి పారుదలశాఖలో ఇంజనీర్ గా పనిచేసి రిటైరయ్యారు. ఇంజనీర్ గా పనిచేస్తూనే ప్రజల జీవితాలను దగ్గరగా పరిశీలించి రచనలు చేస్తుండేవారు. ఉద్యోగ విరమణ తరువాత కేశవస్వామి రచనలపై ఎక్కువగా దృష్టి కేంద్రీకరించారు. అలా రచనలు చేస్తూనే 1984వ సంవత్సరంలో పరమపదించారు.

నెల్లూరి కేశవస్వామికి సమకాలికులుగా బూర్గుల రంగనాథరావు, చరుకుపల్లి రఘోత్తమరావు, పొట్లపల్లి రామారావు, భాస్కరభట్ల కృష్ణారావు, నందగిరి ఇందిరాదేవి, గూడూరి సీతారాం మొదలైన రచయితలు కథలు రాసేవారు. ప్రత్యూష పత్రిక ప్రచురణలో నెల్లూరి కేశవస్వామితో పాటు జమ్మల మడక పూర్ణచంద్రరావు, సూర్య ప్రకాశరావు సోదరులు, విష్ణుభట్ల కామేశ్వరరావు, బూర్గుల రంగనాథరావు, పువ్వాడ పార్థసారథిలు ప్రధాన భాగస్వాములుగా ఉన్నారు. 'సాధన సమితి' అనే సంస్థ ప్రత్యూష ప్రచురణల కోసమే ఏర్పాటైంది. నెల్లూరి కేశవస్వామికి 'సాధన సమితి' చక్కని ప్రోత్సాహానిచ్చింది. కేశవస్వామి ఊర్ధులో కూడా అనేక కథానికలు రాశారు. ఉర్దూలో కేశవస్వామి కలం పేరు "స్వామి హైదరాబాద్" కేశవస్వామి ప్రేమ్చంద్ కథలను ఎక్కువగా తెలుగులోకి అనువాదం

తెలుగెత్తి కైకొట్టు

చేశారు. ఇలా అనువాదం చేసిన కథలను సాదన సమితి ప్రచురించింది.

1. పసిడిబొమ్మ కథా సంపుటి (1969) : పసిడిబొమ్మ, చోటా బీదర్, అలవాటు, నిట్టూర్పు, అభిమానం, ప్రజా - ఉద్యోగి - మంత్రి, పాలపొంగు, కవి సమ్మేళనంలో, అక్కయ్యపెళ్ళి, ప్రతిష్ఠాపరుడు, పరీక్ష, రాజర్షి, అతిథి, రాజును గురించిన కథ మొదలైన కథలున్నాయి

2. చార్మినార్ కథల సంపుటి (1981)
విముక్తి, కన్నెరికం, రూపీ - ఆపా, పరీఫా, అదృష్టం, ప్రతీకారం, వంశాంకురం, కేవలం మనుషులం, భరోసా, ఆఖరి కానుక, యుగాంతం మొదలైన కథలు ఉన్నాయి.

3. నాటికలు : పరిష్కారం, బ్రతుకు భయం, కొత్త గోళాలు
4. నవల : వెలుతురులో చీకటి

5. ఇతర కథలు
విధివంచితలు (1982), వెలుతురులో (1974), గొప్పింటిబిడ్డ (1947), కాపి (1940), బడిగంటలపై విమర్శ (1936), సంస్కారం (1938), ప్రజాకవి (1950), మిత్రత్రయం (1947), చతురస్రం (1957), ఊబి (1981), ఆఖరి ఆశ (1982), కపోతము - కావేశము (1983), అసలేం జరిగిందంటే (1982), సవతి (1983), పిరికివాడు (1982), పాపం మొన కథలే కాక, ఎన్నో రేడియో నాటికలు కూడా కేశవస్వామి రాశారు. కేశవస్వామి రచనలు కొన్ని తప్ప అముద్రితాలే ఎక్కువ. ఆయన రచనలు అనేకం ఆ కాలం నాటి భారతి, ప్రగతి, కృష్ణా, యువ, గృహలక్ష్మి, ఆంధ్రజ్యోతి, విశ్వరచన, స్వామి, జ్యోతి, శోభ, ఆంధ్రప్రదేశ్ పత్రికల్లో అచ్చయ్యాయి. ఆయన నవలలు, కథానికలు, గల్పికలు, ఎన్నో రాసినప్పటికీ, ఇప్పటికీ ఆజ్ఞాత రచయితగానే ఉండిపోయారు.

నెల్లూరి కేశవస్వామి కథలు - విశ్లేషణ

నెల్లూరి కేశవస్వామి తెలంగాణ గర్వించదగ్గ గొప్ప కథకుడు. హైదరాబాద్ వాస్తవ్యుడైన కేశవస్వామి నిజాం పరిపాలన కాలం నాటి పరిస్థితులను తన కథలో ప్రతిబింబింపజేశాడు. తెలంగాణ భాష - సంస్కృతి అస్థిత్వం కోల్పోతున్నా, ఆ రోజుల్లో కేశవస్వామి తన కథల ద్వారా సమాజాన్ని మేల్కొల్పే ప్రయత్నం చేశారు. ఆయనకు హైదరాబాద్ నగర సంస్కృతి సంప్రదాయాలంటే ఎంతో అభిమానం. ఆయన కథలన్ని హైదరాబాద్ కేంద్రంగా నడిచినవే. హైదరాబాద్ సంస్కృతిని, హిందూ - ముస్లిం సఖ్యతను, స్నేహభావాన్ని, జీవన విధానాన్ని, సాదక ఆధికాలను తన రచనలలో చూపించిన గొప్ప కథకుడు హిందూ అయి ఉండి కూడా ముస్లిం సంస్కృతిని, ఒక సాంస్కృతిక నేపథ్యాన్ని తన కథలలో నిక్షిప్తం చేసిన ప్రతిభావంతమైన రచయిత అయినప్పటికీ, ఆయనపై జరగాల్సినంత చర్చగాని, పరిశోధన గాని జరగలేదనేది నా అభిప్రాయం.

నెల్లూరి కేశవస్వామి తన తొలి కథల సంపుటి అయిన 'పసిడిబొమ్మను' 1969లో సాధన సమితి వారు వెలువరించారు. పోతుకూచి సాంబశివరావు ముందు మాట రాసిన ఈ పుస్తకాన్ని తన ఆప్తమిత్రుడు భాస్కరభట్ల కృష్ణారావుకు అంకితం ఇచ్చారు.

వ్యంగ్యం, హాస్యం మిళితమై ఉన్న ఈ కథలన్ని ఆయన పాఠకుల హృదయాలకు హత్తుకునేలా రాశారు. 'పసిడిబొమ్మ' కథ చిత్రకారుడి జీవితంలోని అగాధాల్ని తరచి చూపిస్తూనే, ఆనాటి సమాజంలో ఆడవారిని లైంగికంగా వాడుకొని, నడిరోడ్డు మీద బొమ్మలా విసిరేసిన దయనీయమైన పరిస్థితులను కళ్ళకు కట్టినట్టు చూపించింది. రాజకీయాలన్ని తిరుగుతున్నా వారి జీవితాలకు చిత్రించిన కథ

హోటల్ దర్. గోపి రాజకీయ నాయకుడు. అనునిత్యం రాజకీయాలలో తలమునకలై ఉండడం వల్ల ఆరోగ్యం దౌర్భాగ్యంగా చెడిపోయింది. తన ఆరోగ్యం బాగుపడాలని తన మిత్రుని వద్దకు వెళతాడు. అక్కడ కూడా అనేక సమస్యలు ఉండడం వల్ల అలవాటుగా ప్రజల తరపున పోరాడాల్సి రావడం వల్ల రాజకీయ నాయకుల మనస్తత్వం ఎక్కడున్నా మారదన్న విషయాన్ని కేశవస్వామి 'అలవాటు' అనే కథలో చిత్రించాడు. 'సిట్టూర్లు' అనే కథలో ఆటెండర్ జీవితాలు ఎంత దుర్భరంగా ఉంటాయో, లాభ ఆఫీస్ గోడల మధ్య సరిగిపోతున్నా యదార్థ సన్నివేశాలను చిత్రీకరణ కట్టాడు. సమాజంలో ఎక్కువ మందిని వేదించిన సమస్య అంటరానితనం. కాబట్టి ఆ సమస్యను ప్రధానంగా తీసుకొని కేశవస్వామి 'అభిమానం' అనే కథను రాశారు. ఈ కథలో వెంకట్రావ్ అనే దళితుడు కులం కారణంగా చిన్నప్పటి నుండి ఎన్నో అవమానాలను ఎదుర్కొన్నాడు. ఆఫీస్ లో ఆటెండర్ గా ఉంటూ తనసూ ఆఫీస్ లో ఎక్కువ అసహించుకుంటారో అని అనుక్షణం అభద్రతాభావానికి లోనౌతాడు. ఇలాంటి రచనలను యదార్థ పరిస్థితులను రచయిత 'అభిమానం' అనే కథలో అక్షరీకరించాడు. ప్రజలకు, ప్రభుత్వానికి మధ్య ఉన్న ఉద్యోగి జీవితాన్ని చిత్రిస్తూనే, ఉద్యోగులపై ఉన్న ఒత్తిడిని, ప్రతిభావంతంగా చిత్రించిన కథ 'ప్రజా, ఉద్యోగి, మంత్రి'.

నెల్లూరి కేశవస్వామి స్వాతంత్రోద్యమం కాలంలో విద్యార్థుల పోరాటాలను చిత్రిస్తూ రాసిన కథ 'పాలపొంగు' లో మూర్తి స్వాతంత్రోద్యమంలో భాగంగా తన పాఠశాలకు సెలవు మంజూరు చెయ్యని హెచ్చార్లపై దాడి చేసి, గేటు తాళాలు పగులగొట్టి, విద్యార్థులందరిని హర్తాకే తీసుకవెళతాడు. ఇలాంటి విద్యార్థి ఉద్యమాలను బలంగా చిత్రించడం ఒక్క కేశవ స్వామికే చెల్లించని చెప్పవచ్చు. కవుల మనస్తత్వాలను, వారి కవితా సమ్మేళనాలను వివరించిన కథ 'కవి సమ్మేళనంలో ...' రచయిత ఉత్తరాల ద్వారా నడిపించిన కథ 'అక్కయ్య పెళ్ళి'. ఒకప్పటి ఉత్తరాల ప్రాముఖ్యతను తెలుపుతూ రచయిత ఈ కథను అద్భుతంగా తీర్చిదిద్దాడు. రచయిత తన కథలో పొందుపరిచిన సృజనాత్మకతను, ప్రయోగాత్మకతను తెలుసుకోవాలంటే 'అక్కయ్యపెళ్ళి' కథ చదివితే సరిపోతుంది. 'వ్రభుత్వ కార్యాలయాలలో పేరుకుపోయిన అవినీతిని చిత్రించిన కథ 'ప్రతిష్ఠాపరుడు'. మద్యపానానికి అలవాటు పడిన దృక్పథ మౌనసీక స్థితిని, దాని కోసం అతను పడే తపనను క్లుప్తంగా వివరించిన కథ 'పరీక్ష'. రాజర్షి కథలో ధనవంతుని మనస్తత్వాన్ని చిత్రించాడు. అతనికి ఎంత డబ్బు ఉన్నప్పటికీ ఇంకా కాలనే ఏదువును రచయిత ప్రతిభావంతంగా చిత్రికకట్టాడు. అతిథుల వల్ల కలిగే విపరీణామాలను చిత్రించిన కథ 'అతిథి'. ఈ కథలో ప్రసాద్ రావు అనే అతిథితో విసిగి వేసారి, తన మిత్రుని సహాయంతో బండ్ల సుంచి మర్యాద పూర్వకంగా తరిమేస్తాడు. అతిథుల మాటల్లోని డొల్లతనాన్ని రచయిత అతిథి కథలో చిత్రిచాపాడు. పూర్వ కాలంలో ఉన్న రాజులను, ప్రస్తుత కాలంలో ఉన్న ముఖ్యమంత్రులతో కొన్ని చెప్పిన కథ 'రాజును గురించిన కథ'. ఈ కథలో పూర్వం రాజులు ప్రజలను కంటికి రెప్పలాగా కాపాడేవారు. కాని ప్రస్తుత మున్ను ప్రభుత్వాలు ప్రజలను కాపాడాల్సింది పోయి, కంచే చేసు మేసిందన్న ఒకటిగా ప్రజలను దోచుకుంటున్నాయని, రచయిత చేసిన సజీవత ఉట్టిపడేలా అద్భుతంగా అడవి చెప్పవచ్చు. పూర్వం ఉన్న రాజులతో, ఇప్పటి ప్రభుత్వాలను పోల్చి చెప్పిన రచయిత దృక్పథం ఈ ప్రపంచంలోనే కొత్తగా కనిపిస్తుంది.

నెల్లూరి కేశవస్వామి రాసిన మరో కథల సంపుటి 'చార్మినార్' 1981లో ప్రచురించిన ఈ

కథా సంపుటిని చిన్ననాటి మిత్రుడు, పాకిస్తాన్ వెళ్ళిపోయిన 'అజ్జార్ ఉద్దీన్ అహమ్మద్'కు అంకితం ఇచ్చారు. ఈ చార్మినార్ కథల సంపుటికి 'జలతారు మేలి ముసుగు' అనే పేరుతో డి. రామలింగం ముందు మాట రాశాడు. "హైదరాబాద్ ఒక జీవన విధానంతో ఒక సంస్కృతిని రూపొందించుకుంది. దానికే హైదరాబాద్ సంస్కృతి అని పేరు. ఈ సంస్కృతిని చిత్రిస్తూ నెల్లూరి కేశవస్వామి చార్మినార్ కథలు రాశాడు. అయితే తెలుగు కథానిక సుసంపన్నమై వున్నదంటే ఆ ప్రక్రియపై శ్రాద్ధాసక్తులు కలిగి వుండి, జీవితేశ్వరినివలె కొందరు రచయితలు ఆరాధించి, ఎడతెగకుండా రచన చేస్తూ ఉండడమే కారణమని చెప్పి రామలింగం తన ముందు మాటలో కేశవస్వామిని అటువంటి కథా రాధకుడని ప్రశంసించాడు. 'హైదరాబాద్ సాంస్కృతికి' చిహ్నంగా చార్మినార్ నిలబడితే, కథకుడు నెల్లూరి కేశవస్వామి కథల సంపుటి చార్మినార్ కూడా అలాగే నిలబడింది. ఇందులో హైదరాబాద్ తెలుగు భాష ఒక మీనార్, సంస్కృతి. ఒక మీనార్. రాజకీయ నేపథ్యం ఒక మీనార్ అయితే సామాజికాంశాలు మరో మీనార్. ఈ విధంగా నాలుగు మీనార్లతో కూడిందే నెల్లూరి కేశవస్వామి కథా సర్వస్వం అని డా॥ దేవరాజు మహారాజు అన్నాడు. ఈ చార్మినార్ కథా సంపుటానికి ఆంధ్రప్రదేశ్ సాహిత్య అకాడమీ అవార్డ్ లభించింది. ఆనాటి సమాజంలో ముక్కుపచ్చలారని ఆడపిల్లలను తీసుకవచ్చి వాళ్ళతో వెట్టి చాకిరి చేయిస్తూ, వాళ్ళను లైంగికంగా వాడుకోవడాన్ని చిత్రించిన కథ 'విముక్తి'. ఈ కథలో నవాబుల ఇళ్ళలో దాసీలను అటవస్తువులుగా వాడుకునే ఆచారాలన్నీ తిరస్కరించిన సుల్తాన్ అనే విద్యావంతుడు దాసినే పెండ్లాడి, అలీఘద్ పారిపోయి ఉద్యోగిగా స్థిరపడడం, మనకి కనిపిస్తుంది. ఒకప్పటి సమాజంలో నెలకొని ఉన్న దుష్ట సంప్రదాయమైన కన్నెరికాన్ని చిత్రించిన కథ 'కన్నెరికం' ఈ కథలో దబ్బున్న వారి చేత బలాత్కరించబడే ఆడపిల్లల జీవితాలను సజీవ సాక్ష్యంగా రచయిత చిత్రించాడు. నవాబుల ఇళ్లలో సంగీత సాహిత్యాల అభిరుచి చిత్రించిన కథ 'రూపీ - ఆపా'. నాటి సమాజంలో ఉన్న వేశ్యావృత్తిని విధిలేని పరిస్థితిలో, భర్త అనుమతితో వ్యభిచారం చేస్తూ దబ్బు గడిస్తుంది.

'ప్రతీకారం' అనే కథలో పాషూ, నవాబు గారి అక్రమ సంతానం, లచ్చా అనే హిందూ మహిళకు పుడతాడు. తాను నవాబు కొడుకైనా వారసత్వ హక్కులేవీ ఉండవు. ఆ కనితో ప్రతీకారం తీర్చుకోవాలనుకుంటాడు. నవాబు అసలు కోడలు గుడ్డి రాణిని తన బాహువుల్లోకి ఆకర్షించి, నవాబుపై గెలిచినట్టుగా ఆనందపడతాడు. అదృష్టం కథలో నవాబు పశుబలంతో 'క్యాషిర్ భార్య శీలాన్ని హరిస్తే, నవాబురెండో భార్య తన కన్నా పన్నెండేళ్ళు చిన్నవదైన, క్యాషిర్ కొడుకుని చేరదీసి పెండ్లి చేసుకుంటుంది. చట్టానికి దొరకకుండా, ఆస్తిపాస్సులు ఇతరులకు పోకుండా, ముస్లిం మతాచారాల ప్రకారం జాగ్రత్త పడుతుంది. నవాబుల ఇళ్లలో జరిగే ఇలాంటి అనేక విషయాలను రచయిత ప్రతిభావంతంగా చిత్రించారు. 13-17 సెప్టెంబర్ 1948న యూనియన్ సైన్యాలు హైదరాబాద్ నగరాన్ని చుట్టుముట్టి ఆక్రమించుకోవడం, నిజాం లొంగిపోయి, తన స్వాతంత్ర రాజ్యాన్ని ఇండియన్ యూనియన్లో విలీనం చేయడం, ఆ క్రమంలో వచ్చిన మార్పుల్ని స్వయంగా చూసి, అనుభవించి, వాటిని పూసగుచ్చినట్టు 'యుగాంతం' కథలో అక్షరీకరించిన రచయిత నెల్లూరి కేశవస్వామి. ముస్లింల జీవితాలలో ఉన్న సంబంధ భాండవ్యాలను చిత్రించిన కథ 'వంశాంకురం'. మనుషులంతా సమానమేనని, మనుషులకి మతం అడ్డుకాదని చిత్రించిన కథ 'కేవలం మనుషులం'. ఈ కథలో హిందూ ముస్లిం విభేదాల్ని పక్కన పెట్టి, షియా, సున్నీల ప్రేమికుల జంట ఒకటవుతారు. మతాలు

హారకుండానే భార్య భర్తలుగా మనగలమని ధైర్యంగా ప్రకటిస్తారు. జైలు గోడల మధ్య ఉన్న ఖైదీ మనస్తత్వాన్ని చూపించిన కథ 'భరోసా'. దుబాయ్ షేక్ ఇంట్లో ఉండే అనేక మంది భార్యలలో అమీనా కూడా వుంది. అమె విముక్తి కోసం పెనుగులాడదాన్ని చిత్రించిన కథ 'ఆఖరి కానుక'. ఇలా కేశవస్వామి అద్భుతమైన కథనంతో కూడిన అనేక కథలని మనకి అందించాడు. ఆక్స్ ఫర్డ్ యూనివర్సిటీ వారు భారతీయ భాషల్లో ముస్లిం సంస్కృతిపై వచ్చిన కథల్ని సేకరించి ఇంగ్లీషులోకి అనువదించి ప్రచురించారు. తెలుగు నుంచి నెల్లూరి కేశవస్వామి రాసిన యుగాంతం, విముక్తి అనే రెండు కథలు ఈ సంకలనంలో చోటు సంపాదించుకున్నాయి.

నెల్లూరి కేశవస్వామి రచనలు - సమకాలీన సమాజం : తెలంగాణలో ఉన్న ఆనాటి ఆచార వ్యవహారాలు, కట్టుబాట్లు, సంప్రదాయాలు, సమాజ పోకడలు, నెల్లూరి కేశవస్వామి రచనలలో ప్రస్తుతంగా కనిపిస్తున్నాయి. ముఖ్యంగా ఆనాటి సమకాలీన సమాజంలో బలంగా నాటుకుపోయిన వేశ్యావృత్తిని, కన్నెరికాన్ని సహజ సిద్ధంగా చిత్రిస్తూనే, ఆ వృత్తులను చేయడానికి గల కారణాలను గూర్చి కూడా కేశవస్వామి వివరించాడు. నాటి సమాజంలో ఉన్నటువంటి సంగీత కచేరీలను వాటి కోసం నవాబులు పడే తపనను రచయిత కళ్ళకు కట్టినట్టు చూపించగలిగాడు. రిజ్లా నడుపుకునే వారి బ్రతుకులు, కూలి చేసి పొట్టపోసుకునే వారి జీవితాలు ఎంత దుర్భరంగా ఉంటాయో, సమాజంలో వారిని ఎంత చిన్నచూపు చూస్తారో రచయిత ప్రతిభావంతంగా వివరణ చేశారు. ఇంకా ఆనాటి సమాజంలో అస్పృశ్యతను, వివాహాలను, బహుభార్య వ్యవస్థను, నవాబుల విలాసాలను, నిరుద్యోగితను, ఉద్యమాలను, కార్మికుల పోరాటాలను, లైంగిక దోపిడిని, ప్రజల ఆర్థిక పరిస్థితులను, పంతాలు - పద్ధింపులను, మొదలైన సమాజంతో ముడిపడి ఉన్న అనేక విషయాలను కేశవస్వామి తన రచనలలో చిత్రిక కట్టాడు. కేశవస్వామి ప్రధానంగా హైదరాబాద్ సంస్కృతిని, జీవన విధానాన్ని తన రచనలలో చిత్రించాడు. ఆయన రచనలు చదివిన వారికి ఆనాటి సమాజ స్థితిగతులు ఎంత దుర్భరంగా ఉన్నాయో తెలుస్తాయి.

నెల్లూరి కేశవస్వామి రచనలు తెలంగాణ భాష

కేశవస్వామి రచనలలో తెలంగాణ భాష ఒక సంస్కృతికి చిహ్నంగా కనిపిస్తుంది. కేశవస్వామి రచనలలో షరీఫా కథలో జంకు, నిషా, గులాం మొదలైన తెలంగాణ భాషా పదాలు ప్రయోగించాడు. ఇంకా ముఖముల్, శల్వార, కమీజు, రుంకాలూ, దేవిటీలు, కోరీలు, దీవాన్ ఖానాలు, మామూలు, తఖీర్, చాదర్, ఖుష్కా, మోహర్ మొదలైన అచ్చమైన తెలంగాణ పదాలను వాడారు. కేశవస్వామి రచనలలో ఉన్న తెలంగాణ భాష ఉర్దూభాషకి దగ్గరగా ఉంటుంది. ఈ భాషను హైదరాబాద్ లో ఎక్కువగా వాడతారు. కనుక ఆయన రచనలలో ఎక్కువగా ఉర్దూ - తెలుగు కలిసిన పదాలు మనకు కనిపిస్తాయి. కేశవస్వామిని స్మరించుకునే ఉద్దేశంతో 1960 దశకంలో ఐర్యత్ పురలోని, అతని ఇంట్లో 'అపారసమితి' నిర్వహించిన సదస్సుకు ఆయన మిత్రులు, ఆవులు, అభిమానులు హాజరైయ్యారు. ఈ సమావేశం శేతు విశ్వనాథరెడ్డి అధ్యక్షతన జరిగింది.

ముగింపు

నెల్లూరి కేశవస్వామి గొప్ప కథకుడు. శైలి, శిల్పంలోనూ ఒక కొడవటిగంటి, చలం రచనలకు ఏ మాత్రం తీసిపోవు. ఆయన రచనలు ఆనాటి హైదరాబాద్ సంస్కాసంలోని పరిణామాలను,

పరిస్థితులను అద్దం పట్టినట్లుగా చిత్రించాయి. ఆయన రాసిన కథలలో 'యుగాంతం' కథ ఆయన రచనలలోనే అత్యంత ఉత్తమమైనది హిందు - ముస్లిం సంస్కృతికి కేంద్రమైన హైదరాబాద్ సంస్కృతిని ఆయన చాలా సహజంగా చిత్రించాడు. 1920లో పుట్టి అపురూపమైన సాహిత్యాన్ని తెలంగాణకు అందించిన ఈ మహారచయిత పైన అనేక పరిశోధనలు జరగాలని కోరుకుందాం.

ఉపయుక్త గ్రంథసూచి :

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2. తెలంగాణ తెలుగు కథ.
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6. నెల్లూరి కేశవస్వామి ఉత్తమ కథలు
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పరిశోధక విద్యార్థి (తెలుగు విభాగం), కాకతీయ విశ్వవిద్యాలయం, వరంగల్
 చరవాణి: 9502771776

పల్లీక్షణం

సాహిత్య వ్యాస సంకలనం



సంపాదకులు : మద్దిరాల సత్యనారాయణ రెడ్డి

పఠీక్షణం

సౌహిత్య వ్యాస సంకలనం

సంపాదకులు

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అసోసియేట్ ప్రొఫెసర్**

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Kakatiya University
Warangal - 506 009 (T.S.)


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తెలుగు విభాగం



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ఈ సంచికలో.....

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తెలంగాణ అస్తిత్వ ప్రకటన

మద్దిరాల సత్యనారాయణరెడ్డి

సమాజంలో జరుగుతున్న చెడును చూస్తూ ఆవేదన చెంది తన సున్నితమైన మనస్సుతో బాధపడి వేదననుభవించి ఆ బాధని తన కవిత్వం ద్వారా వ్యక్తం చేస్తాడు కవి. జరుగుతున్న ప్రతి సంఘటనను కవి నిశితంగా గమనిస్తాడు. జరుగుతున్నది మంచి అయినా చెడు అయినా దానిపై తన అభిప్రాయాలను తన కవిత్వం రూపంలో వెల్లడిస్తాడు. సమాజంలో జరుగుతున్న అవినీతి, అక్రమాలు, అన్యాయాలపై కవులు గళమెత్తి తమదైన రీతిలో వాటిని సమాజానికి తెలిసేలా చేసి వాటిపై ప్రజలు అప్రమత్తంగా ఉండేలా చేస్తారు. ప్రసారమాధ్యమాలు లేని కాలంలో కవిత్వమే ప్రజలకు దిక్సూచీలా ఉండేది. స్వాతంత్ర్యానంతరం జరిగిన ప్రజా ఉద్యమాలకు కవులు చుక్కానిలా ఉన్నారు. ఆ ఉద్యమాలలో ప్రజలను చైతన్యం చేసే అనేక కవిత్వాలను, కవితా సంపుటాలను వెలువరించారు. అలాంటి ప్రజా ఉద్యమ కవులలో ప్రముఖుడు కాసుల ప్రతాపరెడ్డి.

ప్రతాపరెడ్డి తనకంటూ సొంత శైలి కనపడే విధంగా అందరి కవులకన్నా భిన్నంగా కవిత్వం రాసేవాడు. సమాజంలో చైతన్యం కోసం నిజాయితీతో ఉద్యమ ప్రాయంగా కవిత్వం రాస్తున్నాడు. తెలంగాణ ప్రాంత విముక్తి కోసం మలి తెలంగాణ ఉద్యమంలో అనేక పరిణామాల నేపథ్యంలో తనదైన శైలిలో కవిత్వాన్ని రాశాడు. కవిత్వంలో అందరి చేత తెలంగాణ సమస్యను, ఆవేదనను అర్థం చేసుకొని, అనుభవించేలాచేసి తన వాదనను అంగీకరించేలా ప్రయత్నిస్తాడు. ముఖ్యంగా తెలంగాణ రైతుల బతుకులు ఎట్లున్నావో వారు వలస వెళ్ళే తీరును, వారి ఆత్మహత్యలు కళ్ళకు కట్టినట్లు కవిత్వం ద్వారా చూపాడు. నల్గొండలో ఫ్లోరైడ్ నీటివల్ల ప్రజలు పడుతున్న బాధను తన కవిత్వం ద్వారా వివరించి ప్రాంతీయ అభిమానాన్ని చాటుకున్నాడు. స్వాతంత్ర్యానికి

ముందు, తర్వాత తెలంగాణలో జరిగిన పోరాటాలు చారిత్రాత్మకమైనవి. స్వరూప స్వభావాలలో తేడాలున్నా సిద్ధాంత నేపథ్యం మాత్రం పీడన, పరాయికరణ నుంచి విముక్తి కోరుకోవడమే తెలంగాణ పోరాటాల తత్వం అని ప్రతాపరెడ్డి తన కవిత్వం ద్వారా నిరూపించాడు.

“సాటి కవులు కవిత్వ చరణాలను, జానపద సినిమాల సందర్భాలను ప్రస్తావించినట్లే ప్రస్తావించి, తనదైన తెలంగాణ మాండలిక తోటలో విహారింపజేస్తాడు. అస్పృష్టత కొన్ని చోట్ల స్పష్టంగా, మరికొన్ని చోట్ల అస్పష్టంగా ఉంటుంది”¹. తెలంగాణ పటానికి అల్లుకున్న వలన గూడును తన చేతులతో చీరేసే ప్రయత్నం చేస్తున్నాడు. ఇదే కాసుల కవిత్వం అని జూలూరి గౌరీశంకర్ గారు ప్రశంసించారు. ప్రతాపరెడ్డి సమైక్యవాదుల చేతులలో బంధీ అయిన తెలంగాణను విడిపించడానికి తనవంతు ప్రయత్నం కవిత్వం ద్వారా చేశాడు. తెలంగాణ అస్తిత్వానికి సంబంధించిన అనేక కవితలను కూర్చాడు.

తెలంగాణ జిల్లాలో ఫ్లోరైడ్ భూతం రాజ్యమేలుతుంది. ఈ ఫ్లోరైడ్ సమస్యను ప్రభుత్వాలు పట్టించుకోకపోవడంతో ఫ్లోరైడ్ బాధితులు పెరిగి తెలంగాణలో కాళ్ళొంకరపోయిన వారి శాతం పెరిగింది. దీనిపై స్పందిస్తూ కాసుల ప్రతాపరెడ్డి ఫ్లోరైడ్ భూతం గురించి ‘గుక్క’ అనే దీర్ఘ కవితలో అక్షరీకరించాడు.

“నారు పోసినోడికి నీరు లేదు
నాగలెట్లా కట్టునమ్మ, గొర్రు ఎట్లా తోలునమ్మ!
నాగులోల్లింటి కాడ నల్లతుమ్మ చెట్టు కింద
నాగులేమన్నాడో, శాపమేది పెట్టాడో
విషమై పారుతున్న పాతాళగంగా
కాల్లొంకర, కండ్లొంకర
పసిపొరగాల్లయినా పండిల్లిగిలిస్తే, నల్లని గారలు
నెదర్లాండా నెదర్లాండా!!
పథకాలకు పాతరేసి పైసలెత్తుకుపోయిన గద్దలు”

తెలంగాణలో తాగుదామంటే నీరు లేదు. తెలంగాణ నేల నుంచి ప్రవహించిన, తన నేలకు ఉపయోగించుకోలేని దుస్థితిలో గోదావరి జలాలున్నాయి. దీనికి తోడు వర్షాలు కూడా కురవడం లేదు. భూమిలోతులో ఉన్న నీరు ఫ్లోరైడ్ తో నిండి ఉంది. ఈ ఫ్లోరైడ్ పీడిత ప్రాంతాల సహాయం కోసం నెదర్లాండ్ నుంచి అనేక నిధులు వచ్చాయని, ఆ నిధులను దారి మళ్ళించి స్వాహా చేశారని కవి ఆవేదన చెందాడు. ఫ్లోరైడ్ నీటిని తాగిన తెలంగాణ ప్రజలకి కాళ్ళొంకరపోయి నీటి శాపం వెంటాడుతుందని అంటాడు.

“తెలంగాణ చుట్టూ జీవనదులున్నా ఇక్కడి పొలాలు, గళాలు దాహార్తితో కొట్టు మిట్టాడుతుంటాయి. దీనికి తోడు ప్లూరోసిస్ నీటితో పల్లెలన్నీ అంగవైకల్యంతో కుంటుపడుతున్నాయి, కునారిల్లుతున్నాయి. బతుకులు అర్థాంతరంగా అవిదీతనంతో కూలబడిపోతున్నాయి”.

“సోది చెప్పవచ్చిన తల్లి
శాంతి చేయాలంటున్నది
కాగల కార్యం తీర్చే గంధర్వులేరి
బాలనాగమ్మవో తల్లి, తెలంగాణా !
చెర విడిపించే బాలవద్ది రాజేడి?”

‘గుక్క’ దీర్ఘ కవితలో ప్రతాపరెడ్డి బాల నాగమ్మకు, తెలంగాణ తల్లికి పోలిక వేశాడు. బాల నాగమ్మను మాయల ఫకీరు చెర పట్టినట్లు, తెలంగాణ తల్లిని కూడా చెరపట్టారు. చెరవిడిపించడానికి ఎందరో వస్తున్నారు. తామే బాలవద్దిరాజులమంటున్నారు. కాని అసలు బాలవద్దిరాజు ఎవరో అని కవి ప్రశ్నలను సంధిస్తున్నాడు.

‘పీనుగుల శావ’ కవితలో ప్రతాపరెడ్డి తెలంగాణపై జరుగుతున్న దోపిడి, దౌర్జన్యాల గురించి ఇలా ఆక్రోశించాడు.

“మొక్కజొన్న కంకుల మీద వాలిన కాకులు
ఒక్కోంజ ముక్కున కరుచుకుపోయిం తరువాత
మిగిలేదేమిటి? మిగిలినదేమిటి?
చిలుక కొరికిన జాంపండు రాలిపడనే లేదు
ఆశ ఎక్కడో చూపుకందని ఎత్తున చిక్కుకుంది
కోరిక మంటై మాడ్చేస్తూనే ఉంది”

ఆంధ్ర పాలనలో తెలంగాణ ఏ విధంగా అన్యాయాలకు, దౌర్జన్యాలకు గురి అయ్యిందో, వివరిస్తూ వనరుల విధ్వంసం గురించి కూడా ఈ కవితలో కళ్లకు కట్టినట్టు ప్రతాపరెడ్డి చూపించాడు. తెలంగాణలో అపారంగా ఉన్న వనరులను ఒక్కొక్కటిని దోచుకుంటుంటే, తెలంగాణకు మిగిలేదేమిటి, ఇక మిగిలినదేమిటి అని కవి ఆక్రోశంతో ప్రశ్నలు సంధిస్తున్నాడు. తెలంగాణ వస్తదా? అన్న ఆశ ప్రజలను మంటై మాడ్చుతుందని ప్రతాపరెడ్డి ఏకరువు పెట్టాడు.

కాసుల ప్రతాపరెడ్డి ‘కొండముచ్చొడు’ అనే కవితల్లో నమైక్యవాదుల కుట్రల నీతి విప్పు చెప్పే సందర్భం ...

“నేనేమో దవుడల్ల కత్తులు గుచ్చుకుంట
కొరడాతోటి నన్ను నేనే కొట్టుకుంట
నీ రూపం పగటిలే కలలకొస్తది
గల్లపల్లి లాగుతవు, గుండె మీదా నుత్తె పెట్టి కొడతవు

కొమ్ములు తిరిగిన పురుషులే
 ఎన్ని తెరలు పెట్టిరి
 వెన్ను చూపిందా వెనుదిరిగిందా
 మడి సెక్కతే మరి, మగధీరుడై పీచమణిచింది
 మట్టిలో పొర్లాడి పోరాడింది
 అలసి తనువు చాలించింది
 ఆత్మికా బతికే ఉంది”

ఈ కవితలో తెలంగాణ తల్లిని ఎన్ని తెరలు పెట్టినా, బరించి, తెగించి ఎదురు నిలిచింది. ఎంత మంది వచ్చి కుట్రలు పన్నినా పటాపంచలు చేసింది. తల్లి తెలంగాణ స్త్రీ పోరాట పటిమకు ప్రతినీధి. రైతాంగ సాయుధ పోరాట పటిమ కాలాన్ని తలపించేదిగా పోరాడుతుంది. పోరాడటం వివిధ రూపాలలో తన బిడ్డలు అయిన ఉద్యమకారులకి అందిస్తూనే ఉందని తెలంగాణ ఆడపడుచుల పోరాటం గురించి ప్రతాపరెడ్డి ప్రశంసా పూర్వకంగా పేర్కొంటున్నాడు.

మూడు ప్రాంతాల తెలుగు నేల వైవిధ్యాన్ని, తెలంగాణ వెనుకబటుతనాన్ని ప్రతీకాత్మకంగా తెలుపుతూ కాసుల ప్రతాపరెడ్డి రాసిన కవిత “ఆమె, నేను, ఒక ఆటో”.

“నలభై యేళ్ల పడిలోనూ
 ముగ్గురు తల్లుల పసిపోరన్ని నేను
 ముద్దులు, ఆలింగనాలు, దేహస్పర్శలు
 గుండె నుంచి గుండెకు తాకాలి కదా !
 నాదంత మూగ ప్రేమ
 ఇద్దరినో ముగ్గురినో ప్రేమించే వుంటాను
 ఆధునికతలో వెనుక బెంచీవాన్ని కదా !
 చెప్పలేక దాచుకోలేక
 రాత్రిళ్లను నిద్రలేమితో వెలిగించిన వాణ్ణి
 వాళ్లకంతా నేను మొద్దురాచిప్పనే కావచ్చు”

కోస్తాంధ్ర, రాయలసీమ, తెలంగాణ మూడు ప్రాంతాల వారసుడినై కేవలం తెలంగాణ ప్రాంత వాడైనందుకు సంస్కృతిపరంగా, ఉద్యోగాల పరంగా, దోపిడికి గురైన వైనం ఈ కవితలో చిత్రితమైంది. తన ప్రాంతంలోనే ప్రాంతేతరుల చేతిలో మోసపోయిన తీరును వేదనాత్మకంగా వర్ణించాడు కవి. ఆధునికతలో తాను వెనుక బెంచీ వాన్నంటూ, వాళ్ల దృష్టిలో మొద్దురాచిప్పనంటూ 1969 తొలి తెలంగాణ ఉద్యమం నుండి 2010 వరకు కొనసాగుతూ వచ్చిన తెలంగాణ ప్రాంత సంఘర్షణను ఈ కవితలో కవి మూగగా వ్యక్తం చేశాడు.

ఈ విధంగా కవి ప్రతాపరెడ్డి తన కవిత్వంలో తెలంగాణ పోరాట పటిమను, తెలంగాణ అస్తిత్వాన్ని, ఉద్యమ తీరు తెన్నులను పొందుపరిచాడు. తెలంగాణ ఉద్యమ కాలంలో తనదైన రీతిలో

కాళోజీలా ధిక్కార స్వరాన్ని వినిపించాడు. తెలంగాణ సమాజంలో ఉన్న అనేక సమస్యలపై తన కలాన్ని కదిలిస్తూ, సమాజ చైతన్యం కోసం పాటుపడుతున్న నిస్వార్థ ఉద్యమ జీవి కాసుల ప్రతాపరెడ్డి అందుకే ఆయనను కవులంతా ఎన్నో కవితా కాసులను వెనకేసుకున్న కవి కాసుల ప్రతాపరెడ్డి అని కొనియాడారు. మొత్తంగా తెలంగాణ 'బతుకు చిత్రణ' కాసుల కవిత్వంలో స్పష్టంగా ఆవిష్కృతమైందనడంలో ఎలాంటి సందేహం లేదు.

ఉపయుక్త గ్రంథాలు

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2. పాలపీట్ట (మాసపత్రిక) ఫిబ్రవరి, మార్చి - 2014
3. గుక్క (కవితా సంకలనం)
4. ముద్దెర
5. వార్తా (రచన) జన్ 10, 2007

'ఊపిరి' కవితా సంకలనం - ఒక పరిశీలన



పరిశోధకుడు :

మంత్రిరాల సత్యనారాయణరెడ్డి

పర్వవేక్షకులు :

డా॥ పంచంగి వెంకటేశ్వర్లు

కాకతీయ విశ్వవిద్యాలయానికి ఎం.ఫిల్ పట్టాకై

సమర్పించిన

సిద్ధాంత వ్యాసం

నవంబర్ - 2013

డా॥ పంతంగి వెంకటేశ్వర్లు
ఎం.ఎ., పిహెచ్.డి.



తెలుగు విభాగం
కాకతీయ విశ్వవిద్యాలయం
విద్యారణ్యపురి, వరంగల్లు
సెల్ : 9949279733

ధృవీకరణ పత్రము

“ఊపిరి” కవితా సంకలనం - ఒక పరిశీలన అనే అంశంపై మద్దిరాల సత్యనారాయణరెడ్డి ఈ పరిశోధనా వ్యాసాన్ని నా పర్యవేక్షణలో రూపొందించాడు. ఈ పరిశోధనా వ్యాసాన్ని ఇంత వరకు ఏ ఇతర విశ్వవిద్యాలయంలో గానీ, ఇతర సంస్థలకు గానీ పట్టా కొరకై సమర్పించలేదని ధృవీకరిస్తున్నాను.

పర్యవేక్షకులు

(డా॥ పంతంగి వెంకటేశ్వర్లు)

HEAD

Department of Telugu
KAKATIYA UNIVERSITY
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విషయసూచిక

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Chapter 3

Microbial Ecology of Saline Ecosystems

Vishnuvardhan Reddy Sultanpuram and Thirumala Mothe

Abstract In studies on microbial diversity and functioning of ecosystems of extreme environments, saline habitats are one of the important model systems. Microbial form of life is found over an extremely wide range of salt concentrations, from that of fresh water to hypersaline environments. Halophilic microorganisms are microbes that live in habitats of high ionic strength, and these organisms cope with hyperosmotic stress by utilizing various strategies. The ecology of these saline ecosystems is studied using various techniques, such as analysis of total community and specific biomarkers. Further, the usual culture-dependent and culture-independent techniques are also helpful in these studies. India has large numbers of biodiversity hotspots including diversified saline ecosystems. There are only limited reports on the culturable and yet to be cultivated halophilic bacteria from the country, which needs great endeavour in the future.

Keywords Saline habitats · Microbial diversity · Characterization studies · India

3.1 Introduction

Living organisms are highly responsive to any serious alterations in their habitats. Increases in salinity, pH, temperature, pressure and drought conditions interrupt the important associations of the biological molecules which make them non-functional, which in turn destroy the cell integrity (Rampelotto 2010). A diverse group of microorganisms are known which can not only tolerate these extreme environmental conditions, but they frequently are required of those conditions for their survival (Pikuta and Hoover 2007). The saline and alkaline lakes are one of the important prototypes for studies on diversity of microorganisms and their functions in the extreme environment ecosystems. Saline systems not only include coastal

V. R. Sultanpuram (✉) · T. Mothe
Microbial Ecology Laboratory, Department of Applied Biosciences, Mahatma Gandhi
University, Nalgonda, Telangana, India

Soil Biology

Bhoopander Giri
Ajit Varma *Editors*

Microorganisms in Saline Environments: Strategies and Functions

 Springer

Microorganisms in Saline Environments: Strategies and Functions

This book presents the latest findings on the microbial ecology of saline habitats, plant-microbe interactions under saline conditions, and saline soil reclamation and microbial life. The content is divided into four main parts: Part I outlines the occurrence of salinity, its genesis and impacts, and microbial diversity in saline habitats. Part II deals with impact of salinity on microbial and plant life/health. Part III highlights plant-microbe interactions in saline environments, and Part IV describes strategies for mitigation and reclamation of saline soils.

The salinization of arable land is steadily increasing in many parts of the world. An excessive concentration of soluble salts (salinity) in soils or irrigation water adversely affects plant growth and survival. This problem is exacerbated in arid and semiarid areas where there is low precipitation and high evaporation rates. In turn, poor management and policies for using river water for the irrigation of agriculture crops often lead to the secondary salinization of soils.

Considering the growing demands of a constantly expanding population, understanding the microbial ecology and interactions under saline conditions and their implications for sustainable agriculture is of utmost importance. Providing both an essential review of the status quo and a future outlook, this book represents a valuable asset for researchers, environmentalists and students working in microbiology and agriculture.

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125/20

EM-70: Bio-prospecting for osmoregulatory solute producing extreme halophiles

S. Vishnuvardhan Reddy, M. Thirumala

Microbial Ecology Laboratory, Department of Biochemistry, Mahatma Gandhi University, Anneparthi, Yellareddygudem (PO), Nalgonda, Telangana - 508254

To survive in **salty** environments, halophilic organisms have developed two different strategies to maintain osmotic balance. Some halophiles accumulate inorganic salts in the cytosol to counterbalance the high extracellular salt concentrations; while some halophiles synthesize small organic molecules called compatible solutes as osmotic counterweights. So far, many types of compatible solutes have been found, which can be divided into different classes by their structures, such as, sugars, polyols, methylamines, betaines, amino acids and their derivatives. Most of the functional osmotic counterweights produced by microbes are found to be capable of protecting proteins, nucleic acids, cell membrane and even the whole cells against denaturation caused by heating, freezing, drying or chemical agents. For these properties, many such osmoregulating compounds are currently produced for versatile commercial applications, which are used as protein stabiliser, PCR enhancer, drying protective agent for microorganisms and cosmetic additive. In the present work we are aiming to isolate and characterize such extreme halophilic isolates which have the intrinsic property of compatible solute production. Till now around 200 isolates from different halophilic environments (salt pans, salterns etc.) have been screened for compatible solute production and 15 have been identified as producing ectoine which is an aspartate derivative. Purification, characterization and upscale production of this solute are the future interests of our study.

Key words: Halophilic organisms, 200 isolates, ectoine

EM-71: Cr(VI) reduction ability of bacteria isolated from common effluent treatment plant of tannery wastewater

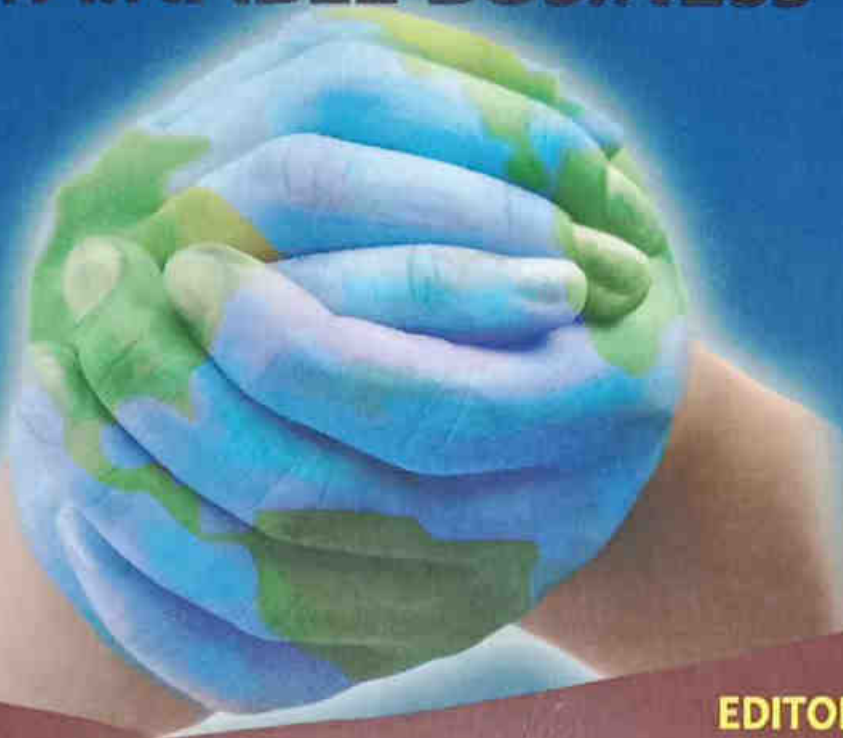
Sandhya Mishra and Ram Naresh Bharagava

Department Of Environmental Microbiology, Babasaheb Bhimrao Ambedkar University (A Central University), Vidya Vihar, Raebareli Road, Lucknow - 226 025 (U.P.), India

High concentrations and toxic levels of hexavalent chromium Cr(VI) in the environment are of concern worldwide. Tannery industry is perceived as responsible for the major source of chromium pollution. In present study, six hexavalent chromium resistant bacterial strains were isolated from common effluent treatment plant (CETP) of tannery wastewater. Out of six, three bacterial strains (SCRB10, SCRB 17, SCRB 19) exhibiting high level of resistant to hexavalent chromium salts. These bacterial strains were screened and characterized on the basis of their minimum inhibitory concentrations (MICs), morphological, and biochemical tests. Moreover, Cr(VI) reduction ability, multiple heavy metal tolerance and antibiotic susceptibility were also tested for each bacterial strain. The maximum Cr(VI) reduction ability (97%) was shown by one such bacterial strain SCRB 19 in shake flask culture using Luria Bertani (LB) broth amended with higher concentration of Cr(VI) at 37°C for 96 h. Therefore,

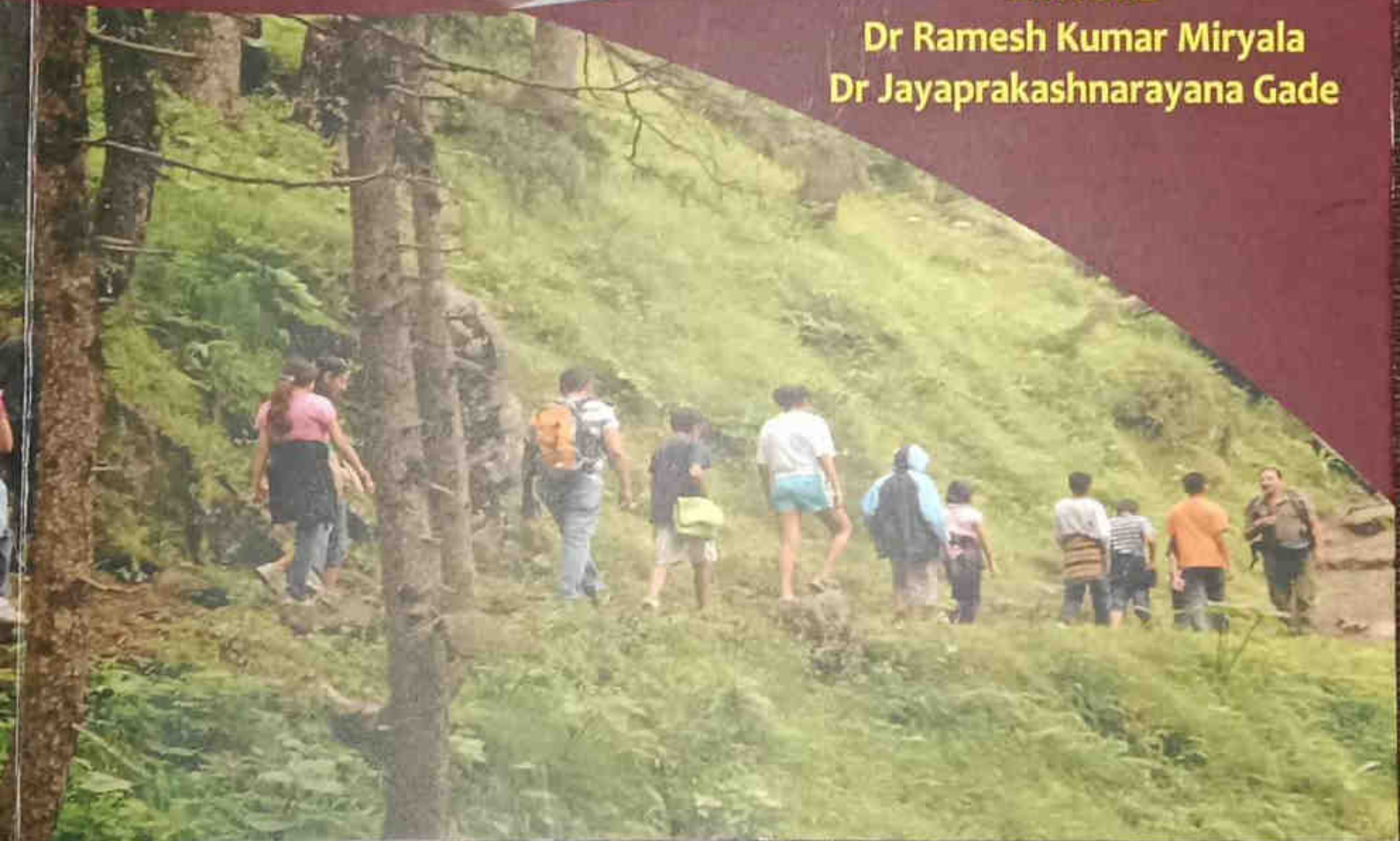
57th Annual Conference of Association of Microbiologists of India & International symposium on Microbes and Biosphere: What's New What's Next

RESPONSIBLE TOURISM & HUMAN ACCOUNTABILITY FOR SUSTAINABLE BUSINESS



EDITORS

**Dr Ramesh Kumar Miryala
Dr Jayaprakashnarayana Gade**



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THE ROLE OF SOCIAL ENTREPRENEURSHIP IN RURAL WOMEN EMPOWERMENT

G Laxmi Prabha¹

Abstract:

The Role of the Social Entrepreneurs becomes imperative in the process of Growth and Development, particularly for achieving the Rural Development in India. Inclusive of women empowerment. **Social entrepreneurship** is the process of pursuing innovative solutions to social problems. More specifically, social entrepreneurs adopt a mission to create and sustain social value. They relentlessly pursue opportunities to serve this mission, while continuously adapting and learning. Social entrepreneurs act boldly, not constrained by resources currently in hand. Social entrepreneurs or enterprises like SEWA/AMS many more organizations relentlessly are working for the Women Empowerment. Therefore there is a need to analyze their performance. The present paper is making a conceptual analysis of social entrepreneurship in rural women.

Keywords: Entrepreneurship, Social Entrepreneurship, women empowerment, Rural women.

INTRODUCTION:

Entrepreneur² is a person who creates something which has a value proposition to the stakeholders in big or small way. Every Entrepreneur identifies a problem and wants to provide the most effective and efficient solution to the Problem. Any Entrepreneur is successful if he can find the most effective and efficient solution to the identified problem. It is also essential that such a solution should create value to its Stakeholders.

A Social Entrepreneur also works on similar other aspects. However a social entrepreneur recognizes a social problem, collective, group or community and uses entrepreneurial principles to organize, create and manage a venture to achieve social change. While a business entrepreneur typically measures performance in the form of profit and return, a social entrepreneur focuses on creating social capital. Thus, the main aim of social entrepreneurship is to earn returns for financial sustainability, at the least, by furthering social and environmental goals. Social entrepreneurs are most commonly associated with the voluntary and not-for-profit sectors, but this need not prevent or stop them from making a profit.

For understanding the contemporary status of Social Entrepreneurship in India, one has to take into consideration the socio-cultural and historical context in which it exists. In the Indian psyche one's place in the society has a moral perspective, in which one's duty towards the society plays a significant role. McClelland (1975) found that Indians have a social achievement motivation, which is characterized by a desire for contributing to a collective wellbeing and achievement of superordinate goals. India is mother land to many of the great social entrepreneurs. The best and great example of Social Entrepreneur is Mahatma Gandhi. He has identified the problem of Freeing India from the foreign rule, the Solution identified was Non-Violent fight to ensure that the British Rule ends and Value was sought for the Stakeholders and time taken was 40 years.

In 1937 Durgabai established Andhra Mahila Sabha (AMS). The aim was to help women in all ways - from teaching them hygiene to making them aware of the country's welfare. The institutions run by AMS cater to women, child care, senior citizens care, care for the disabled, health care and education.

¹ Assistant Professor, Department of Business Management, Mahatma Gandhi University, Nalgonda

Today about 30 organizations work under the umbrella of AMS including two hospitals, an orthopedic center, two colleges, three High Schools, handicraft trainings institute for women, legal aid center for women and functional literacy projects. She worked as a President of the Blind Relief Association in Delhi, and in that capacity, she set up a school, hostel and a light engineering workshop for the blind. She headed a crusade against illiteracy, ignorance, social injustice against women by establishing several institutions, in the field of Health, General Education and Nutrition. Another example is Vinoba Bhave - Founder and leader of the Bhoodan Movement, he was the instrumental in the redistribution of more than 7,000,000 acres (28,000 km) of land to aid India's landless and underprivileged. There are many present day and contemporary Social Entrepreneurs in India. Srivastava and Tandon (2002) in their study on "Participatory Research in Asia" (PRIA) revealed insights on the nature and magnitude of the proliferation of nonprofit voluntary organizations in India. Their survey states that there are 1.2 million non-profit organizations in India, which engage nearly 20 million people as paid employees or on a volunteer basis. Over twenty-six percent of these NPOs (Non-Profit Organizations) were performing religious activities, the rest were secular bodies focusing on social development issues such as education, healthcare and community development. The estimated receipts of funds by these NPOs were \$ 3.58 billion (1999-2000). However, eighty percent of this was generated from local activities of community contribution and donations; among these fifty-one percent were self-generated, while nearly thirteen percent came from donations – and over seven percent from loans. To mention a few – Ela Bhatt (India) - Founder of the Self-Employed Women's Association (SEWA) and the SEWA Cooperative Bank in Gujarat; Thinlas Chorol (India) - Founder of the Ladadakhi Women's Travel Company, Nand Kishore Chaudhary (India) - Founder of Jaipur rugs, which promotes rural development through capacity building of rural people in carpet weaving, Magsaysay Award 2011, Dr. Verghese Kurien Founder of the AMUL Dairy Project; Bunker Roy - Founder of Barefoot College, which promotes rural entrepreneurship through innovative education programs; Sharad Sagar - Founder and CEO, Dexterity Global; Amitabh Shah - Founder of Yuva Unstoppable, which works for 250,000 underprivileged children mobilizing 100,000 volunteers from 32 cities; Yashveer Singh, Founder of National Social Entrepreneurship Forum, supporting youth-driven social entrepreneurship.

Social enterprises (SEs) have the potential to take India's spectacular growth to its poor citizens. Currently, India's rapidly growing economy, despite the enormous and the sustained effort of the Government of India since 1950s, has not managed to alleviate the extreme poverty of nearly half the country's population that lives below the \$1.25 per day poverty line. India is the world's second most populous country in the world, and the fifth largest economy in terms of GDP when adjusting for international price differences. However, its per capita income in 2011 is only \$3,600, placing India 129 out of around 184 countries. Despite this, India's economy grew at a pace of 7.45% between 2000 to 2011, making it the world's second-fastest growing major economy. More than three-fifths of India's population lives in rural areas. Approximately, 53% of the country's total employment is engaged in agriculture, yet only 19% of India's GDP is created by this sector, manufacturing sector contributing 26% of India's GDP and the remaining 55% of GDP is contributed by service sector. Around 41% of India's population lives below the poverty line with income of less than \$1.25 per day, and the adult literacy rate is only 63%. Average life expectancy is 64 years, and infant mortality is at a very high i.e. 50 in 1,000 births.¹ The reasons are multidimensional, including non-uniform infrastructure, low quality public good provision by the government and resource limitations. Social

Enterprises are addressing India's vast development needs by employing innovative business models, and are maintaining sustainability through viable revenue models. Concurrently, this space is witnessing an increasing number of Social Entrepreneurs who are interested in supporting businesses with triple objectives – that is profit, social impact, and environmental impact.

Women Empowerment

Women Empowerment has been defined differently by different scholars. Women empowerment refers to increasing the political, social, and economic strength of the women. It often involves developing confidence in their own capacity. A comprehensive definition states that 'Empowerment of women is constructed as providing them with a sufficient degree of control, to give them decision making powers, to enable them to raise the level of consciousness of their class and enhance to their gender status and rightful entitlements' (Daver, 2001). This can be done by securing greater access to resource, command over knowledge and bringing about a significant ideological shift that result in changes in women's self-image and how they are perceived in relation to the community. This definition highlights the aspect of gaining control over resources and getting participation in the decision-making process. It also seeks to establish linkages with government and NGOs, so as to increase the women's access to services. Greater degree of participation and access to the service delivery system of various welfare agencies is a natural outcome of women empowerment. Women forms 50 per cent and more of the Indian population (also rural population). Therefore if growth has to reach the rural poor it has to integrate the development of women and this is possible only through their empowerment.

In this context there is a definite need to understand the role of Social Entrepreneurship and Rural Women Empowerment. It is indeed a high time to pressurize the social and political leadership to review the prevailing social institutions and ideologies with the objective of redefining the role and image of women in the society. Empowerment is the process of challenging existing power relations and of gaining greater control over the sources of power. The term empowerment refers to a range of activities, from individual self-assertion to collective resistance, protest and mobilization that challenge basic power relations. 'Woman Empowerment is a process that enables a powerless women to develop autonomy, self-control and confidence and, with a group of women and men, a sense of collective influence over oppressive social conditions. Empowerment is a process by which the powerless gain greater control over the circumstances of their lives. Power arises from possessing a complex combination of personal and physical resources that is being bestowed or being acquired in the process of empowerment. Empowerment means challenging their disempowerment, having more control over their lives, being able to influence other, and brings about change. It is now central in political and social policy, educational, cultural, sexual, personnel and managerial discourses (Davies, 2000). Empowerment is related with redistribution of power. The centrality of the notion of empowerment is located in the dynamics of the legitimate sharing, distribution and redistribution of power (Roy, 2001). Empowerment means to give the women a power base, the platform of collective strength and a collective voice.

Empowerment has both personal and social aspects. At personal level it is a significant change in the self image and mental set and at the community level it is collective struggle for positive social change. Gutierrez, et al. (1995) defines 'empowerment' as "..... Experiencing a sense of personal power within the helping relationships; and mobilizing resources or advocating for clients. This

definition clarifies the internal changes induced by the process of empowerment in the lives of women. It implies the active role of women in planning, implementation, monitoring and evaluating various empowerment programmes. Empowerment can be attained only by participatory process. Women's participation in planning is gradually increasing but still it is far from being satisfactory.

The concept of empowerment is defined as the process by which women take control and ownership of their choices. The core elements of empowerment have been gendered power structures, self-esteem, and self-confidence (Kabeer, 2001). Empowerment can take place at a hierarchy of different levels-individual, household, community and societal – and is facilitated by providing encouraging factors (e.g. exposure to new activities, which can build capacities)

The empowerment of women who make up about half of the women's population of the Country, in particular rural women who in comparison to urban women they have lesser access to economic, scientific, cultural resources, is required the further attention of governmental and non-governmental and international organizations. With the raising of women's awareness, knowledge and skills, furthering participation and presence in various social arenas and also confrontation with restrictions on women's activities in society that is more visible in rural areas, that improved positively social justice and human rights.

India lives in rural areas and is engaged in agricultural earning results lack of survival wage which cause of poverty. Though, the rural population involves women folk to make almost half of it, they have acquired a secondary status in social life, economic activities and decision making among their families questions their empowerment. The existence of the term Empowerment depend on sociological, psychological, economic spheres and at various levels, such as individual, group and community challenges, asymmetrical power relationships and social dynamics. Empowerment of rural women involves many things; a few are getting economic opportunities, property rights, political representation, social equality, individual rights.

The vast majorities of the people in India lives in rural areas and are engaged in agricultural earning, a subsistence wage development, which has been focused on them, seems to have just passed them by rural population involves women folk also to make almost half of it. However rural women have acquired a secondary status in social life, economic activities and decision making among their families. Their role in work productivity, employment generation and income oriented activities are hindered by many socio-economic constrains. Empowerment is a multi dimensional social process that helps people gain control over their own lives communities, and in their society, by acting issues that they define as important. Empowerment occurs within sociological, psychological, economic spheres and at various levels, such as individual, group, and community challenges our assumptions about the status quo, asymmetrical power relationships and social dynamics. Empowerment of rural women involves many things-economic opportunity, property rights, political representation, social equality, personal rights and so on. The realities of women in rural India are difficult to comprehend. Women, most of the times, are even deprived of some of the fundamental human rights and this denial is justified often in the name of tradition. In rural areas, women are generally relegated mainly to household duties and cheap labour. They are not perceived as substantial income generating source. Without the power to work and earn a good income, their voices are silenced, as they are economically dependent and have no capacity to work and earn a living for them.

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In spite of several welfare schemes and poverty alleviation programmes being implemented under the regime of development planning, the trickle-down effect is not visible. Rural women are disadvantaged as they are being located in the rural society and were not considered separately in poverty alleviation programmes until recently. They are often the victims of tradition, social and gender violence. Gender related human development index lags behind the general human development index. Development planners and policy makers have often failed to consider women's needs and their viewpoint in designing the programmes for their development. Women are pivotal for the development of any society. Everywhere in the world, women discharge two roles: at home as housewife and outside as wage earner, both are important for development of good society and nation as a whole. It is the women who act as vital agents for socio-economic activities like bearing and taking care of children, providing much of the labor for household maintenance and subsistence agriculture and so on. Women make an important contribution to the economy through working in both the formal and informal sectors. Ironically women's work is generally undervalued and the additional development it promotes is usually unrecognized. As a result, their health suffers, their children suffer and also their work suffers. Hence, development is held back.

Conclusion

In India, mythological women are Shakti, but sociologically they are not. In male dominating world, even after more than 67 years of planning still women in our country are suppressed and oppressed at each and every stage of life. Crime against women is on increase but the poor women are helpless. She is not allowed to make choices, control, enjoy and to participate. Women empowerment implies process by which women's power of self employment is reinforced; they develop the capacity of self reliance to get of subordination. It encompasses their ability to make choices, control resources and enjoy participatory relationship within family and community. The vital question is their ability to take independent decisions, at the same time, they must have access to the resources to sustain those decisions.

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Author

JEBY Johnson

M.Phil Scholar, Department of Commerce, University of Kerala.

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Author

Lavakush Singh

Abeda Inamdar Senior College, Pune-411001

SUSTAINABLE DEVELOPMENT IN AGRICULTURAL SECTOR IN INDIA

Author

Dr. Shivanand & Bhange

Assoc Prof., AR Burla Mahila Mahavidyalaya, Solapur

INNOVATIONS, WOMEN ENTREPRENEURSHIP AND SUSTAINABLE DEVELOPMENT

Authors

Aniket

Research Scholar, Faculty Of Commerce

Jai Prakash University, Chapra Chapra

Dr. Lakshman Singh

Associate Professor, Faculty of Commerce, Jai Prakash University Chapra Chapra

ROLE OF BUSINESS INCUBATORS IN DEVELOPING ENTRE-PRENEURS UNDER THE STARTUP INDIA PROGRAMME

Authors

Nidhi Sonkar

Research Scholar, Faculty of Mgt. Studies, VBS Purvanchal University, Jaunpur.

Dr. Ashutosh Singh

Assistant Professor, Faculty of Management Studies, VBS Purvanchal University, Jaunpur.

INNOVATION II MICROSTRUCT PREMIUM AT N EXCHANGE OF

Authors

Prof. Vanita Tripathi

Professor,

Department of Commerce, Delhi School of Economics,

University of Delhi.

Ms. Anshi Goel

Ph.D. Research Scholar, Department of Commerce, Delhi School of Economics, University of Delhi.

IMPACT OF DEMONETISATION ON MICROFINANCE INSTITUTIONS IN INDIA

Authors

Zeba Malik

Ph. D Scholar Department of Commerce and Business Studies Jamia Millia Islamia New Delhi - 110025

Dr. Naseeb Ahmad

Associate Professor Department of Commerce and Business Studies Jamia Millia Islamia New Delhi - 110025

Junaid Iqbal

Ph. D Scholar Department of Commerce and Business Studies Jamia Millia Islamia New Delhi - 110025

ENTREPRENEURSHIP AND SUSTAINABLE DEVELOPMENT THROUGH INNOVATION

Author

Dr. Sangita M. Jiwankar

Associate Professor, Dept. of Commerce Dhanwate National College, Nagpur

WOMEN ENTREPRENEUR IN E-COMMERCE ENVIRONMENT IN INDIA

Author

Dr. Rupali Saini

Assistant Professor, Department of Commerce, Dr. Harisingh Gour University Sagar-470003 Madhya Pradesh

INNOVATION FOR SUSTAINABLE DEVELOPMENT A STUDY OF SELECT CASES

Author

Dr.G.Sudarsana Reddy

Faculty of Commerce Dept. of Studies & Research in Commerce, Tumkur University, B.H.Road, Tumakuru -572103, Karnataka, India

SOCIAL ENTREPRENEURSHIP AN INNOVATIVE TOOL IN PROMOTION OF ENTREPRENEURSHIP

Author

Mrs.Laxmi Prabha Goli

Assistant Professor, Department of Management studies, University College of Commerce and Business Management, Mahatma Gandhi University, Nalgonda, Telangana State, India-508254(PIN)

AN ANALYSIS OF WATER MANAGEMENT INITIATIVES IN INDIA AND SUSTAINABILITY INITIATIVES TAKEN BY THE COCA-COLA COMPANY

Authors

Nikita Aleti

Flat #101, Shree Sai Nilayam, First Floor Kalyan Nagar, Phase I, Hyd.

Tanya Malhotra

A-19 Indian Airlines Colony, Police Lines, Begumpet, Secunderabad

AN OVERVIEW OF CHALLENGES AND PROSPECTS OF WOMEN ENTREPRENEURS

Author

Dr.V. S. Kannan

Director, Higher Education, Vice Principal, K.E.S.Shroff College of Arts and Commerce, Kandivali, Mumbai 67

PRACTICES OF CSR BY CORPORATE SETORS IN INDIA AN ANALYSIS

Authors

Snigdharani Panda, Lecturer in Commerce, Kiss Deemed University
Liji Panda





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TOURISM PRODUCTS AND OPERATIONS IN INDIA

EDITOR

Dr. Maram Venkat Ramana Reddy

M.B.A., M.Phil. Ph.D.

Assistant Professor

Dept. of Management Studies

University College of Commerce & Business Management

MAHATMA GANDHI UNIVERSITY

Nalgonda-508 254.

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27. SOCIAL ENTREPRENEURSHIP IN RURAL TOURISM SECTOR

*Mrs. G. Laxmi Prabha
Assistant Professor,
DMS, UCC&BM, MGU,
Nalgonda - 508254.

ABSTRACT:

Tourism is one of the strategically important emerging service sectors in Indian Economy with tremendous potential to assist the process of sustainable rural development. Considering the benefits rural tourism offers to the society on the one hand, and rich and variegated heritage on the other. The current paper is focusing the possibility of developing social entrepreneurship as a sustainable policy strategy in promoting rural tourism.

Sustainable rural development is a holistic process of enhancing economic growth and quality improvement in the standard living of the rural population. Lawful exploitation of available economic resources in a futuristic comportment may be emphasized in this context, So that long-term socio-economic gains may be experienced by the rural community. Rural Tourism has been a major concept under the new tourism paradigm wherein agro-based rural community and culture are treated to be the major components of the tourism market. This concept is comparatively new in the world tourism sector. Entrepreneurship in this sector bears great possibilities as revenue generating avenue as well as the preservation and maintenance of indigenous tradition and culture.

The issues considered here are examined around three aspects.

1. Sustainability through rural tourism entrepreneurship
2. Perspective of Social entrepreneurship and
3. Developing social entrepreneurship in rural tourism.

Sustainable Tourism:

It is said to be fact that tourism has cultural, economic, and environmental impacts, and it contains the seeds of its own destruction. Tourism can kill tourism, destroying the very environmental attractions which visitors come to a location to experience. If properly managed, tourism may be used as renewable industry. But if it is allowed to expand within short-term goals, it ruins itself. Adopting the principles of sustainable development is the best possible way of minimizing the negative impact of tourism. It means the industry must be economically viable, ecologically sensitive and culturally appropriate. Sustainable tourism development has three concerns involving economic efficiency, social equity, and ecological sustainability. Economic efficiency aims at the optimal use of natural resources to produce the maximum output in order to achieve a better standard of living of the people. Social equity is concerned with the conservation and promotion of socio-cultural diversity. It advocated fairness, and equal access to resources by all user groups. Ecological sustainability emphasizes that that the rate of renewable natural resources use should not be faster than the rate at which the natural process renews itself. It refers to maintaining a system's stability, which implies limited the stress on ecosystems central to the sustainability of the global

system. These three concepts of economic, social and ecological sustainability are inter-related; impacts on one are likely to affect all others.

Balanced development of a tourist economy requires indigenous entrepreneurship. It is fundamental in promoting economic growth along with generating local aboriginal activities and a climate of greater self-reliance. Indeed, local entrepreneurial involvement in the tourism industry, both in the formal and informal sectors is pertinent to development as defined by balanced or quality growth for the local population that comes about as a result of greater economic wealth, as well as greater self-reliance, self-confidence and an increased sense of well-being.

Rural tourism may be considered a justified sector of tourism development. The emergence of rural tourism will help in boosting a range of activities, services and amenities to attract tourists to generate extra income by creating entrepreneurial opportunities, income and employment, conservation and development of rural arts and crafts, infrastructure development and preservation of the environment and heritage. Moreover, it runs essentially as a community based initiative.

Here from individual to social entrepreneurship, the individual entrepreneurship is an individual takes an action in an innovative and favourable opportunity point of view and risks may be taken. Whereas social entrepreneurship a participant or an agent such as a network or a team to be considered as a holistic process and it works for societal innovations and create favourable opportunities it minimizes uncertainty and risk.

Rural development is increasingly associated with entrepreneurship, which is considered as a central force of economic growth and development. Tourism's role in rural development is basically an economic one and can help to sustain and improve the quality of life in rural areas. Tourism involves mostly small enterprises so the role of tourism entrepreneurs can be important for the development of rural tourism. Of all economic sectors, tourism is perhaps the one in which the greatest degree of involvement is needed by the entrepreneurial sector in formulating sustainable strategies. Especially in rural tourism, entrepreneurship has gained an increasing importance as it is seen as a major driving force behind rural tourism.

The underlying idea behind rural tourism should be create, preserve, and enhance the stake of local communities over locations for common good, and not for the benefit of any individual or firm. Rural tourism, in this sense, encompasses all the activities that cater to national and international tourists through facilities that are owned, managed and serviced by members of the village community, and run essentially as a community based initiative. This is in essence of the concept of social entrepreneurship in achieving the targets of sustainable rural tourism.

The growth rate and tourism potentialities can be best enumerated and estimated in a developing economy where there is high unemployment with a relatively unskilled labour force and few and a very few alternative sources of employment. However such an atmosphere is considered congenial for tourism sector development. Under such a situation, stimulation of the rural tourism sector may be better course of action. One way to exploit the

potential rural tourism is through social entrepreneurship, also called, community entrepreneurship.

Relevance of Social Entrepreneurship:

Social entrepreneurship, in essence, represents collective entrepreneurship. It revolves round the holistic approach of an enterprising society in combining and managing productive resources to ascertain maximum socio-economic advantages. If we are to compete effectively in today's world we must begin to celebrate collective entrepreneurship endeavours in which the whole of the efforts is greater than the sum of individuals contributions. We need to honour our teams more, our aggressive leaders and maverick geniuses less.

Social entrepreneurship differs from conventional aggressive business leaders in a number of ways. Herlau & Tetzschner provide a comprehensive idea of social entrepreneurship as "The growth rate and tourism potentials can be best enumerated and estimated in a developing economy where there is high unemployment with a relatively unskilled labour force and few and a very few alternative sources of employment. However, such an atmosphere is considered congenial for tourism sector development.

Based on the above basic specialties, social entrepreneurship may be defined as a participatory process of enterprise development in which a team of enterprising participants perform different tasks of a conventional heroic entrepreneur by minimizing risks and opening up opportunities. Both the approaches mentioned above are relevant to the growth of entrepreneurship in a society. Social entrepreneurship in rural tourism is comparatively a new phenomenon in Indian tourism industry. It is similar to the principle of community participation in production. However, it should not be confused with cooperative structure of an organization. It is in fact sharing of tourism avenues among local stakeholders according to efficiency and expertise in a motive to create an enterprising society. This enterprising society rests on the principle of active mutual dependence, but every entrepreneur is individually responsible for their destiny. Considering rural tourism, in particular, social entrepreneurship is considered an amicable strategy under the following conditions:

1. Rural society and culture, by virtue, represent a participatory process. It is observed in the traditional production and distribution system wherein community participation in a compulsory phenomenon. Rural Tourism being the cultural mirror of the village community must reflect rural value system for sustainability of the industry.
2. It is established fact that participation of local population in tourism trade is essential for economic standardization as well as conservation of native environment. The economic cause is justifiable from the aspects of employment generation and retention of tourism revenue at source.
3. The World Tourism Organization projects that local communities can be made better off by involving them with tourism trade. Working hand-in-hand with its member governments, donor agencies and private sector, WTO's objective in the field of sustainability is to make sure that economic benefits generated by new tourism developments will be environmentally and socially sustainable, and will be evenly distributed among local people. Environmental diversity can only be maintained by local people with the realization of man-nature dependence. This realization can never

- be infused by any institutional arrangement if the direct beneficiaries are not linked in the conservation process.
4. Development of conventional entrepreneurial trait in rural tourism within the rural social environment is a difficult task as entrepreneurial acumen and capital surpluses are minimal in such a social structure. Moreover, the sustainability conditions also are very regarding the size of enterprises. Small and Micro Enterprises in the tourism industry tend to be less sustainable than medium-sized enterprises. This is important for developing countries like India because they need more sustainable jobs, especially in tourism. Micro and small tourism enterprises and seem to be much more influenced by external factors, for example the weather. If it rains for a couple of days, these enterprises are hampered in doing business, which leads to a loss of revenue. Medium-sized tourism enterprises create more job opportunities than small and micro-enterprises, although they cost considerably more to develop.

Rural Tourism in India has been a neglected sector over the years. Some state like Rajasthan, Orissa and Madhya Pradesh have taken some discrete steps towards this direction, but majority of Indian states have not yet realized the positive edge of rural tourism development.

Developing Social Entrepreneurship in India:

India has tremendous scope of developing rural tourism with its rich cultural heritage and scenic beauty. It also possesses unique tourism sites besides these it is also possessed diverse and colourful tradition of rural tribal festivals and traditional sports activities. However in the context of this in Indian tourism development of entrepreneurship has been jeopardized with low level of tourism consciousness among the stakeholders, absence of second generation tourism entrepreneurs, capital inadequacy, poor condition of tourism infrastructure, tormenting socio-cultural environment and above all lack of comprehensive policy measures in developing tourism trade.

In the process of forming any strategy of social entrepreneurship in rural tourism development in India the following circumstances are of primary concern:

1. Rural Tourism development is not in the priority list of tourism sector development as on now so it needs to be included.
2. All the tourist places need to be exposed on international tourism market by covering a long stretched international boundary.
3. There is a need to possess second generation tourism entrepreneurs to fulfil the need of expertise in such a special sector.
4. The spatial distribution of tourist sites is widely covered.
5. Socio-cultural disturbances need to be degraded.
6. Effective implementation of disaster management should be incorporated if natural calamities happen.

In addition there is a need to develop entrepreneurial competency in tourism business. For this a simplified process of generating social entrepreneurship rural tourism is abridged in the following way.

The process of generating social entrepreneurship follows a distinct pattern under three major ways.

Initial Stage: Determination of core potential of rural tourism base of a region is the primary task. This task may be fulfilled by the government by adopting independent or joint spatial surveys in coordination with local non-governmental organizations (NGO's). At every stage of the survey, participation, recommendations and preferences of the local stakeholders should be given high priority.

Second Stage: This phase is associated with the preparations to establish the potentialities of the region as a major site of tourist attraction. Community Entrepreneurship generation is the major course of action during this stage. This stage depends upon the coherent approach of a series of formal and informal institutions forming a sort of "Tourism Business Incubator".

Final Stage: The final stage is divided into two sub-stages, i.e. Self Evaluation Manoeuvres and Take off/Open Competition. Self Evaluation is essential for the attainment of clarity of sustainability conditions, on one hand, and assurance of strict adherence to the sustainability ethics, on the other. It is found during the evaluation period that in a designated area the stakeholders are contributing negatively to the process of change, it is advisable that the strategy of social entrepreneurship should be withdrawn systematically. Otherwise, it will prove dangerous for the continuation of native cultural values. The concept of Open Competition is attached to the exposure of the local market for tourism to the national as well as international markets. Open competition is possible only when the stakeholders practically realize the economic as well as non-economic conditions of sustainable growth in tourism sector.

To achieve a self-propelling growth in rural tourism, the following should be maintained after tourism takeoff;

1. Demarcation of the rural tourism sector as a special tourism segment and allowing only focused tourists in the sites.
2. Creation of an environment for innovative tourism services. Exposure of local entrepreneurs to developed regions in different forms may help in this direction.
3. Encouraging the growth of tourism ancillary product units at a reachable distance of the major attraction.
4. Developing a special armed professional tourism protection force (non-voluntary) with sufficient calibre to prevent physical assaults to the tourists as well as to the tourism resources of the region.
5. Imposition of penalty charges on the stakeholders as well as the tourists by the local authority on wilful damages to the tourism resources.

6. Determination of tourist carrying capacity of the area and not allowing tourists above the determined capacity.
7. Imposition of strict, punishable ban on illicit activities like prostitution, drug trafficking and any activity that disturbs traditional culture and heritage.
8. Preservation and adherence to the 'Codes of Ethics' of tourism development as prescribed by the World Tourism Organisation I in 1999.

Drawbacks:

- The idea of social entrepreneurship is theoretically admirable as a competent strategy of tourism sector development in India. However, there has been a perplexing doubt that in real time application, the strategy may face certain limitations due to the inherent maladjustments in service sector economy, especially tourism.
- It is difficult to infuse cultural consciousness within the community by any external organization form outside, if it is not arising out of a strong sense of the local stakeholders. It is a world-wide experience that tourism activities are most closely contagious to the local tradition.
- Seasonality of tourism business may adversely affect local entrepreneurs as secondary options of business will be limited for them.
- Being a community aspect social entrepreneurship may develop a sense of misgivings relating to the concept of community participation in business. This may create a lethargic and innovation-less atmosphere.
- Last but not the least, if the public participation in social entrepreneurship is not genuine and politically motivated, the benefits of this branch of entrepreneurship will not be realized.

Conclusion: Social Entrepreneurship is in fact a community requirement in less developed peripheries in tourism trade. Apart from socio-cultural impacts, it has vast economic possibilities in all its forms. However, infusing social entrepreneurship in the development process of tourism trade in India experience a great deal of hindrances. These hindrances may be overcome by a concerned tourism polity of the state setting-off the strategy of social enterprise development.

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FDI IN RETAIL SECTOR IN INDIA: STRATEGIC IMPLICATIONS AND CHALLENGES

Dr. K.V. Sasidhar

Introduction

The Indian retail industry is the fifth largest in the world. Comprising of organized and unorganized sectors, retail industry is one of the fastest growing industries in India, especially over the last few years. With growing market demand, the industry is expected to grow at a pace of 25-30% annually. The Indian retail industry is expected to grow from Rs. 35,000 crore in 2004-05 to Rs. 109,000 crore by the year 2010. The Indian retail industry is the most promising emerging market for investment. In 2007, the retail trade in India had a share of 8-10% in the GDP (Gross Domestic Product) of the country. In 2009, it rose to 12%. It is also expected to reach 22% by 2010 (Kearney, A.T). According to the Investment Commission of India, the retail sector is expected to grow almost three times its current levels to \$660 billion by 2015. It is expected that India will be among the top 5 retail markets then. The organized sector is expected to grow to \$100 bn and account for 12-15% of retail sales by 2015 (Singhal 1999). However, in late 1990's the retail sector has witnessed a level of transformation. Though initially, the retail industry in India was mostly unorganized, however with the change of tastes and preferences of the consumers, the industry is getting more popular these days and getting organized as well. Foreign direct investment (FDI) in the retail sector in India is restricted. In 2006, the government eased retail policy for the first time, allowing up to 51 per cent FDI through the single brand retail route. Since then, there has been a steady increase in FDI in the retail sector, and the cumulative FDI in single-brand retail stood at \$195 million by the middle of 2010 (DIPP, 2010).

According to the Department of Industrial Policy and Promotion (DIPP) of the Government of India, single-brand retail comprises those retailers selling products “of a ‘single brand’ only, such that products should be sold under the same brand internationally; and single-brand product retailing covers only products which are branded during manufacturing. In this category, FDI is allowed to the extent of 51 per cent. In contrast, no FDI is allowed in the multi-brand retail category. This includes all firms in organized retail that seek to stock and sell multiple brands, such as large international retailers like Wal-Mart and Carrefour.

Strategic Issues concerning Retail Sector in India: Retailing is the largest private industry in India and second largest employer after agriculture. The sector contributes to around 10 percent of GDP. With over 12 million retail outlets, India has the highest retail outlets density in the world. This sector witnessed significant development in the past 10 years from small unorganized family owned retail formats to organized retailing. Liberalization of the economy, rise in per capita income and growing consumerism has encouraged large business and venture capitalist in investing in retail infrastructure. The importance of retail sector in India can be judged from following facts (a) Retail sector is the largest contributor to the Indian GDP (b) The retail sector provides 15% employment (c) India has world largest retail network with 12 million outlets (d) Total market size of retailing in India is U.S \$ 180 billion (e) Current share of organized retailing is just 2% which comes around to \$3.6 trillion (f) organized retail sector is growing @ 28% per annum. The Indian retail sector is very different from that of the developed countries. In the developed countries, products and services normally reach consumers from the manufacturer/producers through two different channels: (a) via independent retailers (‘vertical separation’) and (b) directly from the producer (‘vertical integration’). In the latter case, the producers establish their own chains of retail

outlets, or develop franchises. On the other hand, Indian retail industry is divided into organised and unorganised sectors. Organised retailing refers to trading activities undertaken by licensed retailers, that is, those who are registered for sales tax, income tax, etc. These include the corporate-backed supermarkets and retail chains, and also the privately owned giant retail businesses. Unorganised retailing, on the other hand, refers to the traditional formats of low-cost retailing, for example, the local kirana shops, owner manned general stores, paan/beedi shops, convenience stores, hand cart and pavement vendors, etc. Unorganized retailing is by far the prevalent form of trade in India – constituting 98% of total trade, while organized trade accounts only for the remaining 2% – and this is projected to increase to 15-20 per cent by 2010. Nonetheless the organized sector is expected to grow faster than GDP growth in next few years driven by favorable demographic patterns, changing lifestyles, and strong income growth.

Growth Drivers in India for Retail Sector: The retail industry in India is currently growing at a great pace and is expected to go up to US\$ 833 billion by the year 2013. It is further expected to reach US\$ 1.3 trillion by the year 2018 at a CAGR of 10%. As the country has got a high growth rate, the consumer spending has also gone up and is also expected to go up further in the future. In the last four years, the consumer spending in India climbed up to 75%. As a result, the Indian retail industry is expected to grow further in the future days. By the year 2013, the organized sector is also expected to grow at a CAGR of 40%. The key factors that drive growth in retail industry are young demographic profile, increasing consumer aspirations, growing middle class incomes and improving demand from rural markets. Also, rising incomes and improvements in infrastructure are enlarging consumer markets and accelerating the convergence of consumer tastes. Liberalization of the Indian economy, increase in spending percapita income and the advent of dual income families also help in the growth of retail sector. Moreover, consumer preference for shopping in new environs, availability of quality real estate and mall management practices and a shift in consumer demand to foreign brands like McDonalds, Sony, Panasonic, etc. also contributes to the spiral of growth in this sector. Furthermore, the Internet revolution is making the Indian consumer more accessible to the growing influences of domestic and foreign retail chains. Reach of satellite T.V. channels is helping in creating awareness about global products for local markets. About 47% of India's population is under the age of 20, and this will increase to 55% by 2015. This young population, which is technology-savvy, watch more than 50 TV satellite channels, and display the highest propensity to spend, will immensely contribute to the growth of the retail sector in the country. Moreover, the retail sector also acts as an important employment absorber for the present social system. Thus when a factory shuts down rendering workers jobless; or peasants find themselves idle during part of the year or get evicted from their land; or the stagnant manufacturing sector fails to absorb the fresh entrants into the job market, the retail sector absorbs them all.

Challenges of Retailing in India: In India the retailing industry has a long way to go and to become a truly flourishing industry, retailing needs to cross various hurdles. The first challenge facing the organized retail sector is the competition from unorganized sector. Needless to say, the Indian retail sector is overwhelmingly swarmed by the unorganized retailing with the dominance of small and medium enterprises in contradiction to the presence of few giant corporate retailing outlets. The trading sector is also highly fragmented, with a large number of intermediaries who operate at a strictly local level and there is no barrier to

entry', given the structure and scale of these operations (Singhal 1999). The tax structure in India favors small retail business. Organized retail sector has to pay huge taxes, which is negligible for small retail business. Thus, the cost of business operations is very high in India. Developed supply chain and integrated IT management is absent in retail sector. This lack of adequate infrastructure facilities, lack of trained work force and low skill level for retailing management further makes the sector quite complex. Also, the intrinsic complexity of retailing- rapid price changes, threat of product obsolescence, low margins, high cost of real estate and dissimilarity in consumer groups are the other challenges that the retail sector in India is facing. The status of the retail industry will depend mostly on external factors like Government regulations and policies and real estate prices, besides the activities of retailers and demands of the customers also show impact on retail industry. Even though economy across the globe is slowly emerging from recession, tough times lie ahead for the retail industry as consumer spending still has not seen a consistent increase. In fact, consumer spending could contract further as banks have been overcautious in lending. Thus, retailers are witnessing an uphill task in terms of wooing consumers, despite offering big discounts. Additionally, organized retailers have been facing a difficult time in attracting customers from traditional kirana stores, especially in the food and grocery segment. In retail sector, Automatic approval is not allowed for foreign investment. There are restrictions on Foreign Direct Investment imposed in order to protect the interests of the country and also in order to allow the domestic companies to make more profits with less competition than that of in the presence of rival international firms. The retail trading in India constitutes as one of those few sectors where FDI is not freely and healthily allowed.

Strategic Implications of FDI in Retail: In spite of the recent developments in retailing and its immense contribution to the economy, it still continues to be the least evolved industries and the growth of organised retailing in India has been much slower as compared to rest of the world. Over a period of 10 years, the share of organised retailing in total retailing has grown from 10 per cent to 40 percent in Brazil and 20 percent in China, while in India it is only 2 per cent (between 1995-2005). One important reason for this is that retailing is one of the few sectors where foreign direct investment is not allowed. Within the country, there have been protests by trading associations and other stakeholders against allowing FDI in retailing. On the other hand, the growing market has attracted foreign investors and India has been portrayed as an important investment destination for the global retail chains (<http://www.articlesbase.com>). The need for larger FDI is because India is at a stage where it needs US investments, technology, and management policies to sustain and enhance its economic growth. In 2006, Foreign Direct Investment (FDI) in India amounted to US\$37 billion, out of which only \$5 billion was from the US. This was not a very encouraging figure in view of the goal of increasing the GDP by 34-36%. India still requires an FDI component equal to 4% of the GDP. The US needs to invest more in various sectors of the Indian economy. As such, India is rated as the 2nd best economy to invest in, after China. India is looking forward to a high growth rate of almost 16% – double that of the current 8%. Hence, there is a distinct need for larger FDI. There are other necessities which a larger FDI will cater to viz., employment generation, income generation, technology transfer, and economic stability. Hence, the need for larger FDI is a pressing situation these days in India. Foreign countries are well aware of this, and many of them are taking extra initiative to invest in the Indian economy.

Lately there has been a remarkable surge in the demand for the liberalization of the Indian retail sector both at the domestic and as well as at the international front and it seems that the government is giving the matter a very pensive and careful consideration. Some of the factors that have contributed to this trend are the evident profits in the ever growing but conserved Indian retails sector, reduction in tariff, cheaper real time communications, and cheaper transport. The main reasons for such an unequivocal demand stems from the realization that (i) while the retail sector requires heavy investment for expansion, there is hardly any local capital left in the capital markets as a consequence of global financial meltdown, and (ii) efficient management of multi-brand, multi-product, multi location retail, especially in the area of back end operations, require heavy dose of technology, which over the years has been developed and perfected by foreign players

Challenges for Global Retailers in Indian Retail Sector: History has witnessed that the concern of allowing unrestrained FDI flows in the retail sector has never been free from controversies and simultaneously has been an issue for unsuccessful deliberation ever since the advent of FDI in India. Where on one hand there has been a strong outcry for the unrestricted flow of FDI in the retail trading by an overwhelming number of both domestic as well as foreign corporate retail giants; to the contrary, the critics of unrestrained FDI have always fiercely retorted by highlighting the adverse impact, the FDI in the retail trading will have on the unorganized retail trade, which is the source of employment to an enormous amount of the population of India. The antagonists of FDI in retail sector oppose the same on various grounds, like, that the entry of large global retailers such as Wal-Mart would kill local shops and millions of jobs, since the unorganized retail sector employs an enormous percentage of Indian population after the agriculture sector; secondly that the global retailers would conspire and exercise monopolistic power to raise prices and monopolistic (big buying) power to reduce the prices received by the suppliers; thirdly, it would lead to asymmetrical growth in cities, causing IJMMR Volume 1, Issue 1 (December, 2010) ISSN-2229-6883 Sri Krishna International Research & Educational Consorhttp://www.skirec.com tium - 62 - discontent and social tension elsewhere. Hence, both the consumers and the suppliers would lose, while the profit margins of such retail chains would go up. Many trading associations, political parties and industrial associations have argued against FDI in retailing due to various reasons. It is generally argued that the Indian retailers have yet to consolidate their position.

The existing retailing scenario is characterized by the presence of a large number of fragmented family owned businesses, who would not be able to survive the competition from global players. The examples of South East Asian countries show that after allowing FDI, the domestic retailers were marginalized and this led to unemployment. Another apprehension is that FDI in retailing can upset the import balance, as large international retailers may prefer to source majority of their products globally rather than investing in local products. The global retailers might resort to predatory pricing. Due to their financial clout, they often sell below cost in the new markets. Once the domestic players are wiped out of the market foreign players enjoy a monopoly position which allows them to increase prices and earn profits. Indian retailers have argued that since lending rates are much higher in India, Indian retailers, especially small retailers, are at a disadvantageous position compared to foreign retailers who have access to International funds at lower interest rates. High cost of borrowing forces the domestic players to charge higher prices.

argument against FDI is that FDI in retail trade would not attract large inflows of foreign investment since very little investment is required to conduct retail business. Goods are bought on credit and sales are made on cash basis. Hence, the working capital requirement is negligible. On the contrary; after making initial investment on basic infrastructure, the multinational retailers may remit the higher amount of profits earned in India to their own country.

Conclusions and Recommendations: Amidst today's time of fierce competition and a quest to achieve and enhance a substantial level of economic and social development; each and every nation is trying to liberalize its economic policies in order to attract investments from not only, domestic players, but also from magnates all across the globe. Consequently, people with generous reserves of funds, all around the globe, are expanding their wings and seeking opportunities of investing in different spheres of this lucrative market. India too is not oblivious to the rapid developments taking place in the global market and has emerged as one of the prime destinations for the investment of funds from an impressive number of foreign investors. In recent times the consumer are showing much greater confidence and in a due response the retail players in the market are veering towards aggressive expansion plan. These developments are clearly signaling an affluent time for retail sector. As the organised retail space in India continues to grow, it is likely to see a number of initiatives in the near future. Companies are likely to combine expansion with innovative measures as they look to ensure profitability in difficult times. Players need to increase their investments in retail ancillaries and retail logistics to ensure sustained benefits. As a survival strategy, moves are on to allow FDI in the multi-brand retailing sector and there is fresh flow of equity investment in this sector which will definitely give the Indian retail sector a much needed boost. The advantages of allowing unrestrained FDI in the retail sector evidently outweigh the disadvantages attached to it and the same can be deduced from the examples of successful experiments in countries like Thailand and China; where too the issue of allowing FDI in the retail sector was first met with incessant protests, but later turned out to be one of the most promising political and economical decisions of their governments and led not only to the commendable rise in the level of employment but also led to the enormous development of their country's GDP. Besides, it would also lead to inflow of latest technical knowhow, establishment of well integrated and sophisticated supply chains, availability of standard, latest and quality products help in up gradation of human skills and increased sourcing from India.

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About the Editors

Dr. Kantha Sridevi

M.A., M.B.A., Ph.D.

Dr. K. Kantha Sridevi holds her M.A. and degree from Osmania University and MBA degree from Acharya Nagarjuna University, Guntur in the year 1994 & 2000. She has obtained her Ph.D. from Department of Commerce, Gannoru University. She began her academic career as Lecturer of Commerce at the Department of Commerce, Andhra Pradesh State, Hyderabad in the year 1994. She held the positions of Student Advisor, Placement Cell Coordinator and Incharge of M.Com Course. She joined Department of Commerce, Mahatma Gandhi University as Assistant Professor of Commerce in the year 2008. Presently she is holding the positions of Chairperson, Women Protection Cell and Coordinator, College Development Council at Mahatma Gandhi University. She is also the member of the HODs & Chairpersons BOS of Universities that prepared common core Syllabi of the B.Com Courses for the Universities in the State of Telangana. Earlier, she discharged the duties of Vice Principal, University College of Commerce & Business Management, the Head, Department of Commerce and Placement Cell Coordinator. She organized a one Day National Seminar, Co-Sponsored by ICSSR, on the topic "Social Entrepreneurship in India – Problems and Prospects" on 29th January 2014, ICSSR sponsored 3 day Training Program In Research Methodology / SPSS from 4th to 6th December, 2014, UGC & ICSSR Sponsored Two day International Seminar on the topic "Global Financial Meltdown – Issues and Challenges" on 3rd and 4th March, 2015 and one day Faculty Development Programme on "New Age Business Accounting with Tally.ERP 9" on 23rd June, 2015. With 21 years of teaching experience she is actively engaged in teaching and research and has to her credit published Books and Articles.

Dr. Koppula Anji Reddy,

M.A., M.Phil, Ph.D, M.Ed, (MBA)

Dr. Koppula Anji Reddy is working as Assistant Professor of Economics, Mahatma Gandhi University, Nalgonda. He obtained his M.A., M.Phil and Ph.D from Osmania University, Hyderabad. His area of interest include Agricultural economics, Economics of Education and Quantitative Methods. He published more than 10 Articles in Journals and edited Books and presented more than 30 papers in National and International Seminars.

He has joined the Mahatma Gandhi University in the year 2007. Presently he is holding positions of Head, Department of Economics, Controller of Examinations and Executive Council Member, Mahatma Gandhi University. Earlier he discharged the duties Warden, Boys Hostel, Vice Principal, and Principal University College, MGU. He has organized a ICSSR sponsored one day National Seminar on the topic "Problems & Prospects of Micro Finance" on March 14th 2008, UGC sponsored Two day National Seminar on the topic "Issues & Challenges of Higher Education in newly formed States" on 27th & 28th February, 2015 and ICSSR & UGC sponsored Two day International Seminar on the topic "Global Financial Meltdown – Issues and Challenges" on 3rd and 4th March, 2015. With 25 years of teaching experience he is actively engaged in teaching and research.

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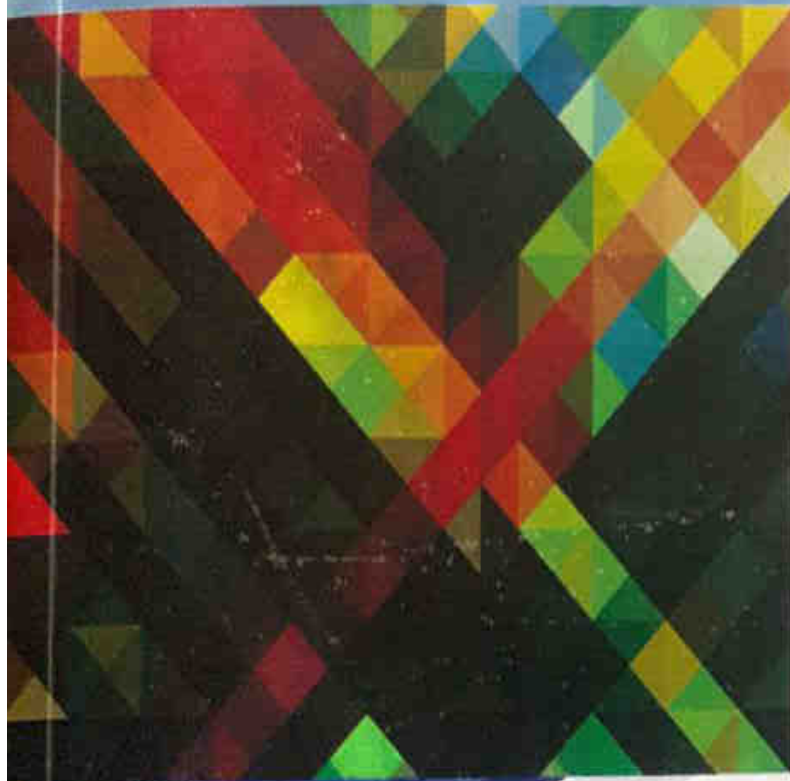
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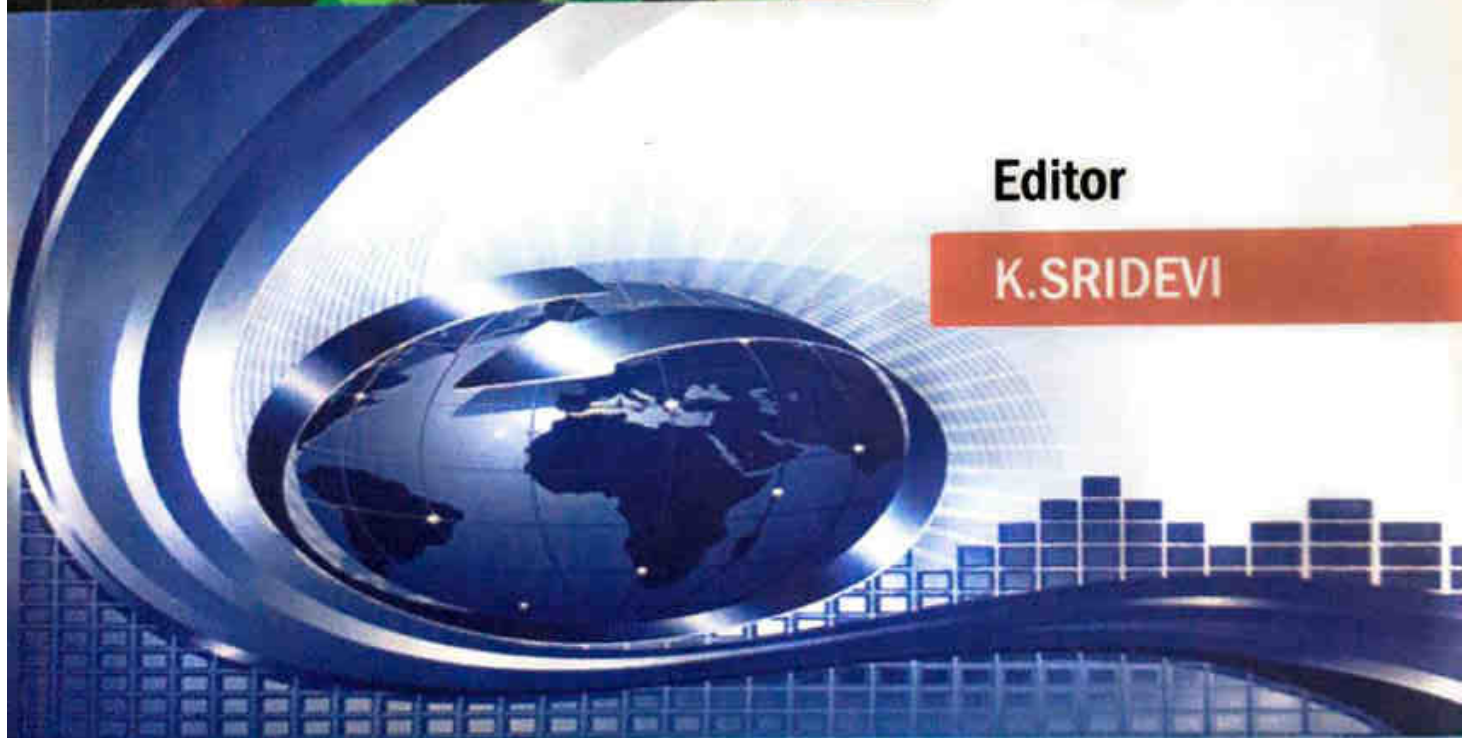
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Social Entrepreneurship in India - Problems & Prospects



Editor

K.SRIDEVI



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SOCIAL ENTREPRENEURSHIP AND NGOS: FROM CHARITY TO DEVELOPMENT

Dr. K. V. Sasidhar,
Mr. G. Jagadiswar

Introduction:

Social entrepreneurship is the art of creating a socially responsible business that aim to generate profit, while solving social problems. Social entrepreneurship signals the imperative to drive social change, and it is that potential payoff, with its lasting, transformational benefits to society, that sets the field and its practitioners apart.

The social entrepreneurship is attracting growing amounts of talent, money and attention. But along with its increasing popularity has come less certainty about what exactly a social entrepreneur is and does. As a result, all sorts of activities are now being called social entrepreneurship. A social enterprise is designed to operate like a for profit business. Social enterprises rely primarily on their earned income stream, and like any other company, if needed, it takes loans, invite capital investments, forms partnerships etc. in order to expand its business activities.

The French economist Jean Baptiste Say, described the entrepreneur on one who "shifts economic resources out of an area of lower and into an area of higher productivity and greater yield" thereby expanding the literal translation from the French, "one who undertakes" to encompass the concept of value creation.¹

Joseph. A. Schumpeter identifies a commercial opportunity, whether a material, product, service or business and organizes a venture to implement it. Successful entrepreneurship, he argues, sets off a chain reaction, encouraging other entrepreneur to imitate upon and ultimately propagate the innovation to the point of "creative destruction" a state at which the new venture and all its related ventures effectively render existing products, services and business models superseded.² According to Drucker, "The entrepreneur always search for change, responds to it and exploits it as an opportunity".

The field of Social entrepreneurship is growing rapidly and attracting increased attention from many sectors. The reason behind the popularity of Social entrepreneurship is many. On the most basic level, there is something inherently interesting and appealing about entrepreneurs and the stories of why and how they do what they do. People are attracted to social entrepreneurs like Nobel Peace Prize laureate Muhammad Yunus for many of the same reasons that they find business entrepreneurs like Steve Jobs so compelling. These extraordinary people come up from brilliant ideas against all the odds, succeed at creating new products and services that dramatically improved people's lives.

Social entrepreneurship in India is emerging primarily because of what the government has not been able to do. The government is very keen on promoting social entrepreneurship not necessarily by funding it or by advising on it or enabling it. For example, the NGOs in India have started a facility for eradicating poverty, education, health care, women empowerment etc.

The activities of NGOs:

The Non-Governmental Organizations (NGOs) play a prominent role in rural development activities. The rural sector is the most important factor which contributes in the development and growth of the Indian economy. Though activities of rural development are being conducted by a number of organizations like the State and Central Governments and Financial institutions, Industrial houses and Non-Governmental Organizations, success has remained uneven in the Non-Governmental Organizations are playing a vital role in rural areas. Because the magnitude of the tasks involved in the rural development as well as the diverse socio-economic conditions are existing across the different regions of the country.

The Non-Governmental Organizations have a long history of active involvement in the promotion of human welfare and well-being. The NGOs came into existence spontaneously, voluntarily and without any compulsion or control to fulfill certain needs of weaker sections

of rural people. Their programmes cover a diverse range of functions embracing human welfare. The programmes of Non-Governmental Organizations are strictly professional, specialized and technical.

The important feature of NGOs action is that it is problem oriented. The Voluntary action ultimately aims at creating a situation conducive to the development of potentialities in individual groups and communities to find a solution to their problems and ways and means in handling these to realize their ultimate goals. The agencies have a role in creating the welfare of society. Their continued action is vitally necessary for its survival and growth. The important factor is that a large number of people take an active part in shaping its policy and running its affairs. The more wide spread voluntary activity it is, the better it is for society as a whole.

Non-Governmental Organizations have been involved in the rural development; they are making concentrated efforts in some activities. Some are helping weaker sections of the society such as small and marginal farmers, agricultural labour, Scheduled Caste, Scheduled Tribes, Backward Caste and weaker sections of other Caste.

While others are supplying drinking water, setting up Schools, Hospitals, Old age houses, Family welfare, Population control, Organizing vocational training to enable rural people to set up their own outfits etc. The main objective of the NGO organizations is to promote all aspects of development. The voluntary agencies are adopting an integrated approach to solve the problems of rural communities and provide facilities for community development of backward areas. They are working to raise consciousness among the under privileged to promote self reliance and to organize them against exploitation and social evils.

The Organizations are promoting and providing awareness of ecological balance. NGOs have established various care centers such as baby care crèches, Old age Houses, Balwadies, Ashrams, Schools, and Hostels. They are organizing women groups, Self Help Groups, mutually aided Co-operative Societies, Saving Groups and Training

centers for all round development of rural youth and women. In addition to this, NGOs organize people, especially the weaker sections at grass root level against the Socio-economic inequalities and injustice and to make people aware of these things. The NGOs are organizing and working for all round development of rural areas. They are involving and participating in target groups planning, implementation and evaluation of all activities and programmes.

Area of Operation:

As mentioned above NGOs are playing a vital role in rural development at a range of wide and varied areas. The operations of organizations in major sectors can be identified as follows.

- Social awareness programmes
- Environmental issues
- Legal Advice
- Health care Service
- Establishment of Cultural Centers and programmes
- Self Help Groups
- Credit groups
- Rural Housing
- Rural Sanitation Programme
- Animal husbandry
- Water management
- Vocational Training
- Marketing of handicrafts
- Old age houses
- Non-formal education
- Income generating activities
- Watershed management
- Improved solar cooker
- Computer training
- AIDS Awareness and Polio drops

- Sanitation Awareness
- Net working of NGOs
- Formation of Mahila Mandals
- Social Forestry and Agriculture: Tree plantation
- Wasteland development
- Horticulture
- Kitchen gardens and agriculture
- Education of Social Evils like Anti dowry campaign, child marriage Prohibition etc
- Campaigning of Health programmes like Family planning, Free Medical Camps, Organization of Blood Donation Camps, Nutrition Programmes
- Construction of Improved Chullahs, Bio-gas Technology promotion

It has been observed that most of the organizations started their programmes like awareness campaign programmes, nutrition programmes, organizing women groups etc. The NGOs are focusing on environmental issues, watershed management, income generation, legal advice; health care service and computer training for the development of rural poor. They are mobilizing rural woman saving groups and advancing micro loans to them.

As per the Planning Commission of India, the NGO organizations that are working indifferent States are shown in table-1. It explores that a number of NGO Organizations are working at all India level. These organizations are working in different fields and registered with Planning Commission for the funds for developmental activities. The large number of NGOs registered with Planning Commission from Uttara Pradesh.

Table -2 explores that the number of NGOs are working various fields. The large numbers of Organizations have been working in the fields of Education & Literacy, Child welfare, Health & Family

Welfare, Environmental & Forest, HIV/AIDS, Micro Finance and Vocational etc.

Table-3 shows that the Non-Governmental Organizations are promoting many types of activities. The organizations have been working towards the betterment of mankind by creating awareness. But it does not mean that all the programmes of NGOs are effective, good and fault free. In a limited area with limited budget the NGOs are putting their efforts in the form of activities for the benefit of weaker sections of the rural society.

Table-1 : NGOs Organizations in Different States

Name of the State	No. of NGOs	Name of the State	No. of NGOs
Andhra Pradesh	3521	Lakshadweep	7
Andaman and Nicobar Islands	28	Madya Pradesh	2546
Arunachal Pradesh	170	Maharashtra	5933
Assam	1538	Manipur	1310
Bihar	2785	Meghalaya	166
Chandigarh	97	Mizoram	63
Chattisgarh	511	Nagaland	289
Dadra and Nagar Haveli	9	Orissa	2816
Daman and Diu	6	Pondicherry	103
Delhi	3448	Punjab	520
Goa	69	Rajasthan	1970
Gujarat	2655	Sikkim	69
Haryana	802	Tamil Nadu	3374
Himachal Pradesh	309	Tripura	229
Jammu & Kashmir	597	Uttar Pradesh	9155
Jharkhand	1095	Uttara Khand	711
Karnataka	2470	West Bengal	552
Kerala	1289		

Source: Planning Commission, Government of India.

Table – 2: Sector wise List of NGOs

Sector	No. of NGOs	Sector	No. of NGOs
Aged/Elderly	15760	Legal Awareness& Aid	18981
Agriculture	24126	Micro Finance (SHGs)	18867
Animal Husbandry/Dairy/Fisheries	14796	Micro Small& Medium Enterprises	13775

Art & Culture	23331	Minority Issues	14113
Biotechnology	10117	New & Renewable Energy	6765
Children	29897	Nutrition	11655
Civic Issues	14731	Panchayati Raj	11397
Dalit Upliftment	16230	Prisoner's Issues	1810
Differently Abled	12543	Right to Information & Advocacy	8316
Disaster Management	16557	Rural Development & Poverty Alleviation	21738
Drinking Water	21173	Science & Technology	7703
Education & Literacy	38716	Scientific & Industrial Research	3488
Environment & Forest	28053	Sports	9884
Food Processing	16049	Tourism	3767
Health & Family Welfare	32936	Tribal Affairs	9437
HIV/AIDS	25921	Urban Development & Poverty Alleviation	9455
Housing	11619	Vocational Training	19332
Human Rights	20192	Water Resources	7794
Information & Communication Technology	15818	Women's Development & Empowerment	22145
Labour & Employment	18224	Youth Affairs	13571
Land Resources	11150	Any Other	5122

Source: Planning Commission, Government of India.

Table-3: Sector wise Activities of Non-Governmental Organization

Sector	Activities
Education	Schools, Hostels, Adult Education Centers, Scholarships, Distribution of Books for poor students.
Child and Women Development	Child care centers, Balwadi programmes, awareness Camps for Women, training Camps, Eradication of Social Evils, Income Generating Activities, Formation of Mahila Mandals, Self Help Groups, and Saving Groups.
Health	Free medical camps, Family Planning campaigns, Free Eye camps, Blood Donation Camps, Free medicines, Nutrition Programme.
Social Forestry	Tree Plantation, Horticulture, Waste land Development
Drinking water	Drinking water Camps

Programme	
Rural Sanitation Programmes	Construction of low cost Latrines, Sanitation Awareness.
Animal Husbandry	Goat Rearing, Poultry, Dairy Unit
Rural Housing	Construction of Houses
Watershed Management	Irrigation Tanks, Rain Water Harvesting, Land water Management
Watershed Management	Irrigation Tanks, Rain Water Harvesting, Land water Management
Legal Aid	Legal Aid to Schedule Caste and Scheduled Tribes
Credit Groups	Women Credit/saving groups, Group loan programmes
Care Centers	Old age Care Centers
Training Programmes	Computer Training

Conclusion:

The NGO are basically Charity based the fact that most NGOs depend on donations, grants and fundraising activities to sustain make it reasonable enough to have people link the word to charity. Nevertheless, new innovative ways in income generation have been making their way to the NGO world. The past few years the NGOs transform from charity to social enterprise. This happens that the NGO integrates into its work an income generation model that allows making money while leaving the positive impact it hopes for. It's not just matter of selling something but rather minds shift how the NGO perceives itself in the community. The evolution from NGO to social enterprise is unavoidable. This conviction is winning more and more followers among those who will shape the course of development over the next decades. It is hoped that the beneficiaries of the development cooperation projects- the customer of the social enterprises will soon profit from new approach.

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About the Editor

Mrs K. Sridevi

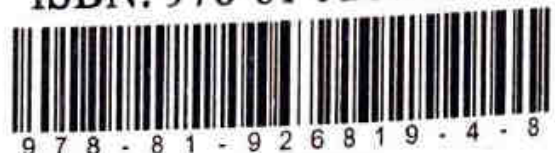
M.Com, MBA, (Ph.D)

Mrs K. Sridevi received her M.Com degree from Osmania University and MBA degree from Acharya Nagarjuna University, Guntur in the year 1994 & 2000. She has submitted her PhD from Department of Commerce, Osmania University on the topic "Social Banking in Public Sector Commercial Banks – A Case Study of SBH" (results awaited). She began her academic Career as Lecturer of Commerce at the Department of Commerce, Lalitha Degree and PG College, Hyderabad in the year 1994. She joined Andhra Mahila Sabha Arts and Science College for Women, Hyderabad in the year 1996 and worked for 12 years. She held the positions of Student Advisor, Placement Cell Coordinator and Incharge of M.Com Course.

She joined Department of Commerce, Mahatma Gandhi University as Assistant Professor of Commerce in the year 2008. She discharged the duties as Vice-Principal, UCC&BM, MGU from November 2011 to April 2013. Presently she is holding the position of Head, Department of Commerce, Mahatma Gandhi University. With 19 years of teaching experience she is actively engaged in teaching and research and has to her credit many published Articles and Books.

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CHANGING PARADIGMS OF RURAL MANAGEMENT



Editor
Dr. Ramesh Kumar Miryala

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RURAL DEVELOPMENT SCHEMES AND PROGRAMS – A STUDY WITH REFERENCE TO ECONOMIC INDEPENDENCE OF WOMEN

Shekhar Neelakantan
Dr. K.V.Sasidhar

Abstract

The present paper deals with the impact of schemes and programmes in rural development on the economic independence of women in Andhra Pradesh. The National Developmental Programs and Schemes are committed to a planned economic development of the nation. The government plays a vital role in bringing about this outcome through various social, economic, and institutional means. This led to the introduction of many welfare programs such as Self Help Groups (SHGs) and micro finance institutions which aimed at the economic improvement of the rural masses especially women who constitute about 45 % of the population. Economic development of women is a must for economic development of the country. Participation of women in the developmental activities resulted in their setting up of several income generating small scale industries with the help of SHGs which boosted their confidence levels and transformed the traditional woman into an industrial woman. This paper provides a comprehensive study of the impact of various developmental programmes and schemes on the economic independence of rural women in terms of effective decision making, thrift, improvement of their socio - economic conditions and increased standard of living.

Keywords: Developmental programs, Economic development, Economic independence, Women participation, SHGs.

Introduction:

"Economic development is a multidimensional process involving major changes in social structures, popular attitudes and

national institutions as well as the acceleration of economic growth and the reduction of inequality and eradication of absolute poverty." *Micheal P. Todaro*

Economic development is related to developing countries which entails improvement in the quality of life of the people. Economic development is impossible without the intervention of government. It is a long term dynamic process measured by the real per capita income. An essential condition for the economic development of a country is equitable distribution of wealth. The most important factor for acceleration of economic development is the participation of people in the development programmes. An index of economic development of a state is its per capita income. Countries with high per capita income are called developed countries. The people of developed countries enjoy better quality of life, and high expenditure on human capital which includes expenditure on education, formation of skills, research and improvement in health. Life expectancy and adult literacy rates are much higher in developed countries compared to developing countries. Another important feature of developing countries is the lower level of human well being. The unfavourable institutional set up is responsible for low levels of income and standard of living in developing countries.

Andhra Pradesh is one of the large states of India in terms of area and population. It is the fourth largest state in terms of geographical area and fifth largest state in terms of population. The increase in the per capita income growth rate in Andhra Pradesh was higher than the national level of per capita growth rate, which is an indication of its improving standard of living. There is a sharp decline of population growth in all the districts of Andhra Pradesh. A decrease in the share of primary sectors in total work force has been observed over the past few decades. The work force participation rates (the number of persons employed per thousand population) in both rural and urban areas is high in Andhra Pradesh compared to all India. The Gross State Domestic Product (GSDP) of Andhra Pradesh

economy was higher than that of all India. The share of private sector was more in Andhra Pradesh compared to all India.

In Andhra Pradesh, as in India, there is a vast difference in the income distribution between urban and rural areas. Consequently, the rich became richer and the poor became poorer. The fruits of economic development could not properly reach the poorer section of the society. Poverty and unemployment are inseparable. Planners adopted four broad categories of programmes to alleviate poverty –

- a. Resource and income development programmes for the rural poor.
- b. Special area development programmes.
- c. Work programme for the creation of supplementary employment opportunities.
- d. The minimum needs programme to improve the consumption levels of the poor in order to raise their productive efficiency.

In recent years, many developing countries are reforming their financial systems, as a part of which micro finances have emerged which is demand led and saving driven to provide financial services to the micro economy comprising small farmers, micro entrepreneurs, the informal sector, women and the poor, who were excluded by the earlier supply and credit driven financial system.

“The term microfinance refers to the provision of thrift, credit and other financial services and products of very small quantities to the poor in rural, semi urban and urban areas for enabling them to raise their income levels and living standards.” (NABARD, 1999). Micro finance is viewed as a practice of extending small loans and other financial services such as saving and insurance to the poor for empowering them to protect themselves from economic setbacks. Group based financial systems are broadly classified into Grameen Group System and Self Help Group System. The institutions involved in microfinance have a significant role to play to reduce disparity of rich and poor and alleviate poverty.

The foremost objective of a welfare state is to improve and sustain the living standards of people. In accordance, the government of Andhra Pradesh has been implementing various welfare programmes and schemes. Among the several of them, microcredit to SHGs plays a crucial role in the rural development. SHGs are a small group of people associated together to solve their common problems through self help or mutual help. SHG linked microfinance provides credits to rural poor on easy terms and conditions and gives access to several small scale income generation activities. Throughout the world, SHG movement has been accepted as an effective programme to reduce poverty, to generate income to empower the poor especially women and to reduce unemployment. Microfinance is now a powerful tool of development that addresses multiple dimensions of poverty.

Significance of Study:

The present study is an attempt to determine the impact of SHG and participation of women in SHG on the economic independence of women in general and rural women in particular, in the state of Andhra Pradesh.

Review of Literature:

Kabeer (2001) in his study opines that some evaluations point a positive picture on the impact of SHG on the lives of rural women. Rahman (1986) established that 'active' women loan beneficiaries had higher standards of consumption, an effective role in the household decision making independently or together with their spouses, than 'passive' loanees. Both are more likely to partake in household decision making than women from male loanee household or from those households who have not received credit. Zaman (2001) states that SHGs have a vital role in lessening the vulnerability of poor by creating assets, income and consumption smoothing providing emergency assistance, empowering women and making them confident by giving them control over assets and increased self-esteem and knowledge.

Objectives:

1. To assess the impact of SHGs on women participants in terms of their socio – economic, political and cultural aspects.
2. To study the improvement in financial, health, child development and educational status of women beneficiaries of SHGs.
3. To suggest suitable solutions to overcome the problems faced by women beneficiaries of SHGs.

Methodology:

For the present study, a sample of five villages

- Ghanpur
- Marikallu
- Kaarukonda
- Devarakadra
- Yenugonda of Mahabubnagar district of Andhra Pradesh was considered.

As a whole, women of these villages constitute about 45 % of population, where as the literacy rate of these villages is only 46 %. There are 90 SHGs on an average in each of these villages. For our study, 300 respondents have been interviewed in terms of changes in their families with the impact of SHGs. The age of the respondents is in the range of 25 – 60 years. Group discussions were conducted to get more virtual data. Both quantitative and qualitative techniques were adopted for the analysis.

Findings:

The National Development Policies including SHGs have created serious disparities among Indian men and women. Women are in a vulnerable situation in terms of the following:

1. Alarming atrocities such as rape, sexual harassment, kidnap and dowry deaths against women in urban and rural areas.
2. Lowest sex ratio especially in rural areas.
3. Subordinating of women.

4. Astonishing percentage (about 20%) of maternal mortality, and pregnancy related health problems due to malnutrition.
5. Female feticide.
6. Low levels of education.
7. Low awareness generation and activities to increase the demand for the benefits under various developmental schemes and programmes.

It can thus be understood that women have a lower status than men. In spite of the many developmental programmes by the government, women lack the freedom to make use of the opportunities provided to them. Women face a lot of problems in the society which hinder their economic growth. Nowhere in our country are women paid at par with men. Women have to handle dual responsibility and meet the demands of the family and the work place. Women prove to perform better than their male counterparts.

Some of the major problems faced by women are –

- a. Lack of education
- b. Gender bias
- c. Lack of exposure
- d. Lack of self confidence
- e. Lack of proper training for self employment
- f. Male domination
- g. Lack of support from spouse and family members
- h. Lack of confidence by others
- i. Lack of freedom in decision making
- j. Lack of public relations etc., which lead to the lack of risk bearing capacity and increased social insecurity.

SHGs help rural women by

- a. Promoting them as micro entrepreneurs
- b. Engaging them in economically productive work and earn income though their income is significantly low
- c. Providing training and orientation to acquire income generating skills and attitudes, and effective decision making skills

- d. Providing timely credit
- e. Developing thrift habits and efficient management of funds
- f. Identifying their potential and entrepreneurial qualities and encouraging them to generate income through self employment.

With the help of SHGs, the rural women of the sample villages set up dairy, fishing, candle making, basket making and other such activities which generate income. As a result, they gained confidence, improved their socio – economic condition, passed their leisure time productively and improved their decision making capability. While most of the respondents felt that microcredit has helped them improve their standard of living, a few of them felt that it was of no use to them. Some of them are completely unaware of the credit facilities provided by the SHGs. The beneficiaries opined that it was very convenient for them to repay the loan in installments instead of the whole amount at a time as in the case of money lenders.

The economic empowerment achieved by the rural women helped them in improving their living standards, enhancing their control over the income and expenditure, diverting funds for proper education and health care of their children thereby gaining more gender equality and control over their lives. This contributes indirectly to the income growth of the nation.

Conclusion:

Though Andhra Pradesh is improving its economic growth, clearly, the development process in the state must aim to reduce inequality and to improve overall economic development. So, government interventions such as SHGs which include poverty alleviation programmes have moulded the traditional rural women as industrial women and entrepreneurs. The involvement of women in developmental activities has added to their significance. Developmental programmes have a direct impact on the economic independence of women especially of rural areas as they were relieved of the clutches of the money lenders and enhanced their saving potential. Women became omnipotent leading to the

development of the family and the community as a whole. Gender differences have been reduced and women attained a near equal status of men in terms of active decision making and other socio – economic and cultural spheres of life.

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About the Editor



Dr Ramesh Kumar Miryala is working as Assistant Professor in the Department of Business Management of Mahatma Gandhi University.

He obtained his MBA from Kakatiya University, Warangal and Ph.D in Business Management from Osmania University, Hyderabad and has an overall experience of thirteen and half years, of which thirteen years of teaching and six months of industrial experience.

He has published more than 31 papers in national and international journals. He has presented 16 papers in national and international conferences.

He is a life member of All India Management Association (AIMA) and a member of Hyderabad Management Association (HMA).

His teaching, research and consulting interests include Organizational Behavior, Consumer Behavior, Strategic Management, Services Marketing etc.,

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FDI in Retail Sector in India

Prospects and Problems

Editor:
K.A. Rasure



FDI in Retail Sector in India: A Bird's Eye View

Dr. K.V. Sasidhar & Dr. Santosh Singh Bais***

Introduction

India is a land of retail democracy- hundreds of thousands of weekly haats and bazaars are located across the length and breadth of our country by people's own self-organizational capacities and interests. Our streets are bazaars – lively, vibrant, safe and source of livelihood for millions. India has the shop density of 11 outlets per 1000 people and number around 15 million, giving India the highest retail outlet density in the world. But only four per cent of them have larger than 500 square feet area. Food constitutes 70 per cent of retail sector, which means it has a direct link with the rural economy. Our retail democracy is characterized by

* Assistant Professor, Dept. of Economics, Mahatma Gandhi University, NALGONDA – 508001, A.P, India

Cell No.09396612026, E-mail:economicsapplied@Gmail.com

** Assistant Professor & HOD, Dept. Commerce, Govt. First Grade College, SEDAM- Dist: GULBARGA-KARNATAKA-India

E-mail:singh_31@rediffmail.com, Cell No.09880499058

1. High levels of livelihood in retail with nearly 40 million employed which accounts for 8% of the employment and 4% of the entire population.
2. High levels of self - organization.
3. Low capital input
4. High levels of decentralization

The Indian retail market, variously estimated at \$400-450 billion, is dominated by the highly decentralized unorganized sector. The small retail outlets, most of them family-owned businesses, account for about 95 per cent of the sales. The creaky, old distribution system that India has lived with is grossly inefficient. The Indian farmer typically gets only a third of what the final consumer pays, instead of the two-thirds that his counterparts do in countries that have organized retailing. India is the second largest producer of fruits and vegetables in the world, but almost 30 per cent of these go waste for want of storage and processing facilities. It is generally agreed that the bulk of the Indian economy would gain, significantly, from the emergence of a well-capitalized retail industry. The organized retail industry is one of the sunrise sectors with huge growth potential. Total retail market in India which currently stood at USD 400 billion in 2009-10, is estimated to attain USD 573 billion by 2012-13. Organized retail industry accounts for only 5% of total retail industry but is expected to reach 10% by 2012.

Current Scenario of Indian Retailing Industry:

The share of organized retailing in India, at around 2%, is too low, compared to 80% in the USA, 40% in Thailand, or 20% in China, thus leaving the huge market potential largely unexploited. Mounting earning levels, education and an international revelation have contributed to the progression of the Indian middle class purchasing and shopping practices are burgeoning as an outcome. Retailing all the way through non-traditional channels such as Fuel Stations, Direct Selling and Home Shopping Television is on the rise. Contemporary organized retail is short and uneven with cast list not being

able to harvest economies of scale. However, retailing through formats such as supermarkets, hypermarkets, department stores and other forte chains are escalating. Top business houses in the country are investing in the sector. This includes Food World, Shopper's Stop, Crossroads, Globas, Pyramid and other such outlets. FDI in retail trading is not encouraged in any form. However, a few overseas retail names appear in the marketplace in the nature of franchisee. Quite a lot of companies including Metro, Carrefour and Ahold are exploring way in options. Benetton, Lifestyle and Zegna are already in the Industry in India. Organized retail is a lucrative proposition for a thespian that can bring supreme practices from around the globe, leverage economies of scale and garner these benefits through retail operations in India. India has a hefty middle class of 350 million and sophisticated personnel to lever diverse significant functions like merchandising, sales promotion, inventory management, purchasing and marketing. Despite the global economic recession and a consequent slowdown in the Indian economy, organized retail continued to make headway although at a slower pace in 2009. Nonetheless, if the current retail landscape is compared with that of 2004, it has undeniably become a much larger environment. Retail stalwarts such as Wal-Mart, Tesco and Marks & Spencer have already made inroads into the Indian retail industry and with multi-billion dollar investments by major domestic players such as Reliance Retail; the market is expected to go from strength to strength. India also possesses IT skills in the area of supply chain management, database management and inventory management.

Objectives of Study

- To study the need of opening up of FDI in multi-brand retail.
- To analyze the positive and negative impacts of the reforms to be undertaken.
- To review the challenges to be faced by FDI's while investing in India.

Retail: The Changing Indian Consumer

The following are the few factors which drive the big retailers for seeing India as a lucrative market for its business: Indians with an Ability to spend over USD 30,000 a year (PPP terms) on conspicuous consumption

Credit Availability:

Retail loans have doubled in the last three years to reach USD 38.7 bn by 2005. All the above figures represent only about the rich and middle class of the country. Because of the Big consumer market that India offers, the government gives no regard to the concerns of unorganized 97% of the retail trade in India. People of all classes depend upon these traders for their daily supplies.

Expanding of the Education Sector:

Education sector has led to a incredible development which has ultimately led to the growing awareness and demands of the youth regarding the brand culture in the country. Few reports depict that among teenagers (aged 17 to 20 years) apparel, books, footwear and mobiles phones account for nearly around 42% of the total discretionary spend.

Environmental and Agricultural Factors:

The continuous changes in the environmental factors and the changing agrarian facilities with the increasing outputs and better yields have also led to the growth in demands of the consumers.

Impact of Media:

The change in the thought process of the consumers due to the increased impact of media on their lifestyle has made the retailers find the market for new and lucrative products which were earlier not accessible to the consumers.

Improved Logistics:

The various infrastructure development schemes which

have led to better connectivity between different regions has also led to the development of a more lucrative market for India as a whole.

Arguments in Favor of FDI in Retailing

FDI in retailing is favored on following grounds:

- (1) The global retailers have advanced management know how in merchandising and inventory management and have adopted new technologies which can significantly improve productivity and efficiency in retailing.
- (2) Entry of large low-cost retailers and adoption of integrated supply chain management by them is likely to lower down the prices.
- (3) Industry trends for retail sector indicate that organized retailing has major impact in controlling inflation because large organized retailers are able to buy directly from producers at most competitive prices. World Bank attributes the opening of the retail sector to FDI to be beneficial for India in terms of price and availability of products as it would give a boost to food products, textiles and garments, leather products, etc., to benefit from large-scale procurement by international chains; in turn, creating jobs opportunities at various levels.
- (4) As foreign investors exploring their potentials in the retail sector are keen on developing malls in India, the size of organized retailing is expected to touch \$30 billion by 2010 or approximately 10 per cent of the total. This has initiated market-entry announcement from some retailers and has signaled to international retailers about India's seriousness in promoting the sector.
- (5) India is already a key sourcing country for some global retailers. The entry of foreign retailers is likely to further promote India's manufacturing and export sectors, leading to a double bonus for the economy.

- (6) Allowing FDI in multi-brand retail can give a big push to the country's social agenda, too, and has the potential to even positively impact and promote tourism, computerisation, systemisation, and government's ability to influence trade when required, address issues such as inflation (since data available becomes more reliable/ accurate and trade gets increasingly organized), reduction of black economy, control over food hygiene, better food quality assurance and accountability, increased direct and indirect employment, push to real estate and availability of better managerial talent, etc.
- (7) Also, the retail revolution can change country's perception across the globe, integrating it seamlessly into world trade and economy.

Arguments Against FDI in Retailing

Many trading associations, political parties and industrial associations have argued against FDI in retailing due to following reasons:

- (1) Indian retailers have yet to consolidate their position. The existing retailing scenario is characterized by the presence of a large number of fragmented family owned businesses, who would not be able to survive the competition from global players.
- (2) The examples of south east Asian countries show that after allowing FDI, the domestic retailers were marginalized and this led to unemployment.
- (3) FDI in retailing can upset the import balance, as large international retailers may prefer to source majority of their products globally rather than investing in local products.
- (4) Global retailers might resort to predatory pricing. Due to their financial clout, they often sell below cost in the new markets. Once the domestic players are wiped out of the market foreign players enjoy a monopoly position which allows them to increase prices and earn profits.

- (5) Indian retailers have argued that since lending rates are much higher in India, Indian retailers, especially small retailers, are at a disadvantageous position compared to foreign retailers who have access to International funds at lower interest rates. High cost of borrowing forces the domestic players to charge higher prices for the products.
- (6) The opening up of the retail sector would affect the sales in the unorganized sector. As a result the employment it provides would be affected. Also, by reducing the number of intermediaries, organized retailing will lead to some job displacement.
- (7) It is said that FDI would provide employment opportunities. But, the fact is that they cannot provide employment opportunities to semi-illiterate people. Though they can provide employment opportunities like drivers, watchman etc. but this argument gets more attention because in India semi-illiterate people in quiet large in number.
- (8) Some fear that, if FDI is allowed in retailing then it would result in lowering of prices because FDI will result in good technology, supply chain, etc. If prices were lowered then it would lower the margin of unorganized players. As a result the unorganized market will be affected.
- (9) FDI in retail trade would not attract large inflows of foreign investment since very little investment is required to conduct retail business. Goods are bought on credit and sales are made on cash basis. Hence, the working capital requirement is negligible. On the contrary; after making initial investment on basic infrastructure, the multinational retailers may remit the higher amount of profits earned in India to their own country.
- (10) Loss of cultural and ethical values due to more influence of the other cultures.

Challenges Facing FDI

1. Resource Challenge:

India is known to have enormous amounts of resources. There is manpower and significant availability of fixed and working capital. At the same time, there are some underexploited or unexploited resources. The resources are well available in the rural as well as the urban areas. The focus is to increase infrastructure 10 years down the line, for which the requirement will be an amount of about US\$ 150 billion. This is the first step to overcome challenges facing larger FDI.

2. Equity Challenge:

India is definitely developing in a much faster pace now than before but in spite of that it can be identified that development has taken place unevenly. This means that while the more urban areas have been tapped, the poorer sections are inadequately exploited. To get the complete picture of growth, it is essential to make sure that the rural section has more or less the same amount of development as the urbanized ones. Thus, fostering social equality and at the same time, a balanced economic growth.

3. Political Challenge:

The support of the political structure has to be there towards the investing countries abroad. This can be worked out when foreign investors put forward their persuasion for increasing FDI capital in various sectors like banking, and insurance. So, there has to be a common opinion between the Parliament and the Foreign countries investing in India. This would increase the reforms in the FDI area of the country.

4. Execution Challenge:

Very important among the major challenges facing larger FDI, is the need to speed up the implementation of policies,

rules, and regulations. The vital part is to keep the accomplishment of policies in all the states of India at par. Thus, asking for equal speed in policy implementation among the states in India is important. 5. India must also focus on areas of poverty reduction, trade liberalization, and banking and insurance liberalization. Challenges facing larger FDI are not just restricted to the ones mentioned above, because trade relations with foreign investors will always bring in new challenges in investments.

FDI's Benefit from the View of the Customers

- (i) FDI will provide access to larger financial resources for venture in the retail sector and that can lead to several of the other advantages that follow.
- (ii) The larger supermarkets, which tend to become regional and national chains, can negotiate prices more aggressively with manufacturers of consumer goods and pass on the benefit to consumers.
- (iii) They can lay down improved and tighter quality standards and ensure that manufacturers adhere to them.
- (iv) The supermarkets offer a wide range of products and services, so the consumer can enjoy single-point shopping.

Suggestions and Recommendations

Let us discuss few suggestions given by Retail Association of India for allowing FDI in retail:

Retail Can be Accepted as an Industry:

Providing industry status is the first basic step needed for reforming the Indian retail sector. This will facilitate better financial processes due to benchmarking and enable prudent practices in retail. Retail industry will also eligible for support and incentives as applicable to other industries.

states would stand to gain revenue by this increased consumption.

Consumption Incentive:

Provide a consumption incentive in the form of personal income tax relief to consumers, who can spend upto 25% of their income on consumer goods to services. This will bring a considerable amount of consumer spend into the indirect tax net, while incentivizing consumers. Such scheme also supports the government current initiatives.

Direct Tax Incentives:

In order to promote employment in the sector, tax incentives in the form of 100% deduction on expenditure incurred on employment of new workmen could be considered (Similar to deduction available under Section 80JJAA of the income tax act 1691 to an industrial undertaking engaged in manufacture of articles or thing). A weighted deduction could be allowed for payment made by retailers towards training and development of their personnel in order to improve their expertise. For example contribution made to technical universities, institutes etc.

Let us Discuss Few Recommendations for the Retail Sector

1. The retail sector in India is severely constrained by limited availability of bank finance. The Government and RBI need to evolve appropriate lending policies that will enable retailers in the organized and unorganized sectors to enlarge and improve efficiencies.
2. A National Commission must be established to study the problems of the retail sector and to evolve policies that will enable it to cope with FDI as and when it comes.
3. The proposed National Commission should develop a clear set of conditionalities on giant foreign retailers on the procurement of farm produce, domestically

manufactured merchandise and imported goods. These conditionalities must be aimed at encouraging the purchase of goods in the domestic market, state the minimum space, size and specify details like, construction and storage standards, the ratio of floor space to parking space etc.

4. Entry of foreign players must be slow and with social safeguards so that the effects of the labour displacement can be analyzed & policy fine-tuned. Initially allow them to set up supermarkets only in metros. Make the costs of entry elevated and according to specific norms and regulations so that the retailer cannot immediately indulge in 'predatory' pricing.
5. In order to address the dislocation issue, it becomes vital to develop and improve the manufacturing sector in India. There has been a substantial fall in employment by the manufacturing sector, to the extent of 4.06 lakhs over the period 1998 to 2001, while its contribution to the GDP has grown at an average rate of only 3.7%. If this sector is given due attention, and allowed to take wings, then it could be a source of great compensation to the displaced workforce from the retail industry.

Conclusions

At present it is also not desirable to increase FDI ceiling to more than 51% even for single premium brand stores. It will help us to ensure check and control on business operations of global retailers and to look after the interests of domestic players. However, the limit of equity participation can be increased in due course of time as we did in telecom, banking and insurance sectors. Foreign players should not be allowed to trade in certain sensitive products like arms and ammunition, military equipment, etc. and the list of excluded products should be clearly stated in the FDI policy. However, it can be said that the advantages of allowing unrestrained FDI in the retail sector evidently outweigh the disadvantages

attached to it and the same can be deduced from the examples of successful experiments in countries like Thailand and China; where too the issue of allowing FDI in the retail sector was first met with incessant protests, but later turned out to be one of the most promising political and economical decisions of their governments and led not only to the commendable rise in the level of employment but also led to the enormous development of their country's GDP.

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FDI in Retail Sector in India: Driving Forces and Emerging Challenges

Dr. Santosh Singh Bais and Dr. K.V. Sasidhar***

Introduction

India is the second fastest growing economy in the world. It is third largest economy in terms of GDP and fourth largest economy in terms of Purchasing Power Parity. India presents a huge opportunity to the world at age, to use as a hub. Standing on the threshold of a retail revolution and witnessing a fast changing retail landscape, India is all set to experience the phenomenon of global brands and Indian retailers the "vibrant economy" for global tops in the list of emerging market for global retailer and India's retail sector is expanding and modernizing rapidly in line with India's economic growth. The future is promising; the market is growing, government

* Assistant Professor & HOD, Dept. of Commerce, Govt. First Grade College, SEDAM- Dist. GULBARGA, KARNATAKA-India. E-mail: singh_31@rediffmail.com; Cell No. 098880499058.
 ** Assistant Professor, Dept. of Economics, Mahatma Gandhi University, NALGONDA - 508001. E-mail: economicsapplied@gmail.com
 No. 09396612026. E-mail: economicsapplied@gmail.com
 A.P., India, Cell

Regional Mall Distribution Space in India



- 1) **INCREASING DISPOSABLE INCOME:** Rising disposable incomes in middle class and lower middle class with increase in employment opportunities for young adults in IT & IT enabled sectors are the major cause of retail growth in India.
- 2) **INCREASING NO. OF DUAL INCOME NUCLEAR FAMILIES:** In India, hefty pay packets, nuclear family along with increasing working women population and dual income in family are the factors contributing to prosperous retail sector.
- 3) **CHANGING LIFESTYLE AND CONSUMER BEHAVIOR:** Due to increasing working population, comfortable life, travel and leisure are given importance. These key factors are growth drivers of retail sector in India which now boast of retailing almost all the preferences of life – apparel and accessories, Appliances, Electronics, cosmetics & Toiletries etc.
- 4) **EXPERIMENTATION WITH FORMATS:** Due to competition in the market, retailing is still evolving and the sector is witnessing a series of experiments with new formats.

- 5) **STORE DESIGN:** Shopping malls and super markets are growing at a very faster rate. Improvements in infrastructure and enhanced availability of retail space, store design are the factors increasing the share of organized retail ad thereby contributing to growth of Indian retail sector.

Challenges

Talking about the organized sector, which consists of big Indian players who have entered in retail sector just to take advantage of diversification and expand their business, they will also be affected but from different prospects. Major challenges that lie ahead are:

1. **Economies of scale:** the global players have economies of scale and are perfect in cost cutting and providing the consumer the best at lowest price which still is a major challenge for Indian retail firms. The way they perform their process itself builds an entry barrier for other new firms.
2. **Brand name:** They bring with them world class products which have high quality and a highly valued brand name. The domestic brands don't have that charm and attracting power as of global brands.
3. **Technology:** Global players are highly advanced in technology. The tools, equipments, kind of warehouses they use, their way of performing processes are highly advanced and cannot be compared with those used by Indian retail firms, which in turn provides better services and better quality products even in categories like perishable food etc.
4. **Attract skilled employees:** The work culture of global players is quite different from those of Indian players. They believe in earning profits by cutting costs as much as possible and at the same time are conscious towards career of their employees. Their approach is more oriented towards achieving ends rather than means. Attractive salary and high incentives can also

- attract skilled employees towards global players which is also a threat for big Indian retail firms.
5. **Better infrastructure:** Better storage facilities, better transportation medium and high investment can pose another threat to Indian retail firms which can hardly match the capabilities of giants on their own.
 6. **Joint ventures:** Global players may not prefer to enter into joint ventures with Indian firms and may also close down the existing ventures in wholesale and single brand which may adversely affect the Indian firms. This is possible when 100% FDI is allowed in multi-brand retail.

Conclusion

India at the crossroads with regard to the retail sector. Several emerging market economies have gone ahead and reaped the benefits of modern retail. Politics is an unfortunate reality that has been coming in the way of success of organized sector and ultimately the overall retail sector. The hue and cry created by unorganized sector against Reliance Fresh, Wal-Mart especially in U.P., Jharkhand etc. is not appreciable, it is the major hindrance in the growth of retail sector. There is need of balanced approach to retail & govt. has to play a very vital role in shaping the future course. Though tradition retail has been performing a vital function in the economy, but it has to shed off its shortcomings and inefficiencies and this is actually happening. Thus, the organized sector is not only impacting the other sectors positively but also it has benefited its own competition i.e. unorganized sector. So, organized sector becomes the growth mantra of Retail sector.

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The retail industry in India is a highly sensitive one by its very nature. Therefore
decisions regarding FDI in this sector should be taken with utmost care.

This book consists of thirty-three papers prepared on a variety of topics, by
eminent economists and specialists. The issues covered in the book have a
practical and policy significance in India. The theme have deeply and intensively
discussed by the paper writers. All the articles in this book have been reviewed.
This book is useful not only to general readers but to students, scholars who is
doing research, and policy makers.



Dr. K.A. Rasure (b. 1957), currently Associate Professor
of Economics at Seth Sri. Tulsiram Gilada, Nrupatunga
First Grade College, & PG Centre, Sedam Dist. Gulbarga
(Karnataka), has over 29 years of academic experience;
has published 65 research papers in various journals and
30 articles in Kannada, 12 edited book in economics, 06
reference books and one in Kannada and has given 11
Radio Talks from AIR, Gulbarga. He has participated
and presented papers in National and International
Seminars/Conferences. He has worked as a local
organizing secretary for 05 UGC sponsored two day
National Seminar. He is a recognized research guide for
M.Phil. and Ph.D. Programmes of Gulbarga University,
Gulbarga. 05 Ph.D. Degree awarded under his guidance.

He is an active member in several academic bodies, and worked as BOS & BOE
Chairman & Member for Bangalore & Gulbarga University. He has completed two
minor research projects sponsored by ICSSR New Delhi and UGC, SWRO,
Bangalore. Presently working on one UGC sponsored Major Research Project.
Biographical Note of the editor, has been published in Indo-Asian Who's Who-2003
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4658-A, Ambika Bhawan, 1st Floor,
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email: abhijeetpublication@gmail.com

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AN ECONOMIC ANALYSIS OF RURAL INDEBTEDNESS IN INDIA AND TELANGANA

Dr. K.V.Sasidhar*, G. Pandaraiah** and Dr. V. Saidulu

ABSTRACT

Agriculture plays a most strategic role from the point of view of supplying food, many raw-materials for industry. It is not only a supplier of goods for domestic and export needs but also a supplier of production factors like capital and labour. But, there are some weaknesses. Firstly, the slow rise in agricultural production and productivity. Secondly, there is a large proportion of agricultural land without proper irrigation and appropriate farming techniques so that productivity is still low. The size of fixed capital like wells, tube wells, dams, ponds, machines, warehouses are inadequate. Moreover, most of the farmers are small and marginal. Because of small farmers their income levels are very low and unable to invest and indebtedness in common legacy of poor farmers.

As per National Sample Survey report (Deccan Chronicle dated 5th Oct 2018) during January-December 2013, Household Indebtedness in India, average amount of debt per indebted household was Rs 1,03,457 and Rs 3,78,238 in rural and urban areas. The incidence of indebtedness was higher in rural areas with 31.4 percent households taking loans in some or other forms while in cities the proportion of such families was 22.4 percent, says a report. The Incidence of Indebtedness (IOI) was about 31.4 percent among the rural households and 22.4 percent among the urban households.

The 70th Round of the National Sample Survey (NSS) on "All India Debt and Investment Survey" report confirms that Telangana is among States with a high incidence of rural indebtedness with 89 percent of agricultural households under debt. More than half the agriculture households in Telangana are in debt, and the worst affected states are southern states like Andhra Pradesh, Telangana, and Tamil Nadu. The average asset value for rural households of Telangana is Rs 6.38 lakh,

*The author has been working as faculty in the department of economics in M.G. University, T.S.
Email: sasidhar237@gmail.com , Mobile: 9396612026 and 7673906463.

** The author has been working as faculty in the department of economics in M.G. University, T.S.
Email: pnadu.vineel@gmail.com , Mobile: 9494812448.

***The author has been working as faculty in the department of economics in M.G. University, T.S.
Email: saiduluvaggu@gmail.com , Mobile: 9885389637.

and that of urban Telangana is Rs 18.45 lakh, which is 2.9 times higher indicating high inequality between the rural and urban population in the State. The survey also points out that the Incidence of Indebtedness (IOI) among the rural households in Telangana is twice the IOI of rural All-India.

Poverty, the debts of farmers ancestors, social traditions and customs, various kinds of disputes related to land, uncertainty in rainfall, and the farmers, are trapped in the hands of the moneylenders are major causes for rural indebtedness. The problem of indebtedness can be solved by two means. The first is to take up measure to reduce the burden of present indebtedness and the second is to prevent the evil from rising again in the future.

Introduction:

Agriculture playing a vital role in the economic development of any country, rich or poor the fact that it is the primary sector of the economy which provides the basic ingredients necessary for the existence of mankind and provides most of the raw materials. Agriculture plays a most strategic role from the point of view of supplying food, many raw-materials for the industry. In addition to that must generate export surpluses. To earn the foreign exchange with which to finance the impact of capital goods and specific kind of industrial raw materials. It is not only a supplier of goods for domestic and export needs but also a supplier of production factors like capital and labour. A rapidly expanding industrial sector necessarily draw some of its labour force from rural areas.

As agriculture is very important for the Indian economy. Its size is very large, and it has the capacity to contribute much to the development of the country. But, there are some weaknesses. Firstly, the slow rise in agricultural production and productivity. Secondly, there is a large proportion of agricultural land without proper irrigation and appropriate farming techniques so that productivity still low. The size of fixed capital like wells, tube wells, dams, ponds, machines, wearing houses etc are inadequate. Moreover, majority of the farmers are small and marginal. Because of small farmers their income levels are very low and unable to invest and indebtedness in common legacy of poor farmers. The usurious capital and rural indebtedness in India a result of the social system or the relations of production prevailing in the agriculture.

Since the decades the Indian peasant has been living the bonded and slave. It is this wretched the existence that is responsible for farmers bankruptcy and consequently for his continued indebtedness. Agriculture credit is a curtail input helping the rural poor in raising their incomes. As most farmers are small, they tend to borrow substantial finance from different sources to improve agricultural output.

The problem of indebtedness worsens when the loans are not put to productive uses. Providing adequate credit to the rural poor has become a problem because of the complex nature of the rural society.

Objectives:

- To Study the extent of rural indebtedness.
- To analyse the rural indebtedness in India and Telangana
- To find the causes of rural indebtedness.
- To examine the status of indebtedness in Telangana state.

Methodology:

This paper is based on secondary data pertaining to rural indebtedness in India and particularly Telangana. The data collected from different sources that comprise books on the Indian economy, Indian agriculture, yearbooks, journals of national and international, the socio-economic survey of Telangana State and daily newspapers etc., Information gathered was tabulated for the study.

Review of literature

Nicholson, F. A. (1887), "the lessons of universal agrarian history from Rome to Scotland is that an essential of agriculture is credit, neither the condition of the country nor the nature of land tenures nor the position of agriculture affects one great fact that farmers must borrow".

United Nations publication (1954), has stressed the need for credit to the farmers when it observed "most of the world farmers have to borrow at some time, many of them nearly. To raise agricultural production, they will have borrowed still more. And is always needed where there is a redistribution of rights on land. It is the interest of agriculture and essential to agriculture and general progress, that credit be available to farmers in adequate amounts and at appropriate costs".

Thomas, E. (1949), in his study found that farmers also borrow from their relatives, friends, landlords or village shopkeepers to overcome temporary difficulties. Private loans are often convenient and also often undoubtedly adequate, but they suffer from at least three disadvantages that are the conveying cost bear high, usually repayable in regular and easy installments and always liable to be foreclosed at short notice and thereby cause considerable inconvenience if not an embarrassment to the borrower.

ArunenduMukhopadyay (1971), states that the essentials of considering the types and adequacy of the security offered and the current indebtedness of loanee

cannot be denied, but at the same time, it must be recognized that adherence to the security as pact alone would fail to infuse dynamism necessary for the development of the agriculture sector.

I J Naidu (1997) pointed out that the supporting services structure also needs to be changed in such a manner as to enable the small farmer to get all inputs, marketing facility, and extension services at places within easy reach.

Kaur and Singh (2006), examined the extent and nature of indebtedness among the small and marginal farmers in Bathinda district of Punjab state. The study concluded that 95 percent of the small and marginal farming households are under debt. The study also revealed that 44.74 percent of the total debt was spent on agriculture and purchase of machinery by an average small and marginal farming household, followed by the purchase of animals 22.57 percent. In the case of the source of credit, institutional agencies are providing 60.98 percent of the total debt and 62.32 percent and 58.24 percent for the small and marginal farmers respectively. The institutional agencies have the upper hand in providing loans to the small and marginal farming households.

Jeromi (2007), tried to examine the extent of the farm crisis, the rise in indebtedness and various magnitudes of suicides of farmers in Kerala state. The study revealed that when the landholding size was less than one acre, cultivation was marginally profitable and loss in the case of landholding above one acre, because of the hiring of labour. Agricultural crisis was the reason in the case of 38.90 percent farmers who committed suicide. Most farmers nearly 60 percent who committed suicide had less than one-acre land. The study also revealed that the incidence of indebtedness in the rural areas of Kerala state was higher than the national average.

Singh and Gupta (2013), states that short-term credit requirements of a farmer can be estimated by taking into consideration the area under cultivation and capital inputs in a given farm. As we have seen that indebtedness is a big problem today and the problem has accentuated due to non-payment of loans by the rural households. Owing to extreme poverty and low-income households are unable to repay loans in time and therefore increasing becoming wilful defaulters.

Rural Indebtedness in India:

Poverty is perhaps a major cause for rural indebtedness. The low level of rural incomes, the uncertain and primitive farming of small landholdings makes it impossible to meet the needs required for their living. Often, rural people take debts to meet these needs. One of the major problems concerning the rural society is indebtedness. This problem is just not related to one individual but is passed on from one generation to the next generation. Taking or incurring debt for agricultural production is indeed necessary as it contributes to production.

However, the rural people incur debts for nonproductive purposes such as to meet the family needs, perform social functions like marriages, birth, death, litigation, etc. Since money taken does not contribute to production but instead to consumption, it drags the rural people into indebtedness. Therefore, it becomes impossible to repay these loans. To clear these loans, the rural people incur debts again. In this way, they are stuck in the clutches of indebtedness, which passes on from one generation to another. For many small farmers, the agricultural production is so less that they are not able to provide for such unproductive expenditure.

Table:1
Extent of Rural Indebtedness in India

Estimators	Year	Credit (in Crores)
Mr. Maclagan	1911	300
M.L. Darling	1925	600
Central Banking Enquiry Committee	1931	990
P.J. Thomas	1933	2,200
R. K. Mukherjee	1935	1,200
Reserve Bank of India	1937	1,100
N.S. Naidu	1938	1,800
Shri Menon	1938	1,800
All India Rural Credit Survey Committee	1951-52	750
National Income Committee	1954	913
S. Thirumalai	1956	1800
Ministry of Finance	1962	2,762
All India Rural Credit and Investment Survey	1972	4,000
Rural Credit Survey Report	1981	6,193

Source: different estimations collected.

Table-1: It reveals that the extent of rural indebtedness as per various estimates has been increasing considerably from Rs 600 crore in 1925 (as per M.L. Darling's estimates) to Rs 1800 crore in 1938 (as per RBI estimate) and to Rs 2,762 crore in 1962 (as per Ministry of Finance's estimates) and then finally to Rs 6,193 crore in 1981 (as per Rural Credit Survey Report).

As per the Rural Credit Survey Report in the last two decades, i.e., between 1961 and 1981, the extent of outstanding rural debt has increased from Rs 1,954 crore to Rs 6,193 crore. Further, the rural indebtedness grew by 97 percent between 1961-71 and by 60 percent between 1971-81. The average debt for an indebted cultivator

family had also increased from Rs 503 in 1971 to Rs 661 in 1981 indicating a rise of 31 percent.

As per National Sample Survey report during January-December 2013, Household Indebtedness in India, average of debt per indebted household was Rs. 1,03,457 and Rs. 3,78,238 in rural and urban areas. The incidence of indebtedness was higher in rural areas with 31.4 percent households taking loans in some or other forms while in cities the proportion of such families was 22.4 percent, says a report.

The Incidence of Indebtedness (IOI) was about 31.4 percent among the rural households and 22.4 percent among the urban households. According to the report, Household Indebtedness in India, the average amount of debt (AOD) per indebted household was Rs 1,03,457 and Rs 3,78,238 in rural and urban areas, respectively.

Table:2
Incidence of Indebtedness in percent

Category	1971	1981	1991	2002	2012
Cultivators	46.1	22.3	25.9	29.7	45.9
Non-Cultivators	34.3	12.4	18.5	21.8	28.9
All India	42.8	20.0	23.4	26.5	31.4

Source: www. Indiatat.com Table -2 explores that indebtedness in cultivators is more than non-cultivators.

Table -2 explores that indebtedness in cultivators is more than non-cultivators. Overall indebtedness in India is increasing. It shows that the incidence of indebtedness is more in rural areas.

The table-3 shows that indebted farmer households increased in Uttarakhand by 36.6 per cent, Karnataka by 15.7 per cent, Kerala 13.3 per cent, Andhra Pradesh by 10.9 per cent and in Uttar Pradesh by 10.5 per cent and a large share is decrease in Tripura by 26.3 per cent, Sikkim by 24.5 per cent, Mizoram by 17.4 per cent, Punjab 12.2 per cent and in Haryana 10.8 per cent in 70th than 59th Round.

The table-4 indicates that the maximum increase in the outstanding loan is in Banks i.e., 7.3 percent and minimum in Co-operatives i.e., -4.8 percent followed by shopkeeper/traders i.e., -2.3 percent in 70th than 59th Round.

Table-3
Estimated number of indebted farmer households in each state

State	NSSO 59 th Round	% age	NSSO 70 th Round	% age	Increase/Decrease (percentage)
Andhra Pradesh	49493	82	33421	92.9	(+10.9)
Arunachal Pradesh	72	5.9	206	19.1	(+3.2)
Assam	4536	18.1	5995	17.5	(-0.6)
Bihar	23383	33	30156	42.5	(+9.5)
Chhattisgarh	11092	40.2	9538	37.2	(-3.0)
Gujarat	19644	51.9	16743	42.6	(-9.3)
Haryana	10330	53.1	6645	42.3	(-10.8)
Himachal Pradesh	3030	33.4	2457	27.9	(-5.5)
Jammu & Kashmir	3003	31.8	3463	30.7	(-1.1)
Jharkhand	5893	20.9	6464	28.9	(+8.9)
Karnataka	24897	61.6	32775	77.3	(+15.7)
Kerala	14126	64.4	10908	77.7	(+13.3)
Madhya Pradesh	32110	50.8	27414	45.7	(-5.1)
Maharashtra	36098	54.8	40672	57.3	(+2.5)
Manipur	533	24.8	421	23.9	(-0.9)
Meghalaya	103	4.1	84	2.4	(-1.7)
Mizoram	184	23.6	47	96.2	(-17.4)
Nagaland	294	36.5	65	2.5	(-34.0)
Odisha	20250	47.8	25830	57.5	(+9.7)
Punjab	12069	65.4	7499	53.2	(-12.2)
Rajasthan	27828	52.4	40055	61.8	(+9.4)
Sikkim	174	38.8	97	14.30	(-24.5)
Tamil Nadu	28954	74.5	26780	82.5	(+8.0)
Tripura	1148	49.2	559	22.9	(-26.3)
Uttar Pradesh	69199	40.3	79081	43.8	(+10.5)
Telangana	--	--	22628	89.1	(+89.1)
Uttarakhand	644	7.2	5387	50.8	(+36.6)
West Bengal	34696	50.1	32787	51.5	(+1.0)
Group of UT's	372	50.8	267	37.2	(-13.6)
All India	434242	48.6	468481	51.9	(+3.3)

Source: NSSO 59th and 70th Round

Table 4:
Per 1000 distribution of outstanding loans by source of loan

Source of Loan	59th Round	% age	70th Round	%age	Increase/Decrease (percentage)
Government	25	2.5	21	2.1	(+0.4)
Co-operative Society	196	19.6	148	14.8	(-4.8)
Bank	356	35.6	429	42.9	(+7.3)
Employer/Landlord	9	9	8	8	(-1)
Agricultural/Professional Moneylender	257	25.7	258	25.8	(+1)
Shopkeeper/Trader	52	5.2	29	2.9	(-2.3)
Relatives & friends	85	8.5	91	9.1	(+0.6)
Other	21	2.1	16	1.6	(-0.5)
All	1000	100	1000	100	

Source: NSSO 59th and 70th Round.

Rural Indebtedness in Telangana:

In Telangana, the contribution of the primary sector including agriculture, horticulture and animal husbandry to the Gross State Domestic Product (GSDP) for 2016-17 is only 15.3 percent. Despite, this as much as 55 percent of the working population is still dependent on agriculture which is mostly dependent on rainfall in Telangana. A perusal of the long-term agricultural scenario in Telangana calls for attention to the decline in state support for capital formation, fragmentation of land holdings and high incidence of rural indebtedness. Capital formation is crucial in agriculture as increasing production and productivity is paramount to keep pace with the needs of a growing population. It also has implications for a majority of small and marginal farmers engaged in agriculture against all the odds, especially vagaries of monsoon (THE HANS INDIA).

The long-term agricultural scenario in Telangana calls for attention going by the decline in State support for capital formation, fragmentation of land holdings and high incidence of rural indebtedness. According to the National Bank for Agriculture and Rural Development (NABARD) data, there is a decline in the capital formation for agriculture through public investment. During 2011-12 to 2014-15, the long-term credit, which is used for investment in agriculture and is seen as an indicator for its health, declined from ₹ 11,112 crore to ₹ 8,856 crore. "It is a concern that the share of long-term credit in overall agriculture credit is constantly on the fall (G. Naga Sridhar).

The 70th Round of the National Sample Survey (NSS) on "All India Debt and Investment Survey" report confirms that Telangana is among States with a high incidence of rural indebtedness with 89 percent of agricultural households under debt. More than half the agriculture households in Telangana are in debt, and the worst affected states are southern states like Andhra Pradesh, Telangana, and Tamil Nadu, says the 70th round of NSSO survey. The survey says about 52 percent of agricultural households in the country are estimated to be in debt. Among the major states, Andhra Pradesh had the highest share of indebted agricultural households in the country (92.9 percent), followed by Telangana (89.1 percent) and Tamil Nadu (82.5 percent). The report states nearly 40 percent of households take a loan from non-institutional sources like money lenders.

The survey also showed that a tiny segment of agricultural households utilized crop insurance because of lack of awareness. The report reveals that the average value of the asset for cultivator and non-cultivator in Telangana is Rs 13.9 lakh and Rs. 3.8 lakh respectively while at the all-India level it is Rs 28.7 lakh and Rs 6.7 lakh respectively. The average asset value for rural households of Telangana is Rs 6.38 lakh, and that of urban Telangana is Rs 18.45 lakh, which is 2.9 times higher indicating high inequality between the rural and urban population in the State. The survey also points out that the Incidence of Indebtedness (IOI) among the rural households in Telangana is twice the IOI of rural All-India. Around 59% of rural households are indebted in Telangana State as against 31% at all-India level. Moreover, indebtedness is higher among the cultivators as compared to other occupational categories; about 74% of cultivators in Telangana are indebted. While the debt-asset ratio among the rural and urban areas of Telangana is around 6.1 % and 10.3 % respectively, in case of India, it is as low as 2.5% and 3.8 % respectively (Gudipati Rajendera Kumar).

Agricultural indebtedness has always been a major social and economic issue in India, despite the growth of institutional credit to agricultural, indebtedness among farmers persists. This is mainly due to the transcendence of the deficit nature of rural family budgets especially the small holding agriculturists and all other farmers having poor means of income. The unpredictable weather, the burden of old debt, a long time gap between expenditure and income from farming activities, the small size of land holdings, unproductive spending on social-ceremonies, a high rate of illiteracy are some of the important factors responsible for the agricultural indebtedness in India. If the debt is used only to meet the deficit in family budgets and is not utilized for productive purpose, it will entail a dangerous outcome. The amount of indebtedness will go on increasing beyond one's repaying capacity, which will be detrimental to the interest of both, the lender and the borrower. As a

result, suicide cases are increasing day by day. So; Indian agriculture is backward, and this stultifies all talks of agricultural improvements (Reetu).

The debt per household in Telangana ranges between Rs 80,000- Rs1,20,000, with an average outstanding debt of Rs 91,407. While debt by itself is a problem of economic insecurity for these farmers, the source of debt will decide the intensity. For instance, debts pending with private lenders and loan sharks carry far more threats compared to ones taken from banks or micro-finance institutions.

The government-owned NABARD claims that 79 percent of Telangana farmers are struggling to repay their loans on time, based on a survey conducted in 958 households of the State, spread across 48 villages in six districts. No wonder then that the State ranks high on farmer suicides. In Telangana, according to the survey, 40 percent of the loans taken by farmers are from non-institutional sources -- that is, loan sharks and private lenders, or at times from friends and family. Also, the loans are not incurred on farm input like manure or fertilizers but mostly on personal needs like health expenses and domestic needs (Indian Express).

Nearly 52% of agricultural households in India are indebted, and levels of debt are as high as 93% in Andhra Pradesh and 89% in Telangana, shows key indicators from an NSSO (National Sample Survey Organisation) report released. The report, Situation Assessment Survey of Agricultural Households in India, is based on a countrywide survey of nearly 35,000 households by NSSO (70th round) for which data was collected on the agricultural years spanning July 2012 to June 2013. The survey shows that rural India had an estimated 90.2 million agricultural households— about 57.8% of the total estimated rural households in the country (The HINDU)

Causes for Indebtedness:

- Poverty is perhaps, is a major cause for rural indebtedness. The low level of rural incomes, the uncertain and primitive farming of small landholdings makes it impossible to meet the needs required for their living.
- The rural people continue to repay the debts of their forefathers, as they are not fully conversant with the law as they are illiterate. As the traditions and values bind these people, they regard it as their sacred social duty to repay the debts of their forefathers.
- Villagers are mostly bound by social traditions and customs, which are considered to be sacred and had to be performed. Some of these ceremonies are marriage, births, deaths, religious occasions, etc. The expenditure is usually very high for the performance of these ceremonies.

- The agriculturists in India are involved in various kinds of disputes related to land, property, etc., which force them to go to a court of law. Often, they view it important to win the case as it is related to the family prestige and honour. Such litigations involve heavy expenditure and time. In order to meet these needs, the agriculturists take loans that they are not able to repay, and are caught in indebtedness.
- The agriculturists in India are involved in various kinds of disputes related to land, property, etc., which force them to go to a court of law. Often, they view it important to win the case as it is related to the family prestige and honour. Such litigations involve massive expenditure and time. In order to meet these needs, the agriculturists take loans that they are not able to repay and are caught up in indebtedness.
- Indian agriculture is an uncertain business. It virtually depends on unreliable rains for the supply of water. If there are no rains or untimely rains, the entire crop, is lost and the credit invested in the agriculture goes waste.
- Land revenue, where the government levies it in some states and the rent payable to the landowners is becoming an excessive burden on small farmers. In order to pay these land revenue, mid-rent, the farmers take loan.
- The amount of debt increases, the moneylenders are much interested in seizing the farmer's lands, and other valuable assets than the debt being repaid by the farmers. Thus, the farmers are trapped in the hands of the moneylenders.

Measures for the Removal of Indebtedness:

1. Cancelling all the debts paid to the moneylenders by the farmers, which are more than the principal amount.
2. Debts should be properly scaled down. According to law, the inheritors are liable to pay the debts only to the extent they have inherited. Debts that are so excessive and standing are since a long time, should be settled between the concerned parties or through the Lok Adalaths.
3. The debts should be taken over by special institutions such as banks. Such banks pay the amount to the moneylenders on the one hand and recover the same from the debtors on easy terms on the other. These banks also collect funds and provide credit facilities to their members.

Conclusions:

The problem of indebtedness can be solved by two means. The first is to take up measure to reduce the burden of present indebtedness and the second is to prevent the evil from rising again in the future. For this, adequate credit facilities on reasonable

terms should be offered to the farmers. Co-operative credit is a good solution in this regard. Private lending should be eliminated. To solve the land litigations, instead of going to the Courts the problem should be solved with village Panchayats or Lok Adalaths. The government has to take prevention without any preventive measures for the future would not help the situation; moreover, there is every possibility of this evil to rise again and again. Thus, both these measures should go hand in hand so that the problem of rural indebtedness vanishes completely.

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FARMERS SUICIDES CAUSES CONSEQUENCES AND PREVENTIVE MEASURES

Editor
Dr. A. PUNNAIAH

39. CAUSES AND SOLUTIONS FOR THE SUICIDES OF THE FARMERS IN TELANGANA STATE

V. SAIDULU
Research Scholar
Dept. of Economics
Osmania University.

The farmer is the all rounder of the society. He shall have to be potential in the fields of social, economic and political fields of the society. The weakness of the person in these fields leads to the horrible and unbearable stamina of the farmer and such feeble situation is harmful as the disability of the society. As such it is an unlimited and unbounded responsibility of the government to see such situation does not face the farmer to retain the sound stability of the society.

In the field of agriculture a total neglect has taken place during the joint combination of Andhra and Telangana till 2014. The facility of water supply to the task of agricultural development has been inadequate to serve the need of the agricultural enterprise. As such much effort has been bestowed on the need of the agricultural development by way of the formation of bore wells and digging of the wells in the fields for serving the need of water supply. To fulfill the need such attempts are enormously sought and taken care of. But, another drastic draw back is that the power supply for providing the provision of water supply to the agricultural lands is a highly problem. The first and the foremost draw back is that the transformer for the power supply are not well guarded and run failing which its results in drastic failure of power supply. The pieces of the land for agriculture have moved themselves to be highly unworthy, leading to fatal failure of the crops and agricultural returns. The result of such horrible failure of the basic source of life, namely agriculture is that the occurrence of the suicides of the farmers and proving a horrible victim to ill health, ultimately resulting to deaths.

At this juncture it is crystal clear that a disastrous tendency is very much prevalent in the country to a major extent to the diligent class of agricultural way of life. In view of the need at present, every effort shall have to be implemented to improve the backward and downtrodden financial state of the farmers to make our country as prosperous as it was in the past befitting the little of rich agricultural India.

Causes of Farmers Suicides

- Lack of credit facilities
- Lack of purity fertilizers and pesticides
- Stress of mediators in the field of marketing
- Lack of market facilities
- Low MSP (Minimum Support Prize)
- Scarcity of Quality seeds
- Lack of water management
- Lack of awareness among farmers in new techniques of agriculture
- Lack of soil testing facilities
- Lack of Godown or Cold Storage facilities
- Increase of agricultural investment

- Lack of Crop Insurance
- Lack of transport facilities
- Following the traditional farming methods
- Mono crops system
- Lack of power facility

Solutions of Farmers suicides

- To provide agricultural research institutes in every mandal.
- To provide the institutional credit facilities with low interest rate
- Qualitative seeds should be provided to the farmers by the government
- To establish the agricultural market in public sector in every mandal
- To regulate the brokers or mediators
- Considerable minimum support price should be generated
- Strengthen the water management plan
- To enhance the crop insurance scheme
- To change the Government Agricultural policies
- To enhance the godown facilities
- To provide the agri – schools in every division.
- To provide the power facilities
- Strengthen the weather condition board
- To encourage the multicrop system
- Encourage agriculture and alied sector like Horticulture, Poultry, Fish Culture
- To enhance the soil testing laboratories

The Government of India has setup the National Commission on farmers in February 2004 under the Chairmanship of well known agricultural scientist Dr. M.S. Swaminatham. The commission started its work with a declaration "Serving Farmers and Saving Farming". The National Commission for farmers is formed with the objective to prepare the road map for sustainable development of agriculture and optimizing its contribution to growth and development of economy. Particularly improving the income and standard of living of farmers. This paper deals with causes and solutions for the suicides of the farmers and socio economic conditions.

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40. EVALUATION OF MINOR IRRIGATION IN TELANGANA STATE

VAGGU SAIDULU

Research Scholar

Department of Economics

Osmania University, Hyderabad

INTRODUCTION

Irrigation is most essential for agriculture which enhances productivity. Wherever Irrigation facilities are provide that place will have all round development. Irrigation is majorly classified in to three classes they are firstly Minor Irrigation (M.I) Scheme a scheme having Cultivable Command Area (CCA) up to 2,000 hectares individually is classified as minor irrigation scheme. Second one is Medium Irrigation Scheme a scheme having Cultivable Command Area (CCA) more than 2,000 hectares and up to 10,000 hectares individually is a medium irrigation scheme. Third one is Major Irrigation Scheme a scheme having Cultivable Command Area (CCA) more than 10,000 hectares is major irrigation scheme (4th Minor Irrigation Census). One cannot imagine agriculture without irrigation. Two important rivers of Telangana, the Godavari and Krishna are flowing throughout the state and providing irrigation to the major irrigation source which is depending on minor irrigation sources like tanks, canals, surface Lift sources, Dug Wells, Shallow Tube Wells, Deep Tube Wells and Surface Flow Irrigation Sources. Irrigation is now being with various techniques such as surface irrigation, localized irrigation, drip irrigation, sprinkler irrigation, sub-irrigation, depending upon the availability of source, accessibility etc., in order to increase the productivity of the crop grown. In Telangana there are 6.30 lakh dug wells, 6.53 lakh tube wells, 0.50 lakh surface flow and Lift sources totaling to 13.33 lakh sources which are creating the needs of agriculture. The main objective of the study is empirical analysis of minor irrigation in Telangana.

Review of literature

1. Ranjit Gupta (1961) studied on Major and Minor Irrigation Works a Preliminary Comparison of Costs and Returns. The study reveals that, projects like Bhakra Nangal offers much greater scope for the utilization of idle man-power. Bhakra-Nangal invested more than 66 per cent on well and 14 per cent on the unskilled labourers. Significantly, the period during which such employment opportunities are created coincided exactly with the Second Agricultural Labour Enquiry Committee, which found agricultural labour to be unemployed.

2. Planning Commission Govt. of India New Delhi (2004) gave a report on the impact of Minor Irrigation Projects on Economic Development in Selected Six Tribal Majority Districts of Jharkhand, Orissa and West Bengal. A proposal for the conduct of survey was submitted to BC & TD Division of the planning commission, covering 6 tribal district of Jharkhand on sample study basis. The proposal was examined by the Planning Commission (P.C.) and it was considered prudent that instead of studying 6 districts of one state of Jharkhand, the same number of districts

should be taken from the adjoining states of Orissa and West Bengal in such a way that each state gets represented by 2 districts each for assessing the impact of minor irrigation projects. However the Planning Commission opined that the focus could remain on tribal population for the study.

Need of the study

Privities governments Irrigation policies and leaderships resulted in inadequate development of Telangana region. They emphasized only on major irrigation whereas the alluvial plains are irrigated by the minor irrigation schemes which remained. These irrigation policies resulted in the damage of age-old water management systems which connect minor irrigation schemes networks. The successive Governments ignored the maintenance and development of minor irrigation schemes and made them to face siltation, breaches, encroachments etc. By the extinction of minor irrigation systems, the self-sufficient villages of Telangana become drought prone areas.

Significance of the study

Installation of minor irrigation schemes in Telangana state is being taken up by various departments and organizations under different developmental sectors. Generally dug wells, shallow tube wells and pump-sets are installed by individual farmers. Ministry of Agriculture, Government of India is operating a centrally sponsored scheme of assist to small and marginal farmers for increasing agriculture production under which 70 percent of the outlay has been earmarked for minor irrigation schemes which covers tanks, canals, surface Lift sources, Dug Wells, Shallow Tube Wells, Deep Tube Wells, Surface Flow Irrigation Sources and water harvesting also under covered minor irrigation.

Objective of the study

1. To find out the Minor Irrigation sources in Telanana state
2. Empirical Analysis of Minor Irrigation in Telangana state

Hypothesis

Irrigation influence and all round development in Telangana state

Methodology

The present study is based on secondary data and various reports like Directorate of Economics and statistics Government of Telangana, Socio-economic outlook 2017, Cropping pattern of Telangana 2017.

1: Table
Minor Irrigation Sources as per 4th Minor Irrigation Census, 2006-07 in Telangana
(In Numbers)

SL. No	District	Dug Wells	Shallow Tube Wells	Deep Tube wells	Surface Flow Irrigation Schemes	Surface Lift Irrigation Schemes	Total
							48,106
1	Adilabad	28,746	16,172	843	1,903	442	1,42,532
2	Nizamabad	7,220	1,31,361	2	2,061	1,888	2,40,471
3	Karimnager	2,09,882	18,038	7,028	5,520	3	

4	Medak	26,647	97,819	24,124	5,551	1,268	1,55,409
5	Hyderabad	-	-	-	-	-	-
6	Rangareddy	27,045	49,445	2,212	1,854	202	80,758
7	Mahabubnagar	68,393	97,474	13,859	6,252	1,238	1,87,216
8	Nalgonda	61,994	1,22,377	1,624	4,591	3,422	1,94,008
9	Warangal	1,57,837	46,173	3,751	4,941	400	2,13,102
10	Khammam	42,533	16,636	3,695	3,393	5,012	71,269
	Total	6,30,297	5,95,495	57,138	36,066	13,857	13,32,871

Source: Directorate of Economics and Statistics, Hyderabad

Table 1 shows different types of minor irrigation schemes in the districts of Telangana state. It is found that Dug wells are highest in Karimnager (2,09,882) and lowest in Nizamabad (7,220). Shallow tube wells are highest in Nizamabad (1,31,361) and lowest in Adilabad (16,172). Deep tube wells are highest in Medak (24,124) and lowest in Nizamabad (2). Surface flow irrigation schemes are highest in Mahboobnager (6,252) and lowest in Rangareddy (1,854). Surface lift irrigation schemes are highest in Khammam (5,012) and lowest in Karimnager (3). Telangana state has a total of 13, 32,871 minor irrigation projects.

Table: 2

Minor Irrigation Sources According to Periodic MI Census (in Nos)

Sl.No.	Source	1986-87(1)	1993-94(2)	2000-01(3)	2006-07(4)
1	Dug Wells	5,89,746	5,55,747	7,35,273	6,30,297
2	Shallow Tube Wells	19,792	1,21,634	4,23,618	5,95,495
3	Deep Tube Wells	1,563	1,781	4,469	57,138
4	Surface Flow Irrigation Sources	42,724	35,093	38,151	36,066
5	Surface Lift Irrigation Sources	9,684	6,737	15,199	13,875
	Total	6,63,509	7,20,992	12,16,710	13,32,871

Source: DES, Hyderabad, Note: 1, 2, 3 and 4 Minor Irrigation Census

Table 2 reveals that Minor Irrigation sources from first MI census to Fourth MI census. Dug well sources are decreased from 5,89,746 to 5,55,747 from 1986-87 to 1993-94, then after increased to 5,55,747 in 2000-01, after decreased to 6,30,297 in 2006-07. Shallow Tube wells sources are great increased from 19,792 to 5,95,495 in 1986-87 to 2006-07. Deep Tube wells sources are significant increased from 1,563 to 57,138 in 1986-87 to 2006-07. Surface flow Irrigation sources are slightly decreased from 42,724 to 36,066 in 1986-87 to 2006-07. Surface Lift Irrigation sources are slightly increased from 9,684 to 15,199 in 1986-87 to 2000-01 after decreased to 13,875 in 2000-01 to 2006-07. The study analyzed that all the Minor Irrigation sources are significantly increased from 6,63,509 to 13,32,871 in 1986-87 to 2006-07.

Mission Kakatiya

Government of Telangana is giving more importance to minor Irrigation projects or schemes. 46531 tanks have in entire in Telangana. Tanks have been the life provider of Telangana owing to the state's geographical positioning. People of the state are highly dependent on the

tanks which are spread across all the 10 districts. The topography and rainfall pattern in Telangana made tanks as an ideal type of irrigation by storing and regulating water flow for agricultural use. Construction of tanks in Telangana has been an age old activity since pre Satavahana period. During the Kakatiya era, construction of tanks was carried out with utmost technical expertise. Tanks such as Ramappa, Pakhala, Laknavaram, Ghanapuram, and Bayyaram which were built by Kakatiyas resemble seas and they greatly helped agriculture which resulted in overall development and prosperity of the Kakatiya kingdom. This vision and legacy of Kakatiyas were carried forward by Qutubshahis and Asafjahis who ruled this region for centuries. Hundreds of big and small tanks were built in Telangana region during their rule. Government desires to uphold the vision of Kakatiyas which envisages revival and restoration of Minor Irrigation Sources in Telangana State. Tank irrigation has huge bearing on generation of rural employment, poverty reduction and agricultural growth. The sheer size of command area under tank irrigation makes it a large center of agricultural production and provides a critical opportunity for commercial agriculture through market linkages.

Table: 3
Percentage of Net Area Irrigated by Source of irrigation from 2008-09 to 2015-16

Year	Net Irrigated area	Canals	Tanks	Wells
2008-09	18.28	11.55	13.03	72.09
2009-10	14.93	9.18	3.82	84.33
2010-11	20.04	15.76	11.87	69.63
2011-12	19.85	16.37	9.22	71.69
2012-13	17.74	5.07	8.91	83.77
2013-14	22.89	12.67	10.05	74.83
2014-15	17.26	10.62	5.62	81.87
2015-16	13.13	3.34	8.38	86.37

Source: DES, Hyderabad,

Table 3 reveals that percentage of Net Area Irrigated by source of irrigation from 2008-09 to 2015-16. Net Irrigated area in Telangana state decreased from 18.28 to 17.74 per cent in 2008-09 to 2012-13, then after decreased to 13.13 per cent in 2015-16, Irrigated area depends up on rainfall. Rainfall also depends on monsoons. Canal Irrigation also decreased from 11.55 to 3.34 per cent in 2008-09 to 2015-16 (accept 2010-11, 2011-12). Tank Irrigation also decreased from 13.03 to 8.38 per cent. But Well Irrigation increased from 72.09 to 86.37 per cent in 2008-09 to 2015-16.

Table: 4
Rainfall from 2004-05 to 2015-16 in Telangana

Year	Rainfall	Deviation
2004-05	614	
2005-06	1118	+504
2006-07	804	-314
2007-08	940	+136
2008-09	821	-119
2009-10	682	-139
2010-11	1101	+419

IMPACT OF EMPOWERMENT PROGRAMMES ON RURAL DEVELOPMENT IN INDIA

2011-12	661	-440
2012-13	917	+256
2013-14	1212	+295
2014-15	682	-530
2015-16	639	-43

Source: Directorate of Economics and Statistics, Hyderabad

Table 4 gives information about Rainfall from 2004-05 to 2015-16. Rainfall in 2004-05 was 614 mm. It was increased to 1118 mm in 2005-06 then decreased to 821 in 2008-09. 1101 mm of rainfall is found in 2010-11 which is decreased in following years and increased to 1212 mm in 2013-14. Rainfall is recorded as 639 mm in 2015-15 .

Conclusion

The above presented research paper proves that after the formation of Telangana state, number minor irrigation sources are increased and Net irrigation area was also significance increased. Through Mission Kakatiya, Government of Telangana is developing tank irrigation. Hence farmers in Telangana are really got benefited.

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“Role of Women Self Help Groups on Poverty Alleviation and Empowerment of Women in the Globalised Era”



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Department of Economics
M.A.L.D.Govt. Arts & Science College,
Gadwal-509125, Jogulamba Gadwal District, Telangana State.

Women Empowerment Through Krishi Vigyan Kendras

Vaggu Saidulu

Research Scholar Department of Economics
Osmania University, Hyderabad

INTRODUCTION

The Education Commission (1964-66) recommended that a vigorous effort should be made to establish specialized institutions to provide vocational education in agriculture and allied fields at the pre-and post-matriculate levels to cater to the training needs of a large number of boys and girls coming from rural areas. The Commission, further, suggested that such institutions be named as 'Agricultural Polytechnics'. The recommendation of the Commission was thoroughly discussed during 1966-72 by the Ministry of Education, Ministry of Agriculture, Planning Commission, Indian Council of Agricultural Research (ICAR) and other allied institutions. Finally, the ICAR mooted the idea of establishing KrishiVigyanKendras (Agricultural Science Centres) as innovative institutions for imparting vocational training to the practicing farmers, school dropouts and field level extension functionaries. The ICAR Standing Committee on Agricultural Education, in its meeting held in August 1973, observed that since the establishment of KrishiVigyanKendras (KVKs) was of national importance which would help in accelerating the agricultural production as well as in improving the socio-economic conditions of the farming community, the assistance of all related institutions should be taken in implementing this scheme. The ICAR, therefore, constituted a committee in 1973 headed by Dr Mohan Singh Mehta of SevaMandir, Udaipur (Rajasthan), for working out a detailed plan for implementing this scheme. The Committee submitted its report in 1974. The first KVK, on a pilot basis, was established in 1974 at Puducherry (Pondicherry) under the administrative control of the Tamil Nadu Agricultural University, Coimbatore. At present there are 16 KVKs in Telangana State and 680 KVKs in India, the KVK schemes is 100 per cent financed by Government of India. KVK is integral part of the National Agricultural Research System(NARS) aims at assessment of location specific modules in agriculture and allied rural enterprises, through technology assessment, modification and demonstrations.

SIGNIFICANCE OF THE STUDY

Women play a significant role in Agricultural and other land-based activities as many of the operations are attended by them. The KrishiVigyanKendras has accordingly placed ample emphasis on uplifting the livelihood environment of rural women and empowering them with knowledge and skill of suitable technologies for development of farm and home

conditions. To promote holistic development of small and marginal farmers with modern technologies for increasing productivity and income level, the activities presenting to farm women had the objectives to 1. Increase technological Knowledge and managerial Skills, 2. Enhance the socio-economic status of marginal farm women and agricultural labourers, 3. Facilitate value addition to adopt post-harvest technologies, 4. Provide training in entrepreneurship development and 5. Help the women to improve their income and quality of life. With these objectives, the KVK has implemented many activates for women that covered both agriculture and Non-agricultural sectors.

OBJECTIVES OF THE STUDY

- 1) To analysis the women empowerment through KVKs in Telangana.
- 2) To examined the Literacy rate difference between male and female in India.
- 3) To analysis the Sex ratio and Child Sex ratio in India.

METHODOLOGY

In order to study above objectives, the study utilized secondary data. The secondary data was elicited from the KVK of the Suryapet District of Telangana state. Further the study employed random sampling method. Three mandais of the study area of Suryapet District have been selected area. The secondary data was obtained from Indian Council of Agriculture Research (ICAR) portal, KVK portal, Yojana monthly magazine, Kurukshetra a journal of Rural Development, various journals and Census reports.

ANALYSIS

To assess the training needs, the KVK used tools of Participatory Rural Appraisal (PRA) in the adopted villages and the training programmes were planned accordingly. In this space mahilamandals, self-help groups and village leaders took active role in motivation of women and school drop outs. The KVK has developed good linkage with state line departments like District Rural Development Agency(DRDA), Training Rural Youth for Self Employment(TRYSEM), Trainers Training Center(TTC), Collage of Home Science and Non-Government organizations(NGOs) like Sri RamanandaThirtha Rural Institute(SRTRI) and Institute of Public Enterprises(IPE). Through formation of self-help groups, 1093

nutrition gardens were established in 7 adopted villages for family nutritional security as well as to earn additional income and for some families to reduce budget on vegetables. Through Lab to Land and TRYSEM programmes the KVK trained 890 women and youths in garment making in 22 villages during 1985 to 1997, and supplied sewing machines to needy trainees through these programmes. During 2003 to 2008, in collaboration with SRTRI, the KVK conducted zardosi programme and trained 586 women in adopted villages, the KVK trained 402 women on mushroom cultivation in the adopted villages for family food security and additional income. The KVK also arranged exposure visits on mushroom cultivation to Tamil Nadu and Kerala. During 2006, self-help groups (SHG) women from 2 adopted villages were trained on sorghum de-hulling and sorghum products preparation, embroidery, backyard nursery, vermicompost Preparation, fruit preservation, pickle making, dyeing and painting which helped them to establish homestead units in their villages.

Table: 1

Vocational training Programmes Conducted for Rural women/ Youth from 1985-86 to 2008-09

Activity	No. of Participants	No of Training Programmes Conducted
Income generating		
Dress making	890	30
Dyeing, Printing and painting	147	6
Natural dyes	10	1
Nutrition garden	1093	45
Backyard nursery for fruit plants	45	3
Mushroom cultivation	402	20
Soap making	12	2
Embroidery		
Jute & crochet bag preparation	52	4
Hand embroidery	60	5
Zardosi	421	25
Value addition		
Milk and millet products	94	8
Fruit preservation, jam, sauce	251	20
Pickle preparation-mushroom and vegetable pickles	58	5
Vermicompost production	691	23
Energy saving		
Smokeless chullah	20	3
Total	4246	200

Source: KVK Gaddipally

Table 1 reveals that the Vocational training Programmes Conducted for Rural women/ Youth During 1985-86 to 2008-09. The KVK trained Master Trainers in garment making, smokelesschullah and zardosi to spread the technology laterally to interior villages at their door steps. Thus a total of 200

training programmes were conducted for 4246 rural women/ youth.

SERICULTURE

Sericulture as an agro-based cottage industry has great employment and income generating potential in Suryapet district where family labour, irrespective of sex and age can be involved. Women play an significant role in sericulture industry by involving in silkworm rearing, cocoon reeling, twisting, weaving, painting and dyeing activities which require less muscle power that are suitable for women. Of the total work force involved in sericulture activities, women accounts for nearly 55 to 60 per cent.

ECONOMIC ANALYSIS OF SERICULTURE

According to agriculture scientists and Sericulture farming farmers in the study area, lesser cost is involved in pest and disease management, fertilizers use and higher yield is obtained with mulberry cultivation through innovative techniques which gave higher net returns of 405000/ one unit (2 acres) when compared to Rs 70000/ (2 acres) obtained by the existing practices of paddy. Government of Telangana encouraged the farmers community and also taken a decision is consider one unit as 2 acres for mulberry cultivation and the government is giving Rs.4,00,000 for each unit in which Rs.3,00,000 lakhs as subsidy and the remaining lakhs has to be paid by the farmer. There is no pest effect for mulberry culture. KVK is specially giving training to the male and female farmers in the sericulture and explained techniques to them in order to protect the farm from pests and diseases and also explained how to sell and where to sell and where they can get good price as part of marketing benefits.

ICAR-Central Institute for Women in Agriculture (ICAR-CIWA) is an institution first of its kind in India that is exclusively devoted to gender related research in agriculture. Established as National Research Centre for Women in Agriculture (NRCWA) in April 1996 at Bhubaneswar (Odisha) under Indian Council of Agricultural Research, New. The importance of such a dedicated institution has grown manifold over the years as gender dynamics in agriculture is balanced for a great change, particularly in the context of changing socio-economic, institutional, policy and natural environment. The proportion of women agricultural workers who constituted 71.8 per cent of total women workers in 2001 came down to 65 per cent in 2011. On the other hand, share of women in total agricultural human resources that exhibited an upward trend till 2001 declined to about 37 per cent in 2011. The direction and coverage of change across Indian states also varies widely. In addition, women in India are subject to varied forms of inequality that reduce the pace of their progress. Therefore, better understanding of women's involvement in agriculture is also a pre-requisite for planning and promoting and gender responsive actions to achieve the twin objectives of women

empowerment and sustainable agricultural growth. Given the fact that agriculture is less attractive economic vocation for many men and women, it becomes more important to find ways and means for increasing the productivity of workers, more importantly the women workforce, in agriculture as there will be continuous rise in participation of women in agriculture and allied tasks in future. ICAR-CIWA, NRCWA and KVK institutions are research for empower the women. Exclusively above Two lakhs women, girls, mahila extension are trained by KVKs in India.

Women Empowerment improvement activities in Agriculture sector

According to the famous agricultural scientist Dr. Swyaminadhan recamandations1. Land-water, jenitical protection, 2 Science and Technology- Investment, 3 Debit-Insurance, 4 Organization after Harvesting season, 5 minimum support price- marketing facilities, these five factors when ever effectively implemented then it slowly improve the agricultural technology. These factors definitely impact the economical Conditions of women in rural area. But the rural people do not know about these factors in order to get benefit to change their ling Conditions and socio-economic status. Government has to take necessary steps to educate 36 per cent of Girl students those who are studying in Government Agricultural Universities in skill development and improve their confidence levels, so that they can generate equal income on par with men. They should become decision makers not only at home but also in every aspect of life. They should be given equal importance in society. Educated women can achieve anything. About 34.54 per cent of women are illiterates and 17.86 per cent of men are illiterates in India. This shows in equal of women in the society. In the coming years Government has takeiniation to educate all the women through adult Education and implement effectively Right to education Act. Then definitely we can achieve women empower in India.

Table: 2 Literacy rate in India from 1951 to 2011

Census	Person	Male	Female	Difference between Male & Female Literacy
1951	18.33	27.16	8.86	18.3
1961	28.30	40.40	15.35	25.05
1971	34.45	45.96	21.97	23.99
1981	43.57	56.38	29.76	26.62
1991	52.21	64.13	39.29	24.84
2001	64.83	75.26	53.67	21.59
2011	74.04	82.14	65.46	16.68

Source: Census 2011, India

According to the 1951 Census out of 18.33 per cent of persons are literates, the literacy rate per cartage of male was 27.16 and 8.86 was the female literacy. The Literacy rate

difference between male and female was 18.3 percent, but whereas in the following census period the literacy rate difference gradually increased to 26.62 per cent (1981). This indicates that whatever the facilities provided for the development of literacy rate of has not correctly been implemented by the policy makers. All the progremmes were failed in order to control the literacy rate difference. The study can observe the drastic changes in the development of literacy rate from the year 1991 onwards. According to 2011 Census out of 74.02 per cent of persons 82.14 per cent is the male literacy rate and 65.46 per cent is the female literacy rate. Even the difference is decreased from 26.62 to 16.68 per cent. As per the study point of view in 1951 the literacy rate difference between male and female is 18.33 per cent appreciate the various ruling Governments in order to develop the literacy rate of female. If these steps continue we will see 100 per cent literacy rate in India in terms of male and female. To empower the women the government should take necessary steps to develop the literacy rate in future and try to initiate good programmes to decrease the literacy rate difference from 16.68 per cent to 0 per cent. If Government provides Quality education to the women, we will see empower India in future.

Table: 3 Sex ratio in India from 1901 to 2011

Census	Sex Ratio(Female/1000 Male)	Child Sex Ratio (0-6Years)
1901	972	
1911	964	
1921	955	
1931	950	
1941	945	
1951	946	
1961	941	960
1971	930	964
1981	934	962
1991	927	945
2001	933	927
2011	943	919

Source: Office of the Register General and Census Commissioner

Table 4 reveals that the Sex Ratio from 1901 to 2011. The Sex Ratio in 1901, 972 females for 1000 males, gradually the female sex ratio decreased census after census. In 2011 the sex ratio is 943 for 1000. Most of the families are given importance to birth a boy child instated of girl. Some hospitals testing the pregnant women and rectify whether the baby is boy or girl. As per the study point of view the government should completely banned the testing of pregnancy and promote the awareness programmes in order to develop female child ratio.

CONCLUSION

KVK has implemented many schemes and programmes to empower the women in all aspects. KVK played a significant role in development of prosperity and welfare of women in India. All these institutions are providing facilities to the women but they are not reaching to the each Indian woman. The government should take necessary action in order to provide qualitative education and propagate awareness among people to develop girl child Sex ratio. They should initiate necessary programmes for Socio-economic development of women. However, women empowerment is possible through KVKs in India.

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SUSTAINABLE UTILIZATION OF FUNGI IN AGRICULTURE AND INDUSTRY

Editors:

Shanthipriya Ajmera

B. Bhima

Krishnappa M.

Ramchander Merugu

Bentham Books

Mycology: Current and Future Developments

(Volume 4)

Sustainable Utilization of Fungi in Agriculture and Industry

Edited by

Shanthipriya Ajmera

*Department of Microbiology, Palamuru University
Mahabubnagar, Telangana, India*

B. Bhima

*Department of Microbiology, Osmania University
Hyderabad, India*

Krishnappa M.

*Department of Applied Botany, Kuvempu University
Shivamogga, Karnataka, India*

&

Ramchander Merugu

*Department of Biochemistry, Mahatma Gandhi University
Nalgonda, Telangana, India*



SHANTHIPRIYA AJMERA

Shanthipriya Ajmera Assistant Professor in the Department of Microbiology, Palamuru University. She has a bright academic record with research experience in Mycology working on the Coprophilous thermophilic fungi. Her research focuses on thermotolerant enzymes from thermophilic microorganisms and exploring fungal biomolecules in inhibiting the growth of multidrug-resistant pathogenic bacteria. Her research work has been published in National and International journals and presented in several National and International conferences. She is the recipient of the UGC Research fellowship Award-2013, Microbiologist Society India Young Scientist Award-2020 and honored as an Associate fellow of Telangana Academy of Sciences 2019, life member of many academic bodies like Indian women scientist's association (IWSA), Microbiologist's Society India (MSI), The Association of Microbiologist's India (AMI), Indian Academy of Neurology (IAN), Indian Science Congress Association (ISCA) and Coordinator of Microbiologist's Society India, Palamuru University, Telangana. She has been credited with two books, and published more than 20 research articles and 12 book chapters.



B. BHIMA

Dr. B. Bhima, Professor Department of Microbiology, Osmania University. His Post-Doctoral stint was done at University of Pennsylvania, USA. His present research interest lies in the development of efficient microorganisms for probiotic applications and biofuel. He has 20 years of teaching experience and research experience. Prof. Bhima published 40 research articles, 8 book chapters, and 1 book. He is a recipient of several awards such as HUPO Young Scientist Award-2007 by Human Proteome Organization, SAB-Young Scientist Award-2012, Young Researcher Award by OMICS group, USA and International travel grant award (2007) by the Department of Biotechnology (DBT), Govt. of India. Prof. Bhima is a life member of ISCA, AMI, BRSI, PAi, MSI and SAB. Honored with the meritorious teacher award in 2015 and in the year 2018, he was awarded Young Investigator Award by Probiotic Association of India at AIIMS, New Delhi.



M. KRISHNAPPA

Dr. M Krishnappa is a retired Professor in the Department of Botany, Kuvempu University. He first worked in Department of Botany, Mysore University from 1988 to 1998 and joined Kuvempu University since. He has rich teaching and research experience in the area of Mycology, Seed pathology, Bryology, Pharmacology, microbiology and Bacteriology. He has completed many research projects funded by UGC, DST and DBT. His thrust area of research is on Macro fungal diversity, molecular characterization and their conservation. He has published many research articles in national and international journals on the said specializations. He is the recipient of the "Fellow of Mycological Society of India" in 2014. Dr. M Krishnappa and his group has collected 1000-macrofungal sporocarp and preserved in the departmental herbarium. He published more than 140 research articles and published books on Xylariales of Karnataka and Bryophytes of Chikkamagaluru.



RAMCHANDER MERUGU

Dr. M Ramchander Goud is an Assistant Professor, working in the Department of Biochemistry, Mahatma Gandhi University, Nalgonda, Telangana State, India. He has about 20 years of teaching experience and has published more than 200 research articles in National and International Journals. His areas of Interest include Nanotechnology, Bioenergy and Bioinformatics.

వ్యాసవాహిని

పరిశోధనా వ్యాసాలు

సంపాదకులు

డా॥ ఎ. సిల్కానాయక్

ప్రధానాచార్యులు

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ఇందులోని వ్యాసాలు
ఆయా రచయితల వ్యక్తిగతమైనవి, బాధ్యత గలవి.
సంపాదకులకు, ప్రచురణ సంస్థకు రచనలతో ఎలాంటి సంబంధం లేదు.

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సాధనాశూరుల ప్రదర్శనా నేపథ్యం

గంగాధర నరసింహ - చరవాణి: 9848927160

Email : gnsimha31@gmail.com

తెలంగాణలో పద్మశాలి కులం వారికి ఆశ్రితులుగా ఈ సాధనా శూరుల కులం నెలకొని ఉంది. ముఖ్యంగా వీళ్ళు తెలంగాణలో వరంగల్ జిల్లా బురుగుమండ్లలోను కరీంనగర్ జిల్లా చల్లూరు, వల్భాపూర్లోనూ ఉన్నారు. వీరు తమ ప్రాంతం చుట్టూ ఉన్న గ్రామాలను కొన్ని భాగాలుగా విభజించుకుని, ఒక్కొక్క కుటుంబం ఒక్కొక్క ప్రాంతాన్ని పంచుకుంటారు. ఈ కులం వాళ్ళు ఆశ్రితులుగా పద్మశాలీల నుండి త్యాగాన్ని పొందే హక్కు కలిగి ఉంటారు. అలాగే వీరికి పద్మశాలీల నుండి వచ్చే త్యాగం హక్కు వంశపారంపర్యంగా రెండు కులాల్లోనూ చోటు చేసుకుని ఉంటుంది. వీరి ప్రదర్శనలో అనేకరకాలైన మహిమలను కూడా వీళ్ళు ప్రదర్శిస్తుంటారు.

పద్మశాలీల కులపెద్దలను వీరు ప్రదర్శన ఇచ్చే గ్రామాల్లో ముందుగా కలుసుకుని ప్రదర్శన ఇవ్వడానికి అనుమతిని తీసుకుంటారు. వీరి ప్రదర్శన ప్రారంభంలో పూజలు చేసి, ధక్కాలు మోగిస్తూ ప్రదర్శనా ప్రాంగణాన్ని శుభ్రం చేసి తమ ప్రదర్శన సామగ్రితో వచ్చి చేరుతారు. అలాగే వీరి ప్రదర్శనలో పద్మశాలీలకు, ఆ కులపెద్దలకు గౌరవమిచ్చే విధి విధానాలు బాగా చోటు చేసుకుంటాయి. ప్రదర్శన ముందు వీరు తమకు భృతిదాతలైన పద్మశాలి కులాన్ని కులదైవాలైన మార్కెండేయుడిని, శివుడిని వారితోపాటు కులపెద్దలను ప్రదర్శిస్తారు. వీరి విద్యలో గారడీ అని చెప్పలేంగానీ కొన్ని మహిమలు ప్రదర్శనకు వచ్చినవారిని అబ్బురపరచడం కనిపిస్తుంది.

వీరు ప్రదర్శనలో ఉపయోగించే సామగ్రిని వారికి వారే తయారు చేసుకుని వాటిని వంశపారంపర్యంగా భద్రపరచుకుంటూ వస్తారు. ముఖ్యంగా వీళ్ళ ప్రదర్శనలో సాహిత్యం కంటే క్రియలే ఎక్కువగా చోటు చేసుకోవడం కనిపిస్తుంది. వీరు ఆశ్రితకులమైన వారి కులానికి భంగం కలిగించని విధంగా

తీసుకున్న త్యాగానికి పూర్తిగా న్యాయం చేస్తూ ప్రదర్శనలు అందిస్తారు. ప్రతీ సంవత్సరం మాఘ మాసం తరువాత వీరు తమ ప్రదర్శనలు గ్రామ గ్రామాల్లో పద్మశాలీల సహాయంతో ప్రదర్శిస్తారు. అలాగే వీరు త్యాగాన్ని పొందేటప్పుడు నియమ నిబంధనలను అనుసరించి కొన్ని సందర్భాల్లో తీసుకోవడం జరుగుతున్నప్పటికీ కొన్ని సందర్భాల్లో పరిస్థితులకు అనుగుణంగా త్యాగాన్ని పెద్దదైనా, చిన్నదైనా, ధనరూపమైనా, వస్తురూపమైనా స్వీకరించి తమ ప్రదర్శనను రక్తి కట్టిస్తారు. అలాగే పద్మశాలీలతోపాటు గ్రామంలోని ప్రజల సహాయ సహకారాలను కూడా వీరు స్వీకరిస్తారు.

ప్రధానంగా ఈ కులానికి వారియొక్క కళా ప్రదర్శన ఒక కాలక్షేపంగా కాకుండా నిరంతర సాధనగా చోటు చేసుకున్న దృష్ట్యా వీరికి ఆ పేరు వచ్చినట్లు తెలియజేయబడింది. ప్రధానంగా వీళ్ళు మహిమలనున ప్రదర్శనలో చూపడం ద్వారా తిరిగి తిరిగి వారి ప్రదర్శనలను ప్రజలు ఆకర్షితులై క్రమం తప్పకుండా వారి వారి గ్రామాల్లో చూడటానికి అనువుగా వీరి యొక్క క్రమశిక్షణ, ప్రదర్శనా నేపథ్యంలో తీసుకునే జాగ్రత్తలు మొదలైనవన్నీ కూడా వీరి ప్రదర్శనను వైవిధ్యభరితం చేస్తూ రక్తి కట్టిస్తాయి. ప్రధానంగా వీరికి ఎలాంటి సాహిత్యంతో సంబంధం లేదు. ఎందుకంటే వీరి ప్రదర్శనంతా క్రియా రూపంలోనే చోటు చేసుకోవడం వల్ల వీరు క్రియలను మహిమల రూపంగా తెలియజేస్తారు. కొన్ని మహిమలు చూస్తున్నవారిని అబ్బురపరుస్తాయి. ఈవిధంగా వారు ప్రదర్శనకు ప్రేక్షకులను ఆహ్వానించి వారి మహిమలను వారి ద్వారా ప్రదర్శనా రూపంలో తెలియజేస్తారు.

కొన్ని ప్రదర్శనలు వీరు వారియొక్క జట్టులోని కళాకారులతో చేయించడం కూడా కనిపిస్తుంది. ముఖ్యంగా ఖండయోగ సాధన విద్యను వీరు అబ్బురపరచే విధంగా ప్రదర్శిస్తారు. అది నిజమా, అబద్ధమా అనేదానికంటే ఆ విద్య ప్రదర్శించడంలో వారి యొక్క సాధనతో కూడిన శూరత్వం ప్రేక్షకులను అబ్బుర పరుస్తుంది. ఈనాడు మనం సినిమాలో చూస్తున్న గ్రాఫిక్స్ టెక్నాలజీ పరంగా ఆకర్షించవచ్చునేమోగాని వీరి ప్రదర్శనలో చేసే మహిమలు ప్రేక్షకులకు ఎదురుగా చేయడంవల్ల అంతా సత్యరూపంలో ప్రకటితం చేస్తున్నట్లు అవగతమవుతుంది. వీరు ఏర్పరచిన రంగస్థలం ఎత్తైన వేదికగా ఉండి, ఆ ప్రదర్శనా స్థలంలో వచ్చి

చేరిన జనాలందరికీ కూడా కనిపించే విధంగా ప్రదర్శన చోటు చేసుకోవడం కనిపిస్తుంది.

ముఖ్యంగా వీరు గ్రామాల్లో రాత్రిపూట ప్రదర్శనలను ఎక్కువగా చేస్తుంటారు. వీరు ప్రదర్శనా స్థలంలో పెద్ద కాగడాలను ఉంచి, ఆ వెలుగులో వీరి ప్రదర్శనలను చేస్తుంటారు. ప్రధానంగా వీరి కళా ప్రదర్శనంతా కూడా మహిమలతో ఉండటం చేత వీరి యొక్క ప్రతిభ ప్రజలకు బాగా గుర్తు పెట్టుకోవడానికి అవకాశం ఏర్పడుతుంది. ఇది ప్రధానంగా తెలంగాణ ప్రాంతంలో పూర్వకాలం నుంచి చోటు చేసుకున్నదైన కారణంగా జానపద కళారూపాల్లో ఒక ప్రఖ్యాత రూపంగా స్థిరపడిపోయిందనడంలో ఏమాత్రం సందేహం లేదు. వీరికి ప్రదర్శనా కాలంలో గ్రామంలో ఉన్న పద్మశాలీ కుటుంబాల వారు వసతి, భోజన సౌకర్యాలు కల్పించడంతోపాటు ప్రదర్శనానంతరం వస్తురూపంలోగాని, ధనరూపంలోగాని కొంత త్యాగాన్ని అందించడం ద్వారా వీరి జీవన విధానం కొనసాగుతూ ఉంటుంది.

ఈనాడు ప్రపంచీకరణ నేపథ్యంలో కళలపై విపరీత ప్రభావాలు చోటు చేసుకున్నప్పటికీ తెలంగాణలో ఈ జానపద కళారూపాలు ఒక ప్రత్యేకమైన శ్రద్ధతో, అంకితభావంతో అనేక సందర్భాల్లో ప్రదర్శించడం ద్వారా వీటియొక్క ఉనికి వర్తమానంలో కూడా నిరంతరాయమానంగా కొనసాగుతుండడంలో ఏమాత్రం ఆలోచించనవసరం లేదు. అంకితభావం, కళ పట్ల శ్రద్ధ, ప్రదర్శించే సమయంలో వీరికి ఎక్కువగా చోటు చేసుకోవడం వల్ల వీరి ప్రదర్శనలు ఆకట్టు కోవడానికి ఎక్కువగా అవకాశాలు కనిపిస్తాయి. వీరు చేసే మహిమలు పరిశీలించినపుడు నీళ్ళు తాగి ఆ నీళ్ళను బయటకు తీయడం ఒక ప్రత్యేక మహిమగా పేరొనవచ్చు. సాధారణంగా మనం రెండు లేదా నాలుగు చెంబుల నీళ్ళు తాగడం కష్టం. కానీ సాధనాశూరులు అసాధారణ ప్రతిభతో బిందెడు కంటే ఎక్కువ నీళ్ళు ఒకేసారి తాగి, తరువాత తాగిన నీటిని నోటి ద్వారా, ముక్కు రంధ్రాల ద్వారా బయటకు రప్పిస్తారు. అలాగే వీరి ప్రదర్శనలో మరొక మహిమ ముక్కు రంధ్రాల నుండి జలధారలను సృష్టించడం. వీరు ఈ మహిమను చేసేటప్పుడు ముక్కు రంధ్రంలో ఒక కర్ర గొట్టం పెట్టి, దాని చివర ఒక గౌర

పెట్టి అందులో నీటిని పోస్తూ, రెండవ ముక్కు రంధ్రంలో మరొక కర్రగొట్టం పెట్టి దాని చివర చిత్రమైన జలధారలను సృష్టిస్తాయి. ఈ మహిమ చూపరులకు ఫౌంటెన్స్‌ను తలపిస్తాయి.

మరొక మహిమలో మంత్రించిన తాయెత్తును మంటల్లో కాల్చి మళ్లీ సృష్టిస్తారు. వీరి ప్రదర్శనలో ఆ ప్రదర్శన పూర్తయ్యేవరకు వీరి చేతిలో ఒక మంత్రదండం ఉంటుంది. వీరు ఈ మహిమను ఒక తాయెత్తును మంత్రించి, ఎండుగడ్డితో కాల్చి బూడిద చేస్తారు. ఆ తరువాత ఆ బూడిదలోంచి మళ్లీ తాయెత్తును సృష్టిస్తారు. తరువాత మరొక మహిమలో తలపై పొయ్యి పెట్టి అప్పాలు చేస్తారు. ఈ మహిమ చేసేటప్పుడు వీరు జనం లోంచి ఒక మనిషిని పిలిచి అప్పాలు తింటావా అని అడుగుతారు. తింటానంటే కూర్చోమని, అతనిని కూర్చుండబెట్టి, అతని తలపై మట్టిపొయ్యిని పెట్టి దానిపై ఒక మూకుడును ఉంచుతారు. తలపై పొయ్యి పెట్టినవారి చేతికి మంత్రించిన తాయెత్తు కట్టి ఉంచుతారు. పొయ్యిలో కట్టెలు కాకుండా కిరోసిన్‌తో తడిపిన గుడ్డలు ఉంచి అంటిస్తారు. మంట వచ్చి మూకుడు కాలుతుంది. వెంటనే మంచినూనె మూకుట్లో పోస్తారు. అప్పుడు పిండిలో నీళ్లు కలిపి ముద్దలు చేస్తారు. ఆ ముద్దలను అప్పాలు చేసి నూనెలో కాల్చుతారు. కాల్చిన అప్పాలను జనంలోని పిల్లలకు, పెద్దలకు ఇస్తారు. అవి కరకరలాడుతూ అద్భుతంగా ఉంటాయి.

అలాగే మరో మహిమ ఎడ్లబండిని తలతో నెట్టుకుంటూ వెళ్లడం. ఖాలీ ఎడ్లబండ్లను ఎదురెదురుగా కట్టి వాటి వెనుక మరిన్ని ఎడ్లబండ్లను కట్టి అందులో పిల్లల్ని పెద్దలను ఎక్కించి సాధనా శూరుడు చివరి బండిపై నిలబడి తలను కత్తి కొనకు ఆనించి నెడతాడు. జనాలతో నిండిన బండ్లు కదులుతాయి. ఈవిధంగా తెలంగాణలోని సాధనాశూరులు వారి యొక్క ప్రదర్శనా కళలను పరిరక్షించుకుంటూ పద్మశాలీల త్యాగంతో జీవించడం ఒక గొప్ప ఔన్నత్యంగా చెప్పుకోవచ్చు. ముఖ్యంగా ఇలాంటి కళల పట్ల ఒక కులానికే కాకుండా ప్రభుత్వం వైపు నుంచి కూడా ఏవైనా ప్రోత్సాహకాలు అందినట్లయితే ఈ ప్రదర్శనలు నగరాలకు కూడా విస్తృతమై తద్వారా వీరు, వీరి కళలు బతకడానికి అవకాశం ఉంటుంది.

వ్యాస తరంగాలు

పరిశోధనా వ్యాసాలు

సంపాదకులు

సత్యేక లలిత

అసిస్టెంట్ ప్రొఫెసర్

ప్రభుత్వ డిగ్రీ కళాశాల, చెన్నూరు

వ్యాస తరంగాలు

(పరిశోధనా వ్యాసాలు)

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శ్రీయజ్ఞ పబ్లికేషన్స్

హైదరాబాద్

Vyasa Tarangalu
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ఇందులోని వ్యాసాలు
ఆయా రచయితల వ్యక్తిగతమైనవి, బాధ్యత గలవి.
సంపాదకులకు, ప్రచురణ సంస్థకు రచనలతో ఎలాంటి సంబంధం లేదు.

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గంగాధర నరసింహ - చరవాణి: 9848927160

Email : gnsimha31@gmail.com

జానపద కళలు జాతి సంస్కృతికి మూలకాలుగా పేర్కొనవచ్చు. ప్రధానంగా జనపదాలకు సంబంధించిన అనేక రకాలైనటువంటి కళారూపాలు ప్రదర్శన ద్వారా ప్రజల్లో ఆనందాన్ని, చైతన్యాన్ని కలిగించడంలో ప్రాధాన్యత వహిస్తున్నాయన్నది జగమెరిగిన సత్యం. దీనికి కారణాన్ని పరిశీలిస్తే జానపద కళారూపాలన్నీ కూడా వంశీకుల నుండి ఒక ప్రత్యేకమైన శిక్షణతో ప్రజాసమూహంలోకి చొచ్చుకు పోయినవిగా చెప్పుకోవచ్చు. ప్రతిదీ కూడా ఎంతో వైవిధ్యాన్ని కలిగి, నూతనత్వంతో అలరారుతూ ఉంటాయి. ముఖ్యంగా ఈనాడు సినిమా కారణంగా జానపద కళల ప్రదర్శన ఆదరణ నేపథ్యంలో కొంత వెనుకబాటుతనం కనిపించినా ఇప్పటికీ జానపద కళలు ప్రదర్శనా విధానంలో తామేమిటో నిరూపించుకుంటున్న సందర్భాలు లేకపోలేదు.

జానపద కళలు అనేక విషయాలను ఎప్పటికప్పుడు తమలో ఇముడ్చుకుంటూ ప్రదర్శనలో వాటి నిబద్ధతను తెలియజేస్తుండటం కూడా విశేషంగా పేర్కొనవచ్చు. ఉదాహరణకు చిందు యక్షగానంగాని, యక్షగానంగాని, బుర్రకథ, హరికథ, వీధి భాగవతం... ఇలా ఏ ప్రక్రియను తీసుకున్నా ప్రదర్శనాపరంగా దానికంటూ ప్రత్యేకత కలిగి ఉండటం గమనించవచ్చు. ముఖ్యంగా కుల పురాణాలు, కథాగానాల గురించి చెప్పాల్సి వస్తే వీరి ప్రదర్శనా విధానంలో ఇప్పటికీ పూర్వపు సంప్రదాయాలను, తమ పూర్వీకుల నుండి వస్తున్న రాతప్రతుల ఆధారంగానే ప్రదర్శనలివ్వడం మనకు కనిపిస్తుంది. అలాగే ఈ జానపద కళారూపాల ప్రదర్శనలో ఐతిహాసికాలకు సంబంధించిన అంశాలు, భాగవతాంశాలు, మదనకామరాజు కథ, సారంగధర కథ, దేశింగురాజు కథ, అల్లిరాణి కథ ఇలా... ఇప్పటికీ ఈ ప్రదర్శనలన్నీ కూడా పూర్వీకుల నుండి వస్తున్న నేపథ్యం ఆధారంగానే (సాహిత్యం) ప్రదర్శనలివ్వడం ద్వారా ప్రజల్లో చైతన్యాన్ని కలిగిస్తున్నాయి.

స్వాతంత్ర్యోద్యమ కాలంలో ఈ జానపద కళారూపాలు సుప్రసిద్ధమైతే తెలంగాణ ప్రాంతంలో నిజాం పరిపాలనా కాలంలో ప్రధానంగా చెర్విరాల భాగ్యు ప్రదర్శించిన (స్వయంగా రాసి ప్రదర్శించిన) యక్షగానాలు ఎంతో ప్రాముఖ్యతను కలిగివుండేవి. ఇది తెలంగాణ కాల చరిత్ర అందించిన సాక్ష్యంగా పేర్కొనవచ్చు. అదే కాలంలో ప్రజల్లో జాతీయతా భావాన్ని, దేశభక్తిని ఇనుమడింప చేస్తూ రుక్మాభట్ల విధుమౌళి శాస్త్రి 'తందనాన రామాయణ' ప్రదర్శనను ఉత్తర తెలంగాణ ప్రాంతంలో స్వయంగా ఇచ్చి అక్కడి ప్రజలను చైతన్యపరిచిన వైనాలను పరిశోధకులు అందించిన పరిశోధనల్లో బహిర్గతమైంది.

కుల పురాణాలకు సంబంధించి బైండ్లవారు, గోసంగులు తదితర ఆశ్రిత కులాల వారు (మాదిగలకు) ప్రదర్శించే కథాగానాలు ఎంతో వైవిధ్యభరితంగా ఉండేవి. నల్గొండ జిల్లాలో బీబీనగర్ ప్రాంతంలో నివాసం ఉంటూ ఇతర ప్రదేశాలకు వెళ్లి త్యాగం అడిగి వారు ప్రదర్శనలివ్వడం గమనించదగ్గ అంశం. ఈ ప్రదర్శనలో వీరు చెప్పే కథాగానం ఎంతో వైవిధ్యాన్ని కలిగి ఉంటుంది. ఎక్కడా సంస్కృతిని భంగపరచే విషయాలు కనిపించవు. ప్రధానంగా వీరు గానం చేసే 'రేణుకా ఎల్లమ్మ' కథ ఎంతో ప్రఖ్యాతమైంది. అనేక ప్రాంతాల్లో ప్రదర్శనల ద్వారా ఆ కళాకారులకు గుర్తింపు తీసుకొచ్చింది.

మరో జానపద కళారూపం చిందు యక్షగానం. ఈ ప్రదర్శనలో తనదైన స్థానాన్ని నిలుపుకుంటూ ఆజన్మాంతం ప్రదర్శనలకే అంకితమైన చిందు ఎల్లవ్వ గురించి ఎంత చెప్పినా తరగదు. చిందు యక్షగానాన్ని ఒక ప్రత్యేకమైన కళారూపంగా తీర్చిదిద్దిన ఘనత చిందు ఎల్లవ్వదేనని చెప్పవచ్చు. దీనికి కారణం ఆ చిందు యక్షగానం ఎంతో వైవిధ్యభరితంగా ఉండటం, కథ, ఎత్తగడ, విపులీకరణ మొదలైన అంశాలలో నిబద్ధత కలిగి ఉండటం ద్వారా ఈ ప్రదర్శనలు ప్రజల అభిమానాన్ని చూరగొన్నాయని చెప్పడంలో సందేహం లేదు. దాదాపుగా ఆరున్నర దశాబ్దాల కాలం చిందు యక్షగానం అంటే ఎల్లవ్వ అనే పేరును నిలబెట్టుకుని స్వదేశంలోనే కాకుండా విదేశాల్లో సైతం ప్రదర్శనలిచ్చి ఆదరాభిమానాలను పొందిన చిందు ఎల్లవ్వ కృషి మరువలేనిది. ఒకవిధంగా తెలంగాణ ఘనకీర్తి అటు బతుకమ్మ పాటల్లోను, ఇటు చిందు యక్షగానంలోను ఒకదానితో ఒకటి పోటీపడేవిధంగా ఉందనడంలో ఏమాత్రం అతిశయోక్తి కనిపించదు.

యక్షగానాల విషయానికి వస్తే చర్విరాల భాగయ్య నిజాం పరిపాలనా కాలంలో ఆ ప్రభుత్వకు వ్యతిరేకంగా ప్రజలను చైతన్యపరచడానికి స్వయంగా యక్షగానాలు రాసి ప్రదర్శించడం చేసేవారు. దాదాపుగా 123 యక్షగానాలను ఆయన రచించి, హైదరాబాద్ నగరంలో ఆనాడు ముషీరాబాద్ ప్రాంతంలో ప్రదర్శించిన నేపథ్యాలను గమనిస్తే, ఆ యక్షగానాలు ఎంత వైవిధ్యంతో కూడినవో తెలుస్తుంది. ప్రధానంగా యక్షగానాల్లో వచనాన్ని, దరువులను, పద్యాలను ప్రవేశపెట్టి రక్తి కఠించడం భాగయ్యగారి యక్షగానాల ప్రత్యేక వైవిధ్యంగా పేర్కొనవచ్చు. ఆయన స్వయంగా రచించడమే కాకుండా, రచించిన ఆ యక్షగానాలను కళాకారులకు శిక్షణ ఇచ్చి ప్రదర్శింప చేయడం తెలంగాణ చరిత్రలో ఒక సువర్ణాధ్యాయంగా పేర్కొనవచ్చు,

తెలంగాణ ప్రాంతంలో ఏడుపాయల జాతర, సమ్మక్క-సారలమ్మ జాతర, ఐనవోలు మల్లన్న జాతరల సందర్భాల్లో పటం కథల ప్రదర్శన కూడా ప్రజా చైతన్యానికి దోహదపడేవిధంగా వైలక్షణ్యంతో సంప్రదాయబద్ధమైన రీతిలో ఇప్పటికీ జరుగుతుండడం విశేషం. అలాగే రంగస్థల నిర్మాణం కూడా వైవిధ్యభరితంగా ఉండటం గమనించదగ్గ విషయం. ముఖ్యంగా ఒకనాటి కళా ప్రదర్శనలో చోటు చేసుకున్న రంగస్థలానికి ఈనాడు ఉన్న రంగస్థలానికి నడుమ ఎన్నో మార్పులు చోటు చేసుకున్నాయి. ఈ కళ పురాణ కాలక్షేపంగా ఉన్నప్పుడు నేలపై చాప వేసుకుని, పదిమందిని కూర్చోబెట్టుకుని కథ చెప్పేవారు. కాల పరిణామంలో ప్రత్యేకమైన రంగస్థల నిర్మాణం లేకున్నా కథా ప్రదర్శన స్థలంలో పందిరి వేసి రెండు గుంజలకు పటం కట్టి ప్రదర్శించేవారు. అనంతర కాలంలో ప్రత్యేకంగా ఒక రంగస్థలాన్ని ఏర్పాటుచేసి, వాటికి అనుగుణంగా పటాలు వ్రేలాడదీసి ప్రదర్శించడం ప్రారంభించారు.

రంగస్థల అలంకరణలో కాలానుగుణమైన మార్పులు ఆ కాలాలకు అనుకూలంగా జరుగుతున్నప్పటికీ పటం కథల ప్రదర్శనలో ఎక్కడా రాజీ ధోరణులు రాలేదని విషయం స్పష్టమవుతుంది. అలాగే కథా ప్రదర్శన సమయంలో కళాకారులకు ఆయా సంబంధిత కులాల వారు భోజన సదుపాయాలు కల్పించడం కారణంగా కళాకారులకు కొంత తమ కళ ప్రదర్శనపట్ల శ్రద్ధాసక్తులు పెరిగి

ప్రదర్శనను రక్తి కట్టించడంలో వూర్తి స్థాయిలో ఏకాగ్రతను పాటిస్తున్నారనే విషయం తెలుస్తుంది.

తెలంగాణలో మరొక జానపద కళ సాధనాశూరులు. వారు ప్రదర్శించే కళారూపాల గురించి పరిశీలించినట్లయితే ఈ సాధనాశూరులు పద్మశాలి కులం వారికి ఆశ్రితులుగా ఉంటారు. వీరు పద్మశాలీల నుండి త్యాగాన్ని తీసుకుంటూ కళా ప్రదర్శన చేస్తారు. అలాగే వీరు ప్రదర్శనలో కొన్ని మహిమలను కూడా ప్రదర్శన రక్తి కట్టించడానికి అక్కడక్కడా చేస్తుంటారు. ప్రదర్శన జనాదరణ పొందడానికి ముక్కు రంధ్రంలో నుంచి జలధారలను సృష్టిస్తారు. అలాగే మంత్రించిన తాయెత్తును మంటల్లో కాల్చి మళ్ళీ సృష్టిస్తారు. తలపై పొయ్యి పెట్టి అప్పాలు చేస్తారు. ఈవిధంగా వీరు అనేక మహిమలను తమ ప్రదర్శనలో భాగంగా ప్రదర్శిస్తూ ఈనాటికీ వారి కళారూపాలను కాపాడుకుంటున్నారు.

మరో జానపద కళారూపం బీరన్నలు. వీరభద్రునికి సంబంధించిన కథాగానం వీరు చేస్తారు. ఈ బీరప్ప కథను చెప్పేవారు కురుమ జాతికి సంబంధించినవారుగా ఉంటారు. వీరు కథలో బీరప్ప అంటే ఈశ్వరుడనే విషయాన్ని తెలియజేసే నేపథ్యంలో పగటిపూట పండగ చేసి, రాత్రిపూట ఈ బీరప్ప కథను కళాప్రదర్శనగా తెలియజేస్తుంటారు. వీరు డోలు, తాళాలు, కాళ్ళగజ్జెలు, వెండి కటారులు మొదలైన వాద్యాలను ఉపయోగిస్తారు. పట్నాలు వేసేందుకు అనువుగా చెక్కతో చేసిన పలకలు కూడా ఉంటాయి. వీరు కథను గణపతి ప్రార్థనతో ప్రారంభించి మంగళహారతితో ముగిస్తారు. ప్రధానంగా వీరి ప్రదర్శన రూపాల్లో బీరప్ప కథ, ఎల్లమ్మ కథ, మల్లన్న కథ మొదలైనవి చోటు చేసుకుంటూ ఉంటాయి.

పై కళారూపాలను పరిశీలించినప్పుడు తెలంగాణ ప్రాంతంలో జానపద కళారూపాలన్నీ కూడా వేటికవే వాటి ప్రదర్శనా విధానాల్లో విశిష్టతను కలిగి ప్రజారంజకంగా ప్రదర్శింపబడుతున్నాయి. ఈ కళారూపాలను వైవిధ్యభరితంగా తీర్చిదిద్ది తరువాతి తరం వారికి శిక్షణ ఇస్తూ నిర్మాణాత్మకమైన కృషి చేయడం ద్వారా వీటికి ప్రజాదరణ ఎప్పటికీ ఉంటుందనే సత్యం స్పష్టమైంది.

BA520ECODSE(B)-E

B.A.

THIRD YEAR

SEMESTER – V

**FINANCIAL INSTITUTIONS
AND
MARKETS**

(DISCIPLINE SPECIFIC ELECTIVE COURSE-B)



“We may forego material benefits of civilization, but we cannot forego our right and opportunity to reap the benefits of the highest education to the fullest extent...”

Dr. B. R. Ambedkar

**Dr. B. R. AMBEDKAR OPEN UNIVERSITY
HYDERABAD**

2021

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Prof. M.D. Bavaiah

Department of Economics
Sri Krishnadevaraya University,
Anantapuramu, Andhra Pradesh.

Associate Editor &
Course Co-ordinator

Dr. K. Krishna Reddy

Writers:

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Website: www.braou.ac.in

E-mail to: info@braou.ac.in

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PREFACE

Economic growth of every nation is dependent upon the role of financial institutions and the ultimate financial development. Policymakers and economists generally agree that financial development contributes towards financial institutions and markets, such as commercial and investment banks and stock exchanges which in turn lead to economic growth. It promotes economic growth through capital accumulation and technological progress by increasing the savings rate, mobilizing and pooling savings, producing information about investment, facilitating and encouraging the inflows of foreign capital, as well as optimizing the allocation of capital. Countries with better-developed financial systems tend to grow faster over long periods of time. As such the professional viewpoint is that there is a serious need to study “Financial Institutions and Markets”. The University therefore offers the subject of Financial Institutions and Markets as one of the important elective courses in fifth semester to the students of Economics for future corporate financial executives, managers, analysts and entrepreneurs.

This course material consists of a total of five blocks containing 13 units altogether. The subject matter has been dealt keeping in view the needs of the UG level students and distant learners. All the units prepared on the basis of self-instructional mode. This book covers all topics of the subject area and is aimed at providing knowledge of financial markets, institutions, and the regulatory framework in a very student-friendly manner. The book introduces the students to the financial system and its components, financial institutions and intermediaries, financial system and economic development along with an introduction to the Indian Financial System. It provides a thorough understanding of the performance of Central Bank, Stock Exchanges, Credit Markets, Development Finance Institutions, Banking and Non-Banking Financial Institutions. The book also covers term and long-term financial instruments, international financial institutions such as the World Bank, the Asian Development Bank, the Euro-dollar and the Petro-dollar market.

The authors took appropriate care to explain the various concepts in the course. Therefore, the University hopes that this material will help the student to get acquainted with ‘Financial Institutions and Markets’. The University would appreciate if readers could provide constructive suggestions and valid critiques to improve the course in the years to come.

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బి.ఎ.

అర్థశాస్త్రం

తృతీయ సంవత్సరం సెమిస్టర్ - V

విత్త సంస్థలు మరియు మార్కెట్లు

(DISCIPLINE SPECIFIC ELECTIVE COURSE-B)



“మనం నాగరికత సమకూర్చిన వస్తుగత ప్రయోజనాలను వదులుకోవచ్చునేమోగాని, సర్వోత్కృష్టమైన విద్య అందించే ఫలాలను సంపూర్ణంగా అనుభవించే అవకాశాలను, హక్కులను మాత్రం కోల్పోకూడదు”.

- డా॥ బి.ఆర్. అంబేద్కర్

డా॥ బి.ఆర్. అంబేద్కర్ సార్వత్రిక విశ్వవిద్యాలయం

హైదరాబాదు

2021

రచయితల బృందం

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ప్రోఫెసర్. ఎం.డి. బావయ్య

అర్థశాస్త్ర విభాగం, శ్రీకృష్ణదేవరాయ విశ్వవిద్యాలయం,
అనంతపురం, ఆంధ్రప్రదేశ్.

సహ సంపాదకుడు &

కోర్సు సమన్వయకర్త :

డా॥ కె. క్రిష్ణారెడ్డి

రచయితలు :

డా॥ అక్కెనపల్లి మీనయ్య (Retd.), NG College, నల్గొండ.

డా॥ కె. మల్లిఖార్జునరావు, గవర్నమెంట్ సిటి కాలేజ్, హైదరాబాద్.

డా॥ డి. మునిస్వామి, BJR కాలేజ్, నారాయణగూడ, హైదరాబాద్.

డా॥ కె. అంజిరెడ్డి, మహాత్మాగాంధీ విశ్వవిద్యాలయం, నల్గొండ.

ప్రోఫెసర్. ఎస్. రాధాకృష్ణ (Retd.), Aca. Associate, BRAOU.

డా॥ డి. అదెప్ప, గిర్రాజ్ డిగ్రీ కాలేజ్, నిజామాబాద్.

డా॥ కె. క్రిష్ణారెడ్డి, BRAOU, హైదరాబాద్.

డా॥ వై. వేణుప్రసాద్, గిర్రాజ్ డిగ్రీ కాలేజ్, నిజామాబాద్.

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అనువాదకులు:

డా॥ అక్కెనపల్లి మీనయ్య (Retd.), NG College, నల్గొండ.

డా॥ వై. వేణుప్రసాద్, గిర్రాజ్ డిగ్రీ కాలేజ్, నిజామాబాద్.

డా॥ జి. లింగన్న, గిర్రాజ్ డిగ్రీ కాలేజ్, నిజామాబాద్.

భాగం

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కవర్ డిజైన్:

శ్రీ జి. వెంకటస్వామి

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అన్ని హక్కులు విశ్వవిద్యాలయానివి. ఈ పుస్తకంలోని ఏ భాగం అయినా ఉపయోగించదలచుకుంటే, విశ్వవిద్యాలయం నుండి రాతపూర్వకంగా అనుమతి పొందాలి.

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E-mail: info@braou.ac.in

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పుస్తక పరిచయం

ప్రతి దేశం ఆర్థికవృద్ధి వివిధ విత్త సంస్థల పాత్ర మరియు వాటి అంతిమ ఆర్థిక పురోగతిపై ఆధారపడి ఉంటుంది. వాణిజ్య బ్యాంకులు, పెట్టుబడి బ్యాంకులు, స్టాక్ ఎక్స్చేంజీల వంటి విత్త సంస్థలు, మార్కెట్లు ఆర్థికాభివృద్ధికి దోహదపడుతాయని విధాన రూపకర్తలు, ఆర్థికవేత్తలు సాధారణంగా అంగీకరిస్తారు. ఇవి పొదుపు రేటును పెంచడం, పొదుపులను సమీకరించడం, పెట్టుబడి సమాచారాన్ని తెలపడం, విదేశీ మూలధన ప్రవాహాన్ని సులభతరం చేసి ప్రోత్సహించడం, అలాగే మూలధన కేటాయింపులను పునరుద్ధరించడం ద్వారా ఆర్థికవృద్ధిని ప్రోత్సహిస్తాయి. కాబట్టి, మెరుగైన అభివృద్ధి చెందిన విత్త వ్యవస్థలు కలిగిన దేశాలు సుదీర్ఘ కాలంలో వేగంగా అభివృద్ధి చెందుతాయి. విత్త సంస్థలు, విత్త మార్కెట్స్ గురించి అధ్యయనం చేయవలసిన అవసరం ఉంది కాబట్టి, విశ్వవిద్యాలయం భవిష్యత్తులో కాబోయే ఆర్థికాంశాల విశ్లేషకులు, కార్పొరేట్ నిర్వాహకులు, పారిశ్రామికవేత్తలైన అర్థశాస్త్ర విద్యార్థులకు విత్త సంస్థలు మరియు మార్కెట్స్ అనే ఈ కోర్సును ఐదవ సెమిస్టర్లోని ఎలెక్టివ్ కోర్సులలో ఒకటిగా అందిస్తున్నది.

ఈ కోర్సు పదమూడు భాగాలతో, మొత్తం ఐదు ఖండాలను కలిగి ఉంది. దూరవిద్య విద్యార్థులను దృష్టిలో ఉంచుకుని పాఠ్యాంశాలను స్వీయ-బోధనా పద్ధతిలో తయారుచేయబడ్డాయి. ఈ పుస్తకం విద్యార్థులకు విత్త వ్యవస్థలోని భాగాలు, విత్త సంస్థలు మరియు మధ్యవర్తులు, విత్త వ్యవస్థ మరియు ఆర్థిక అభివృద్ధి, భారతదేశంలో విత్త వ్యవస్థ గురించి విద్యార్థులకు పరిచయం చేస్తుంది. కేంద్ర బ్యాంక్, స్టాక్ ఎక్స్చేంజీలు, రుణ మార్కెట్లు, అభివృద్ధి విత్త సంస్థలు, బ్యాంకింగ్ మరియు నాన్-బ్యాంకింగ్ ఆర్థిక సంస్థల పనితీరు గురించి పూర్తి అవగాహనను; అంతేకాకుండా టర్మ్ మరియు లాంగ్ టర్మ్ ఫైనాన్షియల్ ఇన్స్ట్రుమెంట్స్, అంతర్జాతీయ ఆర్థిక సంస్థలైన ప్రపంచ బ్యాంకు, ఆసియా అభివృద్ధి బ్యాంకు, యూరో డాలర్ మరియు షెట్లో డాలర్ మార్కెట్ల గురించి కూడా ఈ పుస్తకం తెలుపుతుంది.

ఈ కోర్సులోని వివిధ భావనలను వివరించడానికి రచయితలు తగిన జాగ్రత్తలు తీసుకున్నారు. కాబట్టి, ఈ కోర్సు మెటీరియల్ విద్యార్థికి 'విత్త వ్యవస్థ' పై పూర్తి అవగాహన పొందడానికి సహాయపడుతుందని విశ్వవిద్యాలయం భావిస్తోంది. రాబోయే సంవత్సరాల్లో కోర్సును మెరుగుపరచడానికి పాఠకులు నిర్మాణాత్మక సూచనలు, చెల్లుబాటు అయ్యే విమర్శలు తెలిపినట్లైతే విశ్వవిద్యాలయం అభినందిస్తుంది.

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**Quantitative Methods for Economic Analysis
(Discipline Specific Elective Course)**



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**Dr. B. R. AMBEDKAR OPEN UNIVERSITY
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2020

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Dr. K. Mohan Reddy
Associate Professor &
Head, Dept. of Economics, KU.

Associate Editor &
Course Co-ordinator:
Dr. K. Krishna Reddy

Writers:

	Units
Prof. D. Krishnamoorthy, SVU, Tirupati.	1, 2 & 3
Dr. D. Adeppa, Girraj Govt. College, Nizamabad.	4, 5 & 6
Prof. S. Radhakrishna (Retd.), Sr. Academic Associate, BRAOU.	7
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Website: www.braou.ac.in

E-mail to: info@braou.ac.in

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PREFACE

The subject of economics is considered as one of the social sciences. Analysis, observation and understanding of the economic phenomenon and predicting the future are important objectives of the subject matter of economics. Theorisation and experimentalisation are two important ways to ascertain the said objectives. These two pave the way for carrying out further research. But in practice, there are gaps between the theorisation and experimentalisation despite the fact that both are complimentary and not contradictory to each other. They are also inter-related and inter-twined. The theories are the guides for the experimentalisation. Experimental observations are the yard sticks for the pragmatism of the theories. Mathematical knowledge is essential for the theorisation where as knowledge of statistics is a sine-qua-non for the observation of experimentalisation. A combination of these two important branches, along with the applications of these in economics, is the subject matter of quantitative methods. Therefore, it can be said that the quantitative methods help us to understand the complex economic phenomena easily. Keeping all these aspects in view, as a part of CBCS, Dr. B. R. Ambedkar Open University has also introduced the subject of quantitative methods as one of the subjects at UG level. The subject matter has an elementary level as suitable for the needs of the UG level students and distance-education learners. All the units are prepared based on the self-instructional mode. Each and every unit begins with the contents and ends with the summary along with the model examination questions and glossary.

This subject consists of five blocks having a total of 12 units. First block consists of three units; Second block consists of three units; the Third, Fourth and Fifth blocks consist of two units each and altogether the subject has five blocks divided into 12 units.

The authors have taken adequate care to explain the various concepts with the aid of figures, tables and examples wherever required. As far as possible, efforts have been made to make the presentation lucid. Finally, I shall be glad and highly appreciative of the constructive suggestions and valid criticism to improve the textbook in the years to come.

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GREEN MARKETING –AN OVERVIEW

A.Pravallika¹

Abstract

A plant needs sustenance for growth and existence. In the same fashion businesses sustain by investing time, money, and resources. Green Marketing communicates effectively this kind of sustainability of public recognition and future progress environmentally. Human need in utilizing natural resources is crossing its limit year by year leading to greed. This greed has become a huge issue giving rise to ecological imbalance and related problems. Corporates in order to mark their presence and survival opted for eco friendly approaches to cater need versus greed. Here companies started searching for ecologically viable solutions to reinvent their products and market. Ultimately the concept of Green Marketing came to their rescue, through environmentally tailor made strategies they became quite popular in the minds of customers.

Green Marketing introduces a different aspect which paves the way for marketing products and services in Eco friendly fashion. The strategies under this concept are tailor made so as to make the ultimate product ecologically viable. As per Times report: "Air pollution damaged crops, wildlife and people in the US, costing around 10 Billion Dollars every year". Green Marketing helps to solve environmental problems by suggesting suitable remedies. It focuses on clean Technologies by withdrawing any issues of ecological and environmental pollution. Further the concept of green marketing brings out awareness among the people and corporates around to look for ecofriendly ways and means for a sustainable future and living ahead.

Introduction

Through industrialization in the name of growth and development man has been ruthlessly damaging the natural environment. At the end he has realized the importance of the environment and the fruits of it. Green Marketing helps to solve environmental problems by suggesting suitable remedies. It focuses on clean Technologies by withdrawing any issues of ecological and environmental pollution. This protection of the environment has become a prime motive in order to survive in a comfortable way.

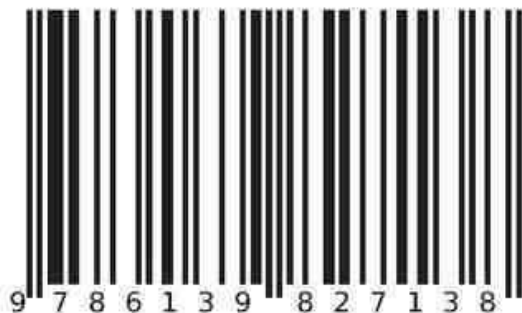
As per the Times report: "Air pollution alone damaged crops, wildlife and people in the US, costing around 10 Billion Dollars every year". However, it is already late, as we are getting the alerts of natural climates through melting of glaciers and threats of tsunami. These signs of global warming questioning the human intellect and human progress. To minimize these threats and warnings, man

¹ Assistant Professor, Department of Business Management, Mahatma Gandhi University, Nalgonda - Telangana

An Efficient Financial System should address to the requirements all the sections of the society, including the ageing population. To address the changing requirements of the ageing population, the financial markets have brought in a novel product called 'Reverse Mortgage Loan'(RML). In simple terms, RML is the "opposite" of a conventional home loan. A Reverse Mortgage enables a senior citizen to receive a regular stream of income from a lender (a bank or a financial institution) against the mortgage of his home. Reverse Mortgage thus turns the immovable property into a liquid asset that generates a return while it is being used by the owner. It converts the savings (real asset) into liquid. The Indian Financial System is still evolving and has introduced the RML recently. The Study is undertaken to gain an insight into the concept of Reverse Mortgage Loan, an innovative Financial Product, and examine the performance of Public Sector Commercial Banks through the Perceptions of the Beneficiares - with special reference to Reverse Mortgage Loan in Telangana State.



Dr.A.Pravallika,MBA,APSET,UGCNET, Ph.D, is Assistant Professor, Department of Management Studies, Mahatma Gandhi University, India. Her area of interest is Accounting and Finance. She has 10 years of Teaching & Research Experience. She has completed one Minor Project funded by ICSSR-SRC. She has published several research papers in reputed Journals.





Pravallika Akula

Reverse Mortgage Loan in India - Perceptions of Beneficiaries

LAP **LAMBERT**
Academic Publishing



राष्ट्रीय ग्रामीण संस्थान परिषद

NATIONAL COUNCIL OF RURAL INSTITUTES

(Ministry of Human Resource Development, Government of India)

5-10-174, Shakar Bhavan, Ground Floor, Fateh Maidan Road,

Hyderabad - 500 004, India.

Ph : 040-2321 2120, 2342 2105, Fax : 040-2321 2114

Website : www.ncri.in

Certificate of Participation

This is to certify that Prof./Dr/Sri/Smt. Dr. Ramesh Domala.....
of Mahatma Gandhi University, Jalgaon..... has participated in the workshop
on "*Transacting Student Engagement for Promoting Rural Resilience*", jointly
organized by National Council of Rural Institutes, Ministry of HRD, Govt. of
India, Hyderabad and Telangana State Council of Higher Education, Govt. of
Telangana, Hyderabad held on 18th & 19th January, 2017 at Dr. MCR HRD
Institute, Hyderabad.

Date: 19.01.2017


(Dr. D.N. Dash)
Member Secretary (I/c)



NATIONAL COUNCIL OF RURAL NSTITUTES

Department of Higher Education
Ministry of Human Resource Development
Government of India




Rural Resilience Indian Excellence

Dt: 30.10.2017

Certificate of Participation

Dr. Ramesh Damale, Asst. Prof. Chemistry of
Mahatma Gandhi University, Nalgonda

participated in the "State Level Consultation Workshop on Capacity Building for Mainstreaming Sendai Framework for Disaster Risk Reduction (SFDRR) and Rural Resilience in University Curriculum of Telangana State" held on 30.10.2017 in NCRI, Hyderabad.


(Dr Debendra Nath Dash)
Academic Programme Specialist



सत्यमेव जयते

NATIONAL COUNCIL OF RURAL INSTITUTES

Department of Higher Education
Ministry of Human Resource Development
Government of India



Rural Resilience Indian Excellence

Dt. 12.12.2017

Certificate of Participation

Dr. Ramesh Donnala, Asst. Prof. Chemistry of
Mahatma Gandhi University, Nalgonda.

participated in the "*Mainstreaming SFDRR & Rural Resilience in University Curriculum in Telangana State - 2-Days Workshop on Curriculum Development for/with Faculty*" held on 11th & 12th December 2017 at Mahatma Gandhi University, Nalgonda.


Chairman



NATIONAL CONFERENCE ON



INNOVATIONS IN CHEMICAL AND PHARMACEUTICAL SCIENCES

(14 & 15 Feb -2018)



This is to certify that Mr./Ms./Dr. D. RAMESH

has participated in the National Conference on "INNOVATIONS IN CHEMICAL AND PHARMACEUTICAL SCIENCES" and presented a Paper (Oral/ Poster/ Invited Lecture) on Synthesis and antibacterial evaluation of 1,8-naphthyridine based oxylidene derivative of the ^{drug}amine of Pharmaceutical Chemistry, Telangana University, Dichpally, Nizamabad.

Convener

Dr. Boyapati Shireesha

Organizing Secretary

Dr. Mavurapu Satyanarayana



Three Day National Seminar
on

Science and Technology for Sustainable Development with Women Empowerment (STSD-2020)

25th - 27th February, 2020



Certificate

This is to certify that Prof./Dr./Mr./Ms. *Ramesh Domala, Asst. Professor*
from *Mahatmaganchi University, Nalgonda*..... has Participated / Presented
a Paper / Poster in Three Day National Seminar on "Science and Technology for Sustainable
Development with Women Empowerment" (STSD-2020). Organized by Department of Chemistry,
Satavahana University, Karimnagar and Indian Science Congress Association, Hyderabad Chapter,
Telangana State, India during 25th - 27th February, 2020.

The Title of the Presentation is *IONIC LIQUID ASSISTED SYNTHESIS OF*
1,8-NAPHTHYRIDINE DERIVATIVES.....

The efforts made in preparing the technical paper and making a presentation is heartily appreciated.

Convener

ISCA, Hyderabad Chapter

Wanwanthy
Convener

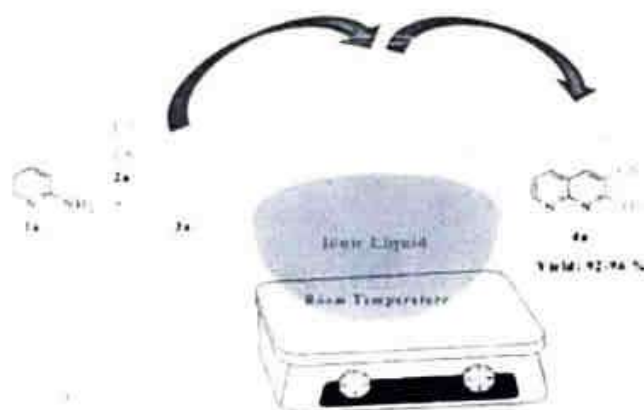
STSD-2020

IONIC LIQUID ASSISTED SYNTHESIS OF 1, 8-NAPHTHYRIDINE DERIVATIVES

^{1,2}Nadeer Md., ³Ramakanth Pagadala, ¹P. Ravi kumar, & ^{1*}Ramesh Domala

¹Department of Chemistry and Pharmaceutical Sciences, Mahatma Gandhi University, Nalgonda, India
²Chemistry Division, H&S Department, CVR College of Engineering, Ibrahimpatnam, Hyderabad, India
 E-mail: khadeerchemia@gmail.com, drdo.ramesh@gmail.com

2-amino-3-cyano substituted 1,8-naphthyridine derivatives has been developed in the presence of BMIM-PF₆ (1-Butyl-3-methyl imidazolium hexafluoro phosphate) catalyst using amino pyridine, malononitrile and aromatic aldehydes via Knoevenagel condensation and Michael addition followed by intramolecular cyclization. The BMIM-BF₄ catalyst selectively convert amino pyridine into 1,8-naphthyridines with good yield at room temperature. This ionic liquid can be efficiently reused for several times without loss of its sustainable activity.



Keywords: One pot synthesis, Multicomponent, ionic liquid, 1,8-Naphthyridines.

References:

1. D.Ramesh, B.srinivasulu, *Indian J Chemistry*, 43B, 2004,897-900.
2. Ivan N. Bardasov, Anastasiya U. Alekseeva, Oleg V. Ershov, Mikhail Yu. Belikov, *Tetrahedron Letters* 56 (2015) 5434–5436
3. Talent Raymond Makhanyua, Robert MoonsamyGengana, and AtharAtab, *Synthetic Communications*, Volume 49, 2019
4. E. C. Anderson, H. F. Sneddon, Ch. J. Hayes, *Green Chem.*, 2019, 21, 3050.
5. M. Güleli, S. S. Erdem, N. Ocal, I. Erden, O. Sari, *Res. Chem. Intermediates*, 2019, 45, 2119



MSSA-2020
Osmania University

International Conference on
MATERIAL SCIENCE FOR SOCIETAL ADVANCEMENT
Organized under UGC UPE FAR Programme
Osmania University, Hyderabad
20th-22nd January, 2020

Participation Certificate

This is to certify that Prof. Dr. Ms. Mr. Mr. Ramesh Domala
M. S. University, Nalgonda.

has participated in the International Conference on "Material Science for Societal
Advancement" held during 20th-22nd January, 2020 at Osmania University, Hyderabad.

Kerny

Chairman

Shirshy
Convener



MSSA PS P-41

An efficient synthesis of 1,8-naphthyridine derivatives using

Ce-Zr/SiO₂ as heterogeneous catalysts

Kadeer Md^a, Ramakanth Pagadala^b and Ramesh Domala^b

^aChemistry Division, H&S Department, CVR College of Engineering,
Bhadrachalam, Hyderabad, India

^bDepartment of Chemistry and Pharmaceutical Sciences,
Mahatma Gandhi University, Nalgonda, India

Email: kadeerchen@gnul.com, pagadalaramakanth@gmail.com

2-Amino-3-cyano substituted 1, 8 naphthyridines has been developed in the presence of Ce-Zr/SiO₂ as a heterogeneous acid catalyst using amino pyridines, malononitrile and aromatic aldehydes via Knoevenagel condensation and Mannich addition followed by intramolecular cyclization. The Ce-Zr loaded on SiO₂ catalyst could selectively be converted amino pyridine into 1, 8 naphthyridines with good yield in short period of time at room temperature. This catalyst can be efficiently reused for several times without loss of its sustainable activity.



MSSA PS P-42



Rural Resilience Indian Excellence

National Council of Rural Institutes

Department of Higher Education
Ministry of Human Resource Development, Government of India



Certificate of Participation

This is to certify that Dr/Sri/Smt _____ of

D. Ramesh

Mahatma Gandhi University _____ has participated in the deliberations

on "Rural Community Engagement, Umat Bharat Abhiyan and Social Responsibility", in the two day workshop held on 6 - 7 March, 2017 at National Institute for Micro, Small and Medium Enterprises (NI-MSME), Hyderabad.

Dr D N Dash
Academic Programme Specialist
National Council of Rural Institutes

Dr W G Prasanna Kumar
Chairman
National Council of Rural Institutes

Prof. U.UMESH KUMAR
Ph.D.



OFFICE OF THE REGISTRAR
MAHATMA GANDHI UNIVERSITY
www.mguniversity.ac.in

Fax: 08682-221905,

Cell: 9948284222

REGISTRAR

Lr.No. 1274 / MGU/ NLG/2016-17

Date: 04.03.2017

To
The Principal
University College of Science and Informatics
Mahatma Gandhi University, Nalgonda.

Sub: Mahatma Gandhi University- On duty -Permission to Attend the
NSS Workshop - Regarding.

Ref: Lr.No.NCRI/NSS/CUs/TUs, dtd: 03.03.2017 of Chairman, NCRI, Hyderabad.

& & &

The Vice Chancellor has accorded approval for deputing Dr. D.Ramesh, NSS Co-ordinator, Asst. Prof., Department of Chemistry to attend the NSS Workshop on 6th and 7th March, 2017 being organized by NCRI Hyderabad at National Institute for Micro, Small and Medium Enterprises (NIMSME), Lakshmi Narsimha Nagar Road, Krishna Nagar, Yousufguda, Hyderabad, Telangana - 500 045.

Therefore, you are requested to relieve him accordingly and make alternate teaching arrangements with in the department.

REGISTRAR

Copy to :

1. Chairman, NCRI, Hyderabad.
2. Dr. D.Ramesh, NSS Co-ordinator, Asst. Prof., Dept. of Chemistry, UCSI, MGU, Nlg along with photo copy of reference cited letter.
3. The Finance Officer, MGU, NLG.
4. The A.R.,MGU,NLG
5. Sr. Asst. Academic Section, MGU, NLG.
6. Pre- Audit Section, MGU, NLG.
7. PS to VC, MGU, NLG.
8. PA to Registrar, MGU, NLG.
9. Stock file.



NATIONAL COUNCIL OF RURAL INSTITUTES

Ministry of Human Resource Development
Government of India



Certificate of Participation

This is to certify that Dr/Sri/Smt Dr. D. Ramesh of _____

Mahatma Gandhi University, Nalgonda has participated in the deliberations on "Curriculum Development on Rural Community Engagement of Students", in the two day workshop held on 23rd & 24th June, 2017 at Mahatma Gandhi University, Nalgonda (T.S.).

Dr. W G Prasanna Kumar
Chairman

National Council of Rural Institutes

Prof. Khaja Althaf Hussain
Vice-Chancellor

Mahatma Gandhi University



महात्मा गांधी राष्ट्रीय ग्रामीण शिक्षा परिषद
Mahatma Gandhi National Council of Rural Education
(Formerly National Council of Rural Institutes)
Department of Higher Education, Ministry of Human Resource Development
Government of India



Lr. No. 0072/MGNCRE/CE/NSS/Dt.5-2-2019

To
Dr.D.Ramesh
Programme Coordinator, NSS
Mahatma Gandhi University
Panagal, Nalgonda – 500803

Sub: MGNCRE-MHRD-GoI – Support for Conducting of Round Table on Community Engagement Curriculum

Dear Sir,

Greetings from Mahatma Gandhi National Council of Rural Education!

Mahatma Gandhi National Council of Rural Education (MGNCRE) formerly National Council of Rural Institutes (NCRI), thanks you for your interest in rural community engagement programmes including Swachhata. MGNCRE has created a nationwide impact by embarking on Rural Community Engagement, Rural Management and Nai Talim related Curriculum Development Workshops and Faculty Development Programmes.

MGNCRE has also developed a curriculum on Community Engagement as per the request of the Ministry of Human Resource Development. The curriculum is designed with 2 credits at the UG level and 4 credits at the PG level. Please find attached the curriculum for your perusal.

In this context, we request you to facilitate a 30 minute Round Table Conference involving Hon'ble Vice Chancellor of your University. This course on Community Engagement will be greatly benefit and give recognition for the NSS volunteers who are doing tremendous work for their institution and for the nation. This effort will be an apt tribute to Mahatma Gandhi on the occasion of his 150th birth anniversary celebrations. Our Faculty Member will be soon approaching the Vice Chancellor and you for conducting the Round Table.

As NSS Coordinator, your support will benefit the NSS Volunteers and your NSS Program Officers by providing due recognition by way of academic status and academic value for the voluntary services of NSS volunteers. Our Faculty Member will be in communication with on this Roundtable in the chambers of Honorable Vice Chancellor of your esteemed University.

We look forward to a mutually beneficial association with you.

Thanking you,

Yours sincerely

Member Secretary



National Council of Rural Institutes

Department of Higher Education,
Ministry of Human Resource Development, Government of India



Connect

July 2017

Vol.-3

Issue-7

**STRIVING FOR A BETTER
TOMORROW...**



Community Curriculum Workshop at Mahatma Gandhi University, Nalgonda



“The destiny of an individual and the world will be changed in the classroom,” said HMDA Commissioner, T. Chiranjeevulu in his address at a two day workshop held at Mahatma Gandhi University (MGU) Nalgonda. During 23rd and 24th June 2017. The workshop was organised to integrate and transform the rural community by developing curriculum on rural community engagement by the University in collaboration with the National Council of Rural Institutes (NCRI). The main objectives of the workshop were to introduce Community Engagement Curriculum and a brainstorming session for fostering

Social Responsibility through Community Engagement. The workshop was organised in three sessions. The first session dealt with text transcription to frame the syllabus. Field work transcription, which is to convert the research data into layman's text, was explained in the second session. The final session shed light on how to evaluate the text and field transcriptions.

The faculty members attending the workshop were grouped on the basis of their respective departments. Each group was headed by experts from National Institute of Rural Development and Panchayat Raj (NIRDPR).

The main objectives of the workshop were to introduce Community Engagement Curriculum for fostering Social Responsibility and Community Engagement.



A video on the two-day workshop is uploaded on National Council of Rural Institute's YouTube channel.

While inaugurating the workshop, Vice Chancellor of the University, Prof. Khan Altaf Hussain said, "Every student should have social concern and the approach should be scientific." He also emphasized that the University is making necessary efforts to increase skill development programmes to make each student live-life-lively on the campus and the NCRI collaboration is one such attempt. The students and teachers of MGU sought to carry out their share of social responsibility by undertaking the needful works within the University premises.

Prof. Purushotham Reddy, an acclaimed academician, environmentalist, and political scientist said "It's a wonderful initiative by NCRI and MGU to make students as resources for Rural Development".

Addressing the gathering, T. Chiranjeevulu, Commissioner, HMDA who had earlier worked as the Collector, Nalgonda said, "Village immersion is a very good programme and it should be district specific. India never focused on education and skill development. So it is high time



that people develop critical thinking and good communication skills." Shri T. Chiranjeevulu highlighted that community spirit comes only if we go to a village and the possibility to change comes only from self-help, citing South Korea as an example.

Later, NCRI Chairperson Dr WG Prassanna Kumar pointed out that the most important quality of an individual within the University should possess is to be interested but not entrusted

with rural engagement. Dr. Kumar said, "People should give time to the village community and listen to them, students should learn from the village community by being with them."

The Chairman further said, "Operations within the village will be carried out from an individual level, family level, group level and through institutional involvement." The MGU VC in this context said that the students will be made to visit rural areas and the syllabi will be redesigned accordingly. In the need to integrate the aspects of living and learning there is a need for the teachers and the students to do something extra apart from their regular duties.

The workshop was concluded by a valedictory function where the Dr. Prassanna Kumar was honored by Prof. Altaf Hussain, Dr. C. Dheeraja, Dr. K Jayalaxmi, Dr. G Rajani Kanth, Dr. P Shiva Ram experts from NIRD and S Vidya Rani, Central Social Welfare Department were also present at the workshop.





NATIONAL COUNCIL OF RURAL INSTITUTES

Ministry of Human Resource Development
Government of India, New Delhi



Certificate of Participation

This is to certify that Dr/Sri/Smt D. RAMESH of

Assistant Professor, M.G. University, Nalgonda has participated in "One day
Workshop on Orientation Programme on Rural Immersion for NSS Programme
Officers" held on 21st February, 2018 at Mahatma Gandhi University, Nalgonda (T.S.).

Dr. W.G. Prasanna Kumar
Chairman

National Council of Rural Institutes

Prof. Khaja Athaf Hussain
Vice-Chancellor

Mahatma Gandhi University



MAHATMA GANDHI UNIVERSITY, NALGONDA

**One Day
Orientation Programme on Rural Immersion**

**Organized by
NSS MGU in Collaboration with NCRI.
PROGRAMME SCHEDULE**

Inaugural Session: 11:00 am

Date: 21.02.2018

Welcome Note	<ul style="list-style-type: none">• Mr. John Paul M
Inviting Guests on to the Dais	<ul style="list-style-type: none">• President: Prof. U Umesh Kumar Registrar, MGU• Chief Guest: Prof. Khaja Althaf Hussain, Vice-Chancellor, MGU.• Guest of Honour: Dr. Gaurav Uppal, IAS, District Collector, Nalgonda• Keynote Speaker: Dr. W.G. Prasanna Kumar, Chairperson, NCRI
Presidential Remarks:	<ul style="list-style-type: none">• Prof. U Umesh Kumar Registrar, MGU
Address by Guest of Honour:	<ul style="list-style-type: none">• Dr. Gaurav Uppal, IAS, District Collector, Nalgonda
Address by Chief Guest:	<ul style="list-style-type: none">• Prof. Khaja Althaf Hussain, Vice-Chancellor, MGU.
Address By Key Note speaker	<ul style="list-style-type: none">• Dr. W.G. Prasanna Kumar, Chairperson, NCRI.
Vote of Thanks	<p>Dr. D. Ramesh NSS Coordinator, MGU</p>

Prof. M. YADAGIRI
M.Com, M.B.A., M.Phil., Ph.D.

REGISTRAR



(Accredited with 'B' grade by NAAC)

MAHATMA GANDHI UNIVERSITY
Yellareddyguda, NALGONDA - 508 254
(www.mguniversity.ac.in)
Phone: 99482 84222, Fax: 08682 221 903
Email: registrar_mgu@yahoo.com
registrar@mguniversity.ac.in

Lr. No. ⁹³⁶ / MGU/ NLG/ 2018/ 19

Dates: 17.12.2018

ORDERS

Sub: MGU- NSS Cell - NLG- Constitution of Committee - FDP (Non Residential) by MGNCRE for NSS Programme Officers on Rural Immersion and Community Engagement - Orders issued.
Ref: Lr. No. MGNCRE/NSS FDP/MGU/2018 dated: 05.12.2018.

Approval has been accorded by the Vice - Chancellor with the following members to conduct the FDP programme, as per guidelines given by the MGNCRE, New Delhi.

- | | | |
|---|---|----------|
| 1. Registrar, MGU. | - | Chairman |
| 2. Programme Coordinator, NSS, MGU. | - | Director |
| 3. Coordinator E.T.I, MGU. | - | Member |
| 4. Placement Officer, MGU | - | Member |
| 5. Student Welfare Officer, MGU | - | Member |
| 6. NSS Programme Officers | | |
| a. V. Venkateswarlu - NSS Programme Officer | - | Member |
| KRR GJC, Kodad. | | |
| b. B. Pandurangam - NSS Programme Officer | - | Member |
| S.L.N.S College, Bhongir NSS Unit-II | | |
| c. N. Venu - NSS Programme Officer | - | Member |
| N. G. College, Nalgonda NSS Unit-II | | |

REGISTRAR
REGISTRAR

Mahatma Gandhi University
NALGONDA-508 254.

To
Programme Coordinator
NSS Cell, Mahatma Gandhi University
Nalgonda.

- Copy to
1. Concerned Members
 2. Finance Officer, MGU, Nalgonda.
 3. P.S to Vice - Chancellor, MGU, Nalgonda.
 4. P.A to Registrar, MGU, Nalgonda.
 5. PRO, MGU, Nalgonda
 6. Stork File

Prof. M. YADAGIRI

M.Com., M.B.A., M.Phil., Ph.D.

REGISTRAR



MAHATMA GANDHI UNIVERSITY

Yellareddyguda, NALGONDA-508254 (T.S.)

(www.mguniversity.ac.in)

Mobile: 9948284222, Fax : 08682-221903

Email: registrar_mgu@yahoo.com

registrar@mguniversity.ac.in

(Accredited with 'B' grade by NAAC)

Lr. No. 1188/MGU/NLG/2018-19

Date: 28.02.2019

To
The Chairman,
Telangana State Council of Higher Education,
Opp: Mahavir Hospital, Mahavir Marg,
Masabtank, Hyderabad – 500 028.

Sub: Mahatma Gandhi University, Nalgonda – TSCHE – MGNCRE – One day Workshop with all Vice Chancellors of Telangana State Universities on introduction of Internship Course on Rural Community Engagement at UG level in all Universities – Request for participating in the workshop on 01.03.2019 at Conference Hall TSCHE Hyderabad - Regarding

Ref: Lr.No.TSCHE/MGNCRE/VCS/One Day Workshop, Dated: 15.02.2019.

In compliance to the above letter cited, the following two faculty members working in Mahatma Gandhi University, Nalgonda are deputed to participate above One day workshop on 01.03.2019 at 10.30A.M. in the Conference Hall of TSCHE, Masab Tank, Hyderabad.

Name:	1. Dr.D.Ramesh	2. Sri.S.Sravan Kumar
Designation :	Assistant Professor & NSS Programme Coordinator	Academic Consultant, I/C HOD of MSW
Mobile No.:	8186025800	8374283666
e-mail:	drdo.ramesh@gmail.com	maw_sriram@yahoo.com

This is for your kind information.

Encl: 1 Sheet

To

The Persons concerned along with copy of reference cited letter for their guidance and to attend the Workshop on the 01.03.2019.

Copy to

1. The Secretary, TSCHE, Hyderabad
2. The Principals, UCSI & UCASS, MGU, NLG to relive the above candidates for attending Workshop duly making alternate arrangements of their work.
3. The Pre-Audit, MGU, NLG.
4. The Finance Officer, MGU, NLG.
5. The Assistant Registrar, MGU, NLG.
6. The Pay-bill Section, MGU, NLG.
7. The PS to VC, MGU, NLG.
8. The PA to Registrar, MGU, NLG.


REGISTRAR

MAHATMA GANDHI UNIVERSITY
NALGONDA-508254 (T.S.)



No. 1053/MGU/NLG/ 2016-17

Date:09.01.2016

To
Prof.T.Papi Reddy
Chairman
Telangana State Council of
Higher Education, Hyderabad
Sir,

Sub: Mahatma Gandhi University, Nalgonda- Nomination of the
Members for joint workshop on Student Engagement in Rural Community -
Regarding
Ref: TSCHE letter dated:27.12.2016

With reference to the subject and letter cited, I would like to inform you that, Dr.D.Ramesh, Assistant Professor, Dept., of Chemistry & Pharmaceutical Sciences & NSS Coordinator and Mr.L.Madhu, Academic Consultant, Dept.of Social Work have been nominated to participate in the Joint Workshop on "Transacting Student Engagement for Promoting Rural Resilience" on 18th & 19th of January, 2017 at Dr.MCR, HRD Institute, Jubilee Hills, Hyderabad, Telangana from 9.30 am to 5.00pm hosted by NCRI in association with Telangana State Council of Higher Education.. Their contact numbers are furnished hereunder.

Address:

1. Dr. D.Ramesh
Assistant Professor, Dept. of Chemistry
& Pharmaceutical Sciences
University College of Science & Informatics
Mahatma Gandhi University, Nalgonda
Ph.No.8186025800
mail id: drdo.ramesh@gmail.com
2. Mr.L.Madhu
Academic Consultant
Dept. of Social Work
University College of Arts & Social Sciences
Mahatma Gandhi University, Nalgonda
Ph.No.9440109930
mail id: rayudu.medha@outlook.com

Copy to:

1. The Individuals along with letter dated:27.12.2016
2. The Finance Officer, MGU,NLG
3. The Principal, UCSI, MGU,NLG
4. The Principal, UCASS, MGU,NLG
5. Sr. Assistant, Academic Section, MGU,NLG
6. Pay bill section, MGU,NLG
7. PS to VC, MGU,NLG


REGISTRAR

Telangana

One-day Workshop on Orientation to NSS Programme Officers on WASH awareness and Volunteerism at Mahatma Gandhi University, Nalgonda
09 January

The workshop was inaugurated by Prof. M Yadagiri Registrar MGU. Dr D. Ramesh programme coordinator NSS coordinated the proceedings. The workshop had 33 participants and focused on WASH, ODF, Jal Shakti mission, Swachhta, SDGs and Volunteerism.



Punjab



Village visit in progress at Buterla Village Chandigarh

Haryana



Project Officer on his final visit to the village with NIFTEM Volunteers



Chairman of Prince Academy Sikar, felicitating both the Sapansh from Villages, Kanwarpora and Jeterwalon Ki Dhani for their support in the Swachhta Action Plan



MGNCRE team participated in the Pongal Festivities! Rangoli at the Office!



Mahatma Gandhi National Council of Rural Education

Department of Higher Education

Ministry of Human Resource Development, Government of India

5-10-174, Shakkar Bhavan, Ground Floor, Fatch Maidan Road, Hyderabad - 500 004 Telangana

Tel : 040-23422112, 23212120, Fax : 040-23212114 E-mail : editor@mgncre.in, Website : www.mgncre.org

Editorial Team : Dr WG Prasanna Kumar, Chairman MGNCRE, Dr D N Dash, Assistant Director, Anasuya V

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The book cover features a green background with a white, wavy line that separates a top-left circular inset from the rest of the cover. The inset shows a field of golden rice. Below this, several smaller circular insets are arranged in a descending curve. From top to bottom, they show: a person in a white hat and dark clothing crouching on cracked earth; a person in a red headscarf working in a field; and a man in a white shirt and a green turban crouching in a field. The title is written in large, bold, red letters with a white outline across the top and middle sections.

**FARMERS SUICIDES
CAUSES CONSEQUENCES
AND
PREVENTIVE MEASURES**

Editor
Dr. A. PUNNAIAH

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B.VEERABADRAM
K RAJENDRA
A SRIDHAR

47. FARMERS SUICIDE IN INDIA- A VIEW

Dr. K.V. SASIDHAR
Assistant Professor
Department Of Economics
Mahatma Gandhi University

G. PANDARAJAN
Assistant Professor
Department Of Economics
Mahatma Gandhi University

Introduction:

Agriculture is a large sector of the economic activity and has a crucial role to play in the country's economic development by providing food, raw materials and employment to a very large proportion of population, and generating capital for its own development along with surplus for national economic development. Agriculture sector contributes huge share to the national income of India, although it has come down from as high as 33 percent during the 1950s to 17.6 percent in 2014- 15. The trend of the declining share of agriculture in the national income is broadly in consonance with the conclusions derived by development economists; what is, however, amazing is the fact that rate of change has been rather slow. The situation as it obtains presently requires that more of available resources should be devoted to the development of programmes in the agriculture sector as it is this sector that continues to have great potential for reducing poverty and hunger in the rural sector. All calculations indicate that 50 percent of the increase in providing employment opportunities which will have to come from agriculture.

The agriculture sector is a net earner of foreign exchange which is essential for capital and maintenance of imports required in the non- agriculture sector. This sector is the primary source of savings and hence capital formation for the economy. Since independence, large investment, both public and private, has been made in agriculture. In areas as like land and its improvements, tools and implements, farm structures, livestock, earth irrigation, farm machinery, storage godowns and other infrastructures. However, the agricultural sectors suffer from a few major problems having relevance to long-term growth. The high degree of uncertainty of rainfall together with the relative poverty of the farmers in these areas makes the application of even known improved practices both difficult and risky. The agriculture is facing problems like use of farm inputs, problem of small farmers, decline in productivity, raising cost of production in agriculture, loss of biodiversity, weakening of linkages between agriculture and industry, farmers suicides etc.,

Due to rapid growth of rural population and division of families the farmland has undergone rapid fragmentation. Presently 80% of the farmland holding are with the small and marginal farmers owning land up to 5 acres. For this category of farmers cost of production by way of farm inputs has increased manifold over the years while the productivity of the land remained at the same level and sale price of farm produce has not commensurately increased. These factors have driven farmers to the debt trap and have caused distress leading to suicide.

The distressed economy of small scale crop cultivation is further accentuated by lack of knowledge, scientific application of crop management, diversification practices, inappropriate system such as non-availability of quality input material in time, inadequate irrigation facility, non-remunerative prices and dominance of middlemen in Agricultural Marketing Structure. It is encouraging to see that our country is one of the fastest growing economies in the world. Reform process in most of the economic sectors is in place. There is healthy competition in almost all the sectors leading to cost reduction. Government of India has planned to achieve at least 8 % growth by 2016, but all this cannot be achieved unless the targetted growth is ensured for agriculture.

Objectives:

- To study the Farmers Suicide in India and Telangana
- To compare the farmers suicides with total suicides in India.
- To analyze the Farmers Suicide in India.

Methodology:

This present paper makes use of primary and secondary data, in order to analyze the above objectives of the study. The primary data collected from the farmers of anneparthi village of nalgonda mandal through focused group discussion. The secondary data has been taken from various sources like Socio economic survey of India, Agriculture sense, Journals, magazines and National Crime Reports Bureau of India etc. The Statistical percentages also employed in the study.

Scope of the paper: This paper is to study the reasons of farmer's suicides in India and find out the remedies to control the same. For this study data regarding farmers suicides of five states i.e. Maharashtra, Telangana, Andhra Pradesh, Karnataka, Madhya Pradesh and Chhattisgarh is shown separately as they are on top in farmers suicides in India and contributed near about two third of total farmers suicides in India. Data of farmer's suicides in all other state are collected and shown together.

Farmers Suicides in India- Telangana:

According to the latest National Sample Survey Organization (NSSO) report, Key Indicators of Situation of Agricultural Households in India, released in December, over 89% of all farm households in Telangana, are indebted (compared to 52% for the country) with an average debt of Rs.93,500 (compared to Rs.47,000 for all India). The debt situation of farm households in Telangana is the second worst in the country, next only to Andhra Pradesh, where 93% farm households are indebted. Telangana has become the second among states in the country, where the largest number of farmers' suicides were reported. As many as 898 farmers took their lives due to several reasons in 2014, a new National Crime Records Bureau data reveals. Warangal and Medak districts saw the maximum number of deaths. Inadequate rainfall, dry bore wells, decrease in groundwater levels and poor irrigation facilities leading to crop failure have pushed them to suicide. Since a majority of them are dependent on bore wells, frequent power cuts have also negatively affected the farmers.

The National Crime Records Bureau (NCRB) data for 2013 shows that, in undivided Andhra Pradesh and Maharashtra, with 2,014 and 3,146 farmer suicides, respectively, together accounted for 44% of the 11,744 farmer suicides in India. Interestingly, farmer suicides are rife both in Telangana and in the Vidarbha region of Maharashtra, where cotton is grown without irrigation and hence the crop is entirely dependent on the monsoon.

Telangana has become the second among states in the country, where the largest number of farmers' suicides were reported. As many as 898 farmers took their lives due to several reasons in 2014, a new National Crime Records Bureau data reveals. Warangal and Medak districts saw the maximum number of deaths. Inadequate rainfall, dry bore wells, decrease in groundwater levels and poor irrigation facilities leading to crop failure have pushed them to suicide. Since a majority of them are dependent on bore wells, frequent power cuts have also negatively affected the farmers. The south-west monsoon, the principal source of water for growing cotton, was not only delayed but was deficient. The overall rain deficit in the June-September monsoon season was 34% of the long-period average, compared to 12% for the entire country. To make matters worse, the entire

crop season experienced prolonged dry spells.

Even the north-east monsoon, from October to December, crucial for the Rabi crop, was deficient. 52% in Telangana (compared to 33% for the entire country) and 56% of land was unsown as of 14 January. The electoral promise of farm loan waivers compounded the problems for farmers. Banks started turning away farmers, who were already under pressure from accumulated debt, applying for fresh loans, forcing them to go back on local moneylenders who charge interest rates in the range of 24%.

Review of Literature:

According to the Report of Prof. K. Nagraj of Madras Institute of Dev. Studies, the General Suicide Rate (GSR) (overall suicides per 1 lakh population) in the country between the periods 1997 to 2005 was 10.6, while as the Farmers Suicide Rate (FSR) was 12.9 and the Ratio of FSR to GSR was 1: 1.2.

In Maharashtra the position was alarming with GSR at 15.1 and FSR at 29.9. According to Prof. Nagraj Annual Compound Growth Rate (ACGR) for all suicides at 2.18% is lower than the Population Growth Rate. The data reveals that the worst position of the farmers in Maharashtra is in Vidarbha region. The Study also shows the alacrity of the problem, so much so that on an average one farmer took his/her life every 5.3 minutes between 1997 and 2005. State wise position of suicides in other States in critical group was Andhra Pradesh- 16771, Karnataka-20095 & Madhya Pradesh (including Chhattisgarh) - 23588.

The National Crime Records Bureau (NCRB) data says that bankruptcy or indebtedness, failure of crop and family problems are the major causes. Illness and drug abuse or alcoholic addiction are also other reasons. 23.2 per cent of suicides in Telangana last year were due to bankruptcy or indebtedness. Human rights activists say most victims were harassed by illegal moneylenders before they ended their lives. A majority of farmers in Warangal and Medak are tenants, who have to pay very high rates to take the lands on lease. When the lands yield nothing, they are left with huge debts. According to Warangal officials last year farmlands dried up as groundwater levels went down. The rainfall in the season was also little and irrigation was affected badly (Deccan Chronicle).

"There has been no significant effort from the government to encourage ID (irrigated dry) crops like oilseeds and pulses while India keeps importing them. Serious fallout of cotton monocrop is that (since the crop yields no fodder) households are unable to rear livestock which are insurance in times of crisis," says Beera Ramulu, a grassroots activist with Rythu Swaraj Vedika.

Causes for Farmers Suicide in India:

These farmers belong to different caste groups and not only small and marginal farmers but even those owning larger holdings, which in the context of dry agriculture are not enough to enable the farmers' families to take out livelihood. The suicide of the bread winner, whether young or old, leaves the families desolate and disrupts the social order. The causes of farmers' suicides are both economic and social.

I. The economic causes are:

1. Growing expenditure, especially on bought inputs.
2. Low productivity.
3. Inadequate prices of agriculture produce.
4. Difficulties in marketing and marketing hazards.
5. Natural hazards caused by drought.
6. Absence of proper crop planning.
7. Insufficient agriculture credit.
8. Accumulated debt burden.

- Lack of alternative sources of income
- Laborer seeds.
- Low fertility of land.

II. The Social Causes are:

- The drinking habit which atrophies the productivity of the farmer.
- Lavish expenditure on marriages.
- Poor health and illness
- Inability to meet the necessary expenditure on medicine and health services.
- Other expenses on social functions like deaths, Births etc.
- Illiteracy of farmers.

Farmer's suicides and responsiveness of Governments:

In 2006, the Government of India identified 31 districts in the four states of Andhra Pradesh, Maharashtra, Karnataka, and Kerala with high relative incidence of farmer's suicides. A special rehabilitation package was launched to mitigate the distress of these farmers. The package provided debt relief to farmers, improved supply of institutional credit, improved irrigation facilities, employed experts and social service personnel to provide farming support services, and introduced subsidiary income opportunities through horticulture, livestock, dairying and fisheries. The Government of India also announced an ex-gratia cash assistance from Prime Ministers National Relief Fund to the farmers. Additionally, among other things, the Government of India announced

Kerala, in 2012, amended the Kerala Farmers' Debt Relief Commission Act, 2006 to extend benefits to distressed farmers with loans through 2011. It cited continuing farmer suicides as a motivation.

In 2013, the Government of India launched a Special Livestock Sector and Fisheries Package for farmer's suicide-prone regions of Andhra Pradesh, Maharashtra, Karnataka and Kerala. The package was aimed to diversify income sources of farmers. The total welfare package consisted of 912 million (US\$13 million).

Patel et al. find that southern Indian states have ten times higher rates of suicides than some northern states. This difference, they claim, is not because of misclassification of a person's death, for example as homicide, but because of regional causes. The most common cause for suicide in south India are a combination of social issues, like interpersonal and family problems, financial difficulties, and pre-existing mental illness. Suicidal behavior is as culturally accepted in south India as in some high-income countries. The high suicide rates in southern states of India may be, suggest Patel et al in part because of social acceptance of suicide as a method to deal with difficulties.

The Government of Telangana and Andhra Pradesh have been taken measurements to tackle the situation. Both the Governments have announced one lakh and below debt of farmers abolished. And also proposed plans for irrigation water schemes like mission Kakatiya and Pattiseema ect, projects in the year 2015 onwards.

Conclusion:

Repeated crop failures, debt hassles, lack of alternative sources of income, absence of institutional support have left the farmers with no other solution other than ending their lives. Another disturbing trend has been observed where farmers commit suicide in order to avail relief and benefits announced by the government

FARMERS SUICIDES CAUSES CONSEQUENCES AND PREVENTIVE MEASURES.

to support the families of the farmers who have died. This is true in the case of several farmers in Andhra Pradesh, Telangana and most of the States in India, who committed suicide so that their families could at least benefit from the Government's relief programmes. It is suggested that all the causes are simultaneously dealt with the situation cannot improve. It requires large public investment on irrigation and rural infrastructure transformation of the cooperative credit, marketing system, strengthening of the agricultural extension services and sympathetic administration working closely with the farming community.

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About the Editor

Dr. A. Punnaiah, is currently working as an Asst. Professor in the Department of Applied Economics, Telangana University, Dichpally, Nizamabad, Telangana state, India. Dr. A. Punnaiah began his career as a Teacher in the department of School Education. He completed M.A.(Economics) in 1994 with distinction. At the M.Phil (Economics) level, he was awarded the Nizam's Goldmedal in 1997. He also completed B.Ed in 1995 and M.A.English in 2002. He undertook a research on the topic "THE TRENDS AND PATTERN OF PUBLIC INVESTMENT IN INDIAN AGRICULTURE" to gain his Ph.D in 2007 from Osmania University, Hyderabad, (T.S.). He was qualified in National Eligibility Test (UGC- NET) in 1996 in Economics. He has 21 years of Teaching Experience. His specialization areas in teaching and research are: Agricultural Economics, Political Economy, Economics of Growth and Development. He has published a book entitled "Public Investment in Indian Agriculture" in 2011. He participated and presented research papers in 25 National and international seminars. He has published 25 articles in various reputed national and international journals. He is editorial collective member of Veekshanam journal of Political Economy and society. And also Editorial board member of International Journal in commerce, IT and social sciences. He chaired number of sessions in national and international seminars. He delivered many Extension lectures at UG and PG level. He has been a resource person at various workshops. He has conducted a Two-Day National seminar on "Farmer's Suicides: Causes, Consequences and Preventive Measures" and this book is the outcome of the seminar.


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AN ECONOMIC ANALYSIS OF RURAL INDEBTEDNESS IN INDIA AND TELANGANA

Dr. K.V.Sasidhar*, G. Pandaraiah** and Dr. V. Saidulu***

ABSTRACT

Agriculture plays a most strategic role from the point of view of supplying food, many raw-materials for industry. It is not only a supplier of goods for domestic and export needs but also a supplier of production factors like capital and labour. But, there are some weaknesses. Firstly, the slow rise in agricultural production and productivity. Secondly, there is a large proportion of agricultural land without proper irrigation and appropriate farming techniques so that productivity is still low. The size of fixed capital like wells, tube wells, dams, ponds, machines, warehouses are inadequate. Moreover, most of the farmers are small and marginal. Because of small farmers their income levels are very low and unable to invest and indebtedness in common legacy of poor farmers.

As per National Sample Survey report (Deccan Chronicle dated 5th Oct 2018) during January-December 2013, Household Indebtedness in India, average amount of debt per indebted household was Rs 1,03,457 and Rs 3,78,238 in rural and urban areas. The incidence of indebtedness was higher in rural areas with 31.4 percent households taking loans in some or other forms while in cities the proportion of such families was 22.4 percent, says a report. The Incidence of Indebtedness (IOI) was about 31.4 percent among the rural households and 22.4 percent among the urban households.

The 70th Round of the National Sample Survey (NSS) on "All India Debt and Investment Survey" report confirms that Telangana is among States with a high incidence of rural indebtedness with 89 percent of agricultural households under debt. More than half the agriculture households in Telangana are in debt, and the worst affected states are southern states like Andhra Pradesh, Telangana, and Tamil Nadu. The average asset value for rural households of Telangana is Rs 6.38 lakh.

*The author has been working as faculty in the department of economics in M.G. University, T.S. Email: sasidhar237@gmail.com , Mobile: 9396612026 and 7673906463.

** The author has been working as faculty in the department of economics in M.G. University, T.S. Email: pnadu.vineel@gmail.com , Mobile: 9494812448.

***The author has been working as faculty in the department of economics in M.G. University, T.S. Email: saiduluvaggu@gmail.com , Mobile: 9885389637.



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Restructuring and Privatization of Higher Education in Telangana and Andhra Pradesh

Dr. K. Anji Reddy

Assistant Professor, Mahatma Gandhi University, Nalgonda, Telangana

1. Introduction

Much has been written and researched into the effects and implications of different reforms and policy changes on important problems like poverty, employment and growth etc, at the national level. In recent years Government at the national as well as state level made several policies reversing some of the earlier policies. Among the states, Andhra Pradesh has been under taking several reforms on all fronts. It has been in the forefront of the state level reforms. There is hardly any sector that is not being touched and introduced reforms.

Though some of reforms were initiated earlier it is in the last decade a clear-cut policy shift has taken place. It is in Andhra Pradesh we can see the complete reversal of Nehru-Mahalanobies strategy of development where in the emphasis was on the centralization, public sector and self-sufficiency. Every sector hitherto be viewed from a welfare angle is being evaluated through market principle. Even the social sector like education and health are not spared from this scrutiny.

The reforms are not new to the education sector but have been taking place now and then in the form of new policies/programmes. When compared to other sectors of the economy many reforms in the education sector are under taken at the national level with a concomitant changes at the state level. However, some policies related to education sector are devised at the state level itself. Following are some of the reforms/policies undertaken in the education sector at the national/state level.

- i. Primary education is made a fundamental right;
- ii. Introduction of Mid-day meal scheme;
- iii. Recruitment of teachers on part time basis in education;
- iv. External Aid to primary education;
- v. Decentralization of school education;
- vi. Increase in corporatization of education;
- vii. Privatization and Diversification of management of secondary education;
- viii. Restructuring of higher education; and
- ix. Opening of most of the colleges under the political/commercial leadership than under academic/technical leadership.

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Financing of Education In Telangna State

K Anji Reddy** and B. Shiv Reddy***

1. Introduction:

Importance of education is well documented by the many researchers and scholars from different perceptions. It is an undisputed fact that education can contribute to social, political, economic and technical development of the nations. Further, it contributes to the reduction of crime rate, poverty and inequality in distribution of income, and increase in human development index, health hygiene and economic growth of the country. It can also be a source of inequalities in income and wealth if opportunities for education are not equally distributed.

There has been an unprecedented growth of education in the country after new economic reforms brought by the Government in 1991. The emergence of knowledge economy due to development of software technology has enhanced skill requirements and qualification levels for job entry to a minimum of post-secondary levels. Several government initiatives towards poverty eradication and Education for All (EFA) programmes have contributed to increase in the enrolment at school level which lead to increase in demand for higher education.

Telangana state came into existence on 2nd June 2014 after prolonged agitation carried by the Telangana people for their legitimate rights, particularly, for their share in employment, water and funds for the development. Education system was neglected in the Telangana region of united Andhra Pradesh State. Students were also demanded for their share in educational institutions and financing of education.

Five years are completed after bifurcation of Telangana from united Andhra Pradesh State. It is reasonable time to assess the changes that have taken place in the Telangana state. How is the progress of education after formation of the state? The progress of education can be assessed in terms of growth of educational institutions, enrolment, equity and the quality of graduates. We have made a modest attempt to understand changes taken place in education system in Telangana.

This paper is divided into five sections. The first section deals with the introduction and importance of education. Second section covers Growth of the educational institutions in the state. Third section deals with financing of education in the state.

** Assistant professor, MGU, Nalgonda ***Retired professor,OU, Hyd,



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ప్రొఫెసర్, ఎస్. రాధాకృష్ణ (Retd.), Sr. Academic Associate, BRAOU.

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అనువాదకులు:

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సజ్ఞా, Dept. of Management Studies,

St. Theresa's College for women, Eluru.

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డా. డి. అశ్వనీ, Girraj Govt. College, Nizamabad.

ప్రొఫెసర్, ఎస్. డాక్టోరేట్ (Retd.), Sr. Academic Associate, BRAOU.

డా. ఎన్. విద్యాసాగర్, K.U., Warangal.

డా. కె. వెంకటేశ్వర్ల, K.U., Warangal.

డా. కె. అంజనేయి, M.G.U., Nalgonda.

అనువాదకులు:

డా. డి. అశ్వనీ, Girraj Govt. College, Nizamabad.

సత్యా, Dept. of Management Studies,

St. Theresa's College for women, Eluru

డా. పి. మీనమ్మ, (Retd.) GDC, Nalgonda.

డా. ఆ. వెంకటేశ్వర్ల, K.U., Warangal.

కె. జానీ అభినవ్ రెడ్, GDC, Khammam.

చేపర దీక్షిత్:

జి. వెంకటేశ్వర్ల

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అధ్యయనం

12.0 లక్ష్యాలు

12.1 పరిచయం

12.2 కాలశ్రేణులు - అర్థం మరియు నిర్వచనాలు

12.3 కాలశ్రేణుల విశ్లేషణ యొక్క ఉపయోగాలు

12.4 కాలశ్రేణుల విశ్లేషణ ఛాగాలు

12.5 కాలశ్రేణి ప్రవృత్తిని నిర్ణయించే పద్ధతులు

12.5.1 సరస వక్ర రేఖ పద్ధతి

12.5.2 అర్థ మాధ్యమాల పద్ధతి

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12.9 పదకోశం

12.10 చదవవలసిన పుస్తకాలు

12.0 లక్ష్యాలు

ఈ భాగంను అధ్యయనం చేసిన తరువాత మీరు:

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- కాలశ్రేణి ప్రవృత్తిని మదింపు చేయటం పలు పద్ధతులను విశ్లేషించగలుగతారు.

12.1 పరిచయం

ఇటీవల కాలంలో భవిష్యత్ అంచనాలనేవి ఆర్థికవేత్తల లేదా వ్యాపారవేత్తల ముందున్నటువంటి ఒక మహత్తరమైన పని. ఉదాహరణకు, ఒక వ్యవసాయదారుడు గత సంవత్సరం అనుభవం ఆధారంగా వ్యవసాయ ఉత్పత్తులకున్న డిమాండ్‌ను భదించడానికి వ్యవసాయ ఉత్పత్తుల దిగుబడుల అంచనాల ఆధారంగా చర్యలు తీసుకుంటాడు. అదే విధంగా ఒక ఆర్థికవేత్త ఆర్థికవ్యవస్థ యొక్క భవిష్యత్తును అంచనా వేసి ఆర్థికవ్యవస్థలో ఒకవేళ అసమతుల్యంలు ఏవైనా ఉంటే వాటిని సర్దుబాటు చేస్తారు. అదే విధంగా ఒక వ్యాపారవేత్త భవిష్యత్



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IS THERE A LEARNING CRISIS IN TELANGANA STATE?*

B. Shiva Reddy**
Dr. K. Anji Reddy***

1. Introduction

In recent years one of the most debated issues is related to the quality of education. There would not have been much concern had the quality of education been satisfactory. Not only it is far from satisfactory but it is negatively afflicting the society and economy. Therefore, the debate on quality of education, referred to as the debate on learning crisis¹ is not confined to a particular country or a particular level of education but taken at a global level and for all levels and types of education (Hanushek and Woessmann,2012).

The global level learning deficits are assessed through Programme for International Student Assessment (PISA) test which tests the learning levels of 15 year olds is conducted by OECD on a regular basis. According to PISA ranking the average score in mathematics, science and reading is highest for Singapore, followed by Hongkong, Japan and Macau. In addition to Singapore, Hongkong, Japan, Macau and Canada were the only countries where four out of five 15 year old children have mastered the OECD's baseline level of proficiency in Mathematics, Science and reading. Of the 70 countries which participated in the test during 2015-16 all the participating countries of South East Asia have a better record even compared to some of the developed countries. The score of USA, the country known as global destination for higher education, is below the OECD average. In several countries the 75th PISA test takers performed below the 25th percentile of the OECD average. When compared to South East Asian countries the performance is poor in South and South West Asian countries. According to World Development Report (2018:5)the percentage of grade 2 students who could not read was more than 80% in Malawi, India and Ghana. The percentage of grade 2 students who could not perform two-digit subtraction was more than 80% in India and Uganda. India's position in learning levels is far from satisfactory both in relative and absolute terms. It's position was 73rd out of 74 countries in 2009-10².

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** Retired Professor of Economics, Osmania University, Hyderabad.

*** Assistant Professor of Economics, Mahatma Gandhi University, Nalgonda.



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Public Financing of Higher Education through Fee Reimbursement Scheme: A Case Study of Engineering Education in Andhra Pradesh, India

Professor B. Shiva Reddy Osmania University, Hyderabad, India

&

Dr. K. Anji Reddy Mahatma Gandhi University, Telangana, India

Abstract

In India public funding to higher education is taking three forms: i) Government funds directly the institutions which is on the decline ii) Grants-in-aid or private aided and iii) private unaided. Now a days the unaided sector is funded by the government through reimbursing the tuition fee, through a scheme known as Fee Reimbursement scheme (FRS). This paper attempts to examine the issues associated with FRS, introduced in Andhra Pradesh in 2008-09 with focus on engineering education. When compared to other types of higher education engineering education is highly influenced most by FRS in Andhra Pradesh. The introduction of the FRS is associated with many developments in engineering education. The number of engineering colleges has more than double capacities in the existing colleges leading to an increase in the number of vacant seats. The dynamics of demand for and supply of technical education seats has changed in this century. While there was excess demand in the early 2000s now it a case excess supply. It seems that FRS has increased access to low quality education. Further the governments of AP and Telegana do not want the FRS scheme to continue. This paper discusses the implications of these changes in the technical education sector in the two states.



Dr. B. Shiva Reddy holds a Master's degree from Osmania University and a doctoral degree from Jawaharlal Nehru University. He was Head of the Department of Economics and the Chairman Board of Studies in Economics of Osmania University. Dr. B. Shiva Reddy has been associated with policy making bodies at state and national levels. He was a Member of Tapas Majumdar Committee and Member of National Council of Teacher Education (Southern Region), Member of DPEP Appraisal Committee at State and National Level. He was on the Board of Studies in Economics of several universities and also academic bodies related to Economics and Financing of Education. Dr. B. Shiva Reddy has authored/edited two books and more than two dozen research papers in the area of Economics of Education, besides undertaking half a dozen research projects.



Dr. K. Anji Reddy is working as Assistant Professor, Department of Economics, Mahatma Gandhi University, Nalgonda, Telangana State. He has 25 years of teaching and research experience. He has carried out few research projects on Education with Prof Shiva Reddy. He also organized national and international seminars and published dozen articles and few academic books.



National University of Educational Planning and Administration (NUEPA)

17-B, Sri Aurobindo Marg, New Delhi – 110016 (INDIA)

EPABX Nos. : 26565600, 26544800

Fax : 91-011-26853041, 26865180

E-mail : nuepa@nuepa.org

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STATUS OF TRIBAL EDUCATION IN TELANGANA STATE*

Dr. K. Anji Reddy**

ABSTRACT

Total tribal population of Telangana is 31.78 lakhs which accounts for 9.08 per cent of total population of the state. The number of tribes in the state are 32 out of which four tribes are predominant. They are lambadis with 20.46 lakhs population, koyas with 4.86 lakhs, Gonds with 2.98 lakhs and Yerukalas with 1.44 lakhs population. These four tribes put together represent 93.58 percent to the total tribal population of the state.

As per the 2011 census the literacy rate of tribal population in Telangana state is 49.79 percent which is far behind literacy rate of the state. For the education development of tribals many initiatives were taken by the government. The ashram schools, partial residential in nature, for providing education exclusively to tribal children, to minimise the problems associated with language and culture. Subsequently, fully residential schools are established to provide better quality education and also reduce the dropout rate more particularly among girls.

The gross enrolment ratio (GER) of tribal students at primary level is all most 100 per cent, at upper primary level it is 83 per cent and 73 percent at secondary level. In respect of GER there is not much difference between tribal and non-tribal students at primary and upper primary level. But at secondary level tribal students GER is 10 percent less than all the students.

The dropout rate of STs is almost double that of overall average. Surprisingly the difference between boys and girls dropout rate is not significant both in case of STs and others. But at secondary level the dropout rate of STs is very high (about 60 per cent). To reduce dropout rate and improve the quality of education of STs the government has established several residential schools and colleges but still dropout rate continues to be high.

Of the total school enrolment of 678030 ST students during 2016-17 about one-fifth are in schools run by tribal welfare department and the rest are in various

*Paper presented in 2nd annual conference of Telangana Economic Association organized by PG centre of Kaktiya University, Khamma on 10th & 11th February, 2018.

** Asst professor of Economics, Mahatma Gandhi University, Nalgonda



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SOCIAL SECTOR DEVELOPMENT IN TELANGANA STATE*

Prof. B.Shiva Reddy** and K.Anji Reddy***

1. Introduction:

Telangana is a newly formed State which came into existence after a prolonged struggle for a separate state. After the state formation in 2014 the people of the Telangana got the freedom to shape the destiny of its development. Erstwhile governments have not paid much attention to hopes and aspirations of different sections/groups of people in Telangana State. Only in separate state they can be realised. After the formation of the state the hopes and aspirations have even gone up.

Many of them can be realised through socio-economic development of the state. What is needed is a development that is inclusive and sustainable. The state is endowed with rich resources which include both natural and demographic, which can be properly nurtured and used to realise it.

Many of the aspirations of the people have direct and indirect bearing on social sector. Therefore, social sector development considered important not only for the development of economy but also to fulfil the aspirations of the people. To sustain the development and to make development inclusive it is necessary to put concerted efforts in the form of devising strategies and implementing them effectively with proper allocations.

Among the sectors that can really address the hopes and aspirations of the people on the one hand and contribute to inclusive and sustainable development is the social sector. It is considered to be an important sector, development of which ensures growth with social justice. In the present context of decline in the role of agriculture in terms of income and employment generation and rise of knowledge economy where human capital over physical capital and mind over hand necessitates the urgency to focus on social sector, particularly in the newly formed states like Telangana. Social sector development is considered important not only for the development of economy but also to fulfil the aspirations of the people Telangana state.

Thematic Paper prepared for presentation in First Annual Conference of Telangana Economic Association held at CESS, Hyderabad during 7-8 April 2017Prof.B.Shiva Reddy (Retd) Department of Economics, Osmania University, Hyderabad Dr.K.Anji Reddy Department of Economics, Mahatma Gandhi University, Nalgonda.*



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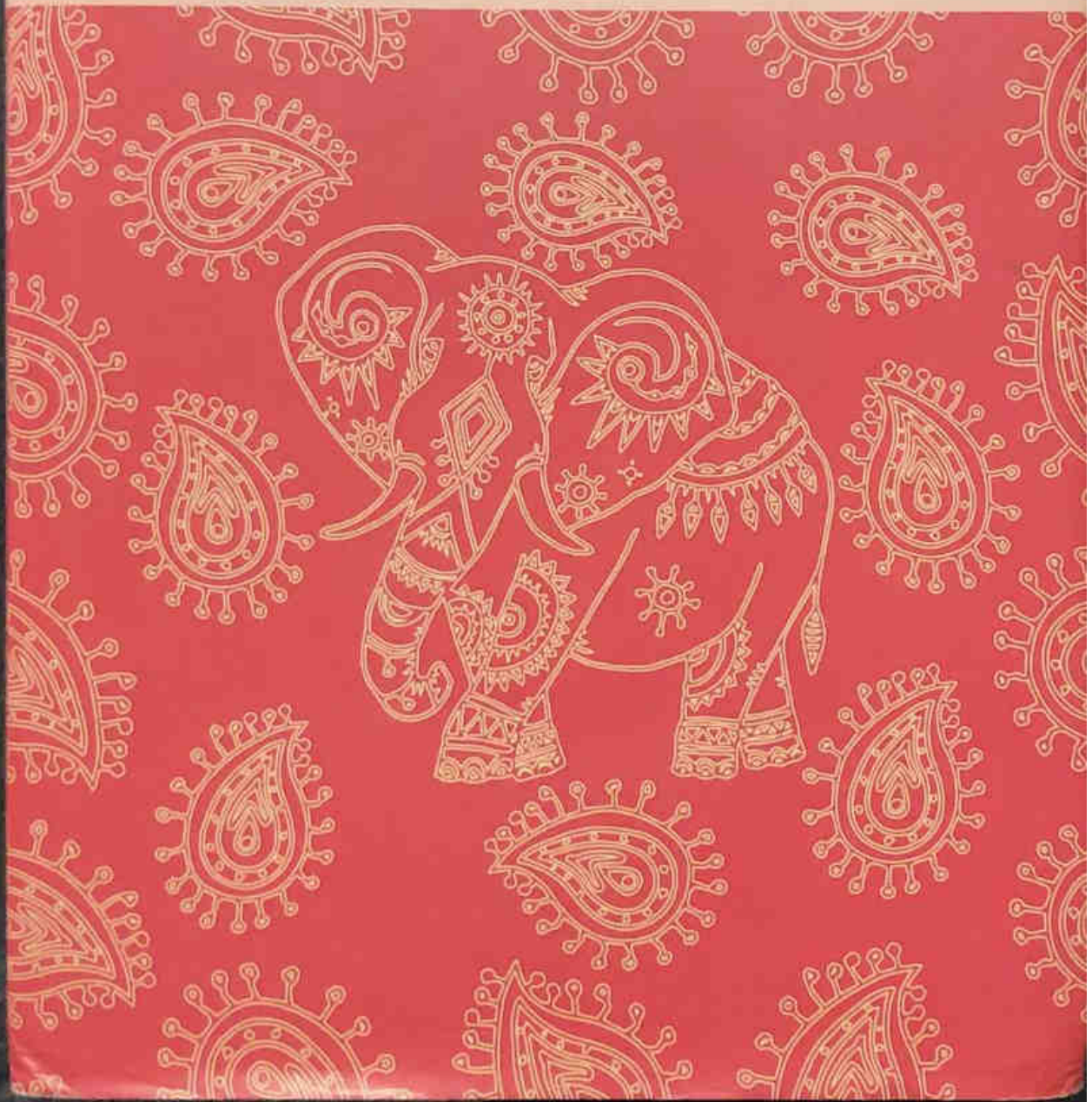
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Centre-State Relations in Indian Fiscal Context

ESSAYS IN HONOUR OF B.P.R. VITHAL

EDITORS

C.H. Hanumantha Rao | R. Radhakrishna | S. Galab | N. Sreedevi



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Financing of Elementary Education in India by Central Government through Centrally Sponsored Schemes

A Study of Sarva Shiksha Abhiyan

B. Shiva Reddy and K. Anji Reddy

Introduction

Education is important for economic and social development. Though the relative importance of different types and levels of education changes over time, place and level of development, all have their own place and role in their contribution to development. Therefore for overall development of the economy and society, overall development of education is of paramount importance.¹

In the last six decades Indian education system (IES) has grown in all respects in terms of number of institutions, enrolment, teachers and in all other parameters used to measure the progress. This could not have been possible without earmarking sizeable resources—both financial and physical—and without the active support of the Central government, state governments and local bodies, and also the private sector. Though recent developments indicate an increase in the role of private sector, Government continues to play an important role in the management and financing.²

1. See Ozturk (2001) for the role of education for social and economic development.
2. The role of private sector increased in all levels and types of education in recent years. Even in elementary education the enrolment in private schools increased significantly in recent years from 18.7 per cent in 2006 to 28.3 per cent in 2012 (ASER, 2012:47). In some states like Kerala and Manipur, it is more than 60 per cent. This is also the period during which the number of schools opened under Sarva Shiksha Abhiyan (SSA) increased.

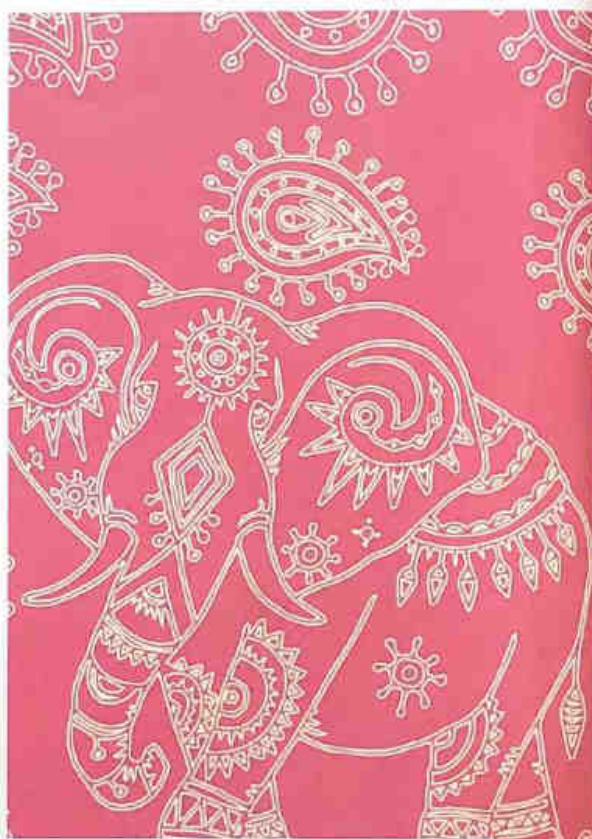
This volume is a festschrift in honour of Sri B.P.R. Vithal, the founder of CESS, who was a pioneer in wiping out the revenue deficit of Andhra Pradesh and initiating regional planning. His contribution to the subject of Indian fiscal federalism is well-known to the administrators and academicians of this field. He raised the issues—plan-non-plan dichotomy, imbalances in the ToR of Finance Commissions, changing contours of central assistance for state plans, growing centralisation and ever increasing Centrally Sponsored Schemes (CSS) to name a few—much before they became focal.

The perennial debates—particularly in the domain of finances—across the federations on their bias in favour of the central government, the devolution of a part of the central government's revenue to the state governments, and *inter se* distribution among the latter with due regard to horizontal fiscal imbalances, are common in the Indian Union too. The impact of economic reforms on centre-state financial relations in India is quite clear from the Terms of Reference of the last four Finance Commissions. A significant increase in the Planning Commission transfers through central sector and CSS, and side-lining of formula-based transfers (modified Gadgil/Mukherjee formula) influenced the financial relations between the centre and the states, affecting specific sectors (health, education, etc.) and expenditure patterns of the state governments. The recent economic slowdown raises issues of effective interdependence between fiscal and monetary policies in the process of economic stabilisation.

Though an attempt to statutorily bring the local bodies into the federal structure of the country through the 73rd and 74th amendments to the Indian constitution is a welcome feature, the pace of progress in this direction has been nominal. This book assumes importance in the backdrop of these issues.

The 19 chapters in this volume (Section I to V), apart from the overview, examine Centre-state relations in Indian fiscal context, ranging from the global context to national, sub-national, and local finances, more specifically on sub-central government finances and the fiscal relations between the central and sub-central government entities—where there has been relatively less attention. It also gives an overview of a panel discussion on "Issues Before Fourteenth Finance Commission" (Section VI). Section VII comprises "Personal Tributes to B.P.R. Vithal".

It is earnestly hoped that this collection will be a useful addition to the ongoing debate on Centre-state relations in the Indian fiscal context.



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Educational Reforms in Andhra Pradesh

A Case of Technical Education

*K. Anji Reddy

**B. Shiva Reddy

I. Introduction:

Much has been written and researched into the effects and implications of different policies on important problems like poverty, employment and growth etc., at the national level. But not much has been analyzed on the underlying reasons and the background for taking of such policies and the processes involved in framing such policies.

In the last two decades Governments at the national as well as state level have made several policies reversing some of the earlier policies. Among the states, Andhra Pradesh has been undertaking several reforms on all fronts. It has been in the forefront of the state level reforms. There is hardly any sector that is not being touched and introduced reforms.

Though some of reforms were initiated during the congress rule, it is under TDP, specially, under the leadership of Chandrababu Naidu that a clear-cut policy shift has taken place. It is in AP we can see the complete reversal of Nehru-Mahalonabis strategy of development wherein the emphasis was on centralization, public sector and self-sufficiency. Every sector hitherto be viewed from a welfare angle is being evaluated through market principles. Even the social sectors like education and health are not spared from this scrutiny.

It in the education sector in AP many policy shifts have taken place. Almost all sub-sectors of education- Nursery to University level-have been experiencing policy shifts. With in education sector many changes have taken place in higher education. The major changes related to shift from general to technical and professional education and with in technical education from lower levels (ITIs and Polytechnics) to engineering education.

The reforms are not new to the education sector but have been taking place now and then in the form of new policies or programmes. When compared to other sectors of the economy many reforms in education sector are under taken at the central level with a concomitant changes at the state level. However, some policies related to education sector are devised at state itself. Following are some of the policies/reforms undertaken in the education sector at national or state level:

1. Elementary education is made as fundamental Right.
2. Introduction of Mid day meal scheme.
3. Recruitment of teachers on part time basis.
4. External aid to primary education.
5. Decentralization of school education.

* Professor, Dept. Economics, O.U, Hyd. ** Assistant Professor, M.U, Nalgonda

Prof. A. BHADRYANARAYANA
M.D., Ph.D.
VICE CHANCELLOR



MAHATMA GANDHI UNIVERSITY
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Date: 26.02.2015



MESSAGE

I am happy to note that the Dept. of Economics,

Mahatma Gandhi University, Nalgonda is organizing a two day national seminar on "Issues and Challenges of Higher Education in Newly Formed States" on 26th & 27th February, 2015. The topic chosen is timely relevant and has practically useful to the current situation as the higher education is facing many hurdles and challenges in newly formed state of Telangana. The deliberations of the two day national seminar may throw new light on the issues flagged for the seminar. The outcome of the seminar may be useful to the education administrators and to government for taking appropriate decisions on contentious and complicated issues. •

• I congratulate and compliment the organizers and wish the seminar a grand success. •

Prof. A. BHADRYANARAYANA

Prof. K. Narayana Reddy
M.D.
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MESSAGE

I am happy to note that the Department of Economics, Mahatma Gandhi University is organizing two days National Seminar on "ISSUES AND CHALLENGES OF HIGHER EDUCATION IN NEWLY FORMED STATES". The seminar topic is need of the day as they have listed out important issues facing by the Higher Education in the country in General and in newly formed States in particular. The experts in the field may deliberate on important theme of the Seminar and bring out with suitable suggestions and policy recommendations to the Education Administrators and Policy makers.

I congratulate the seminar organizers in taking of such important topic of the seminar and wish them all success in their future endeavor.

With Warm Wishes.....

REGISTRAR

Two Day National Seminar on
ISSUES AND CHALLENGES OF HIGHER EDUCATION
IN NEWLY FORMED STATES

About Mahatma Gandhi University

Mahatma Gandhi University originally the PG Centre of Osmania University is established in the year 1987 to provide academic excellence to remote village students of the backward regions. The PG Centre is upgraded as Mahatma Gandhi University in the year 2007 and is one of the fast growing learning centres in India. Ever since its inception the University offering courses on interdisciplinary approach and develop them on sustainable line. Through multi-faceted range of programs in Arts, Humanities, Basic-Sciences, Social Sciences, Commerce, Business Management and Engineering & Technology by state-of-the art infrastructure and committed faculty. The University has carved a niche for itself in the field of academic learning and research. The University is located in sprawling campus of 250 acres in Yellareddyguda of Nalgonda.

About The Department of Economics

The Department of Economics was established in the year 2007 and has been providing an ideal platform for students coming from Rural background to metamorphosis themselves to face the challenges lying ahead and become successful. The Department comprises of committed faculty members, actively engaged in research and produced a number of publications. So far the Department has organized National Seminar on "Micro Finance in India - Issues and Challenges" on 15th march 2008.



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HIGHER EDUCATION IN INDIA

ISSUES & CHALLENGES

Editor

Dr. T. Sudarsana Reddy



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Restructuring and Privatization of Higher Education in Telangana and Andhra Pradesh

Dr. K. Anji Reddy

Assistant Professor, Mahatma Gandhi University, Nalgonda, Telangana

1. Introduction

Much has been written and researched into the effects and implications of different reforms and policy changes on important problems like poverty, employment and growth etc, at the national level. In recent years Government at the national as well as state level made several policies reversing some of the earlier polices. Among the states, Andhra Pradesh has been under taking several reforms on all fronts. It has been in the forefront of the state level reforms. There is hardly any sector that is not being touched and introduced reforms.

Though some of reforms were initiated earlier it is in the last decade a clear-cut policy shift has taken place. It is in Andhra Pradesh we can see the complete reversal of Nehru-Mahalanobies strategy of development where in the emphasis was on the centralization, public sector and self-sufficiency. Every sector hitherto be viewed from a welfare angle is being evaluated through market principle. Even the social sector like education and health are not spared from this scrutiny.

The reforms are not new to the education sector but have been taking place now and then in the form of new policies/programmes. When compared to other sectors of the economy many reforms in the education sector are under taken at the national level with a concomitant changes at the state level. However, some policies related to education sector are devised at the state level itself. Following are some of the reforms/policies undertaken in the education sector at the national/state level.

- i. Primary education is made a fundamental right;
- ii. Introduction of Mid-day meal scheme;
- iii. Recruitment of teachers on part time basis in education;
- iv. External Aid to primary education;
- v. Decentralization of school education;
- vi. Increase in corporatization of education;
- vii. Privatization and Diversification of management of secondary education;
- viii. Restructuring of higher education; and
- ix. Opening of most of the colleges under the political/commercial leadership than under academic/technical leadership.

INTRODUCTION TO OPERATING SYSTEM CONCEPTS

**Dr T. Veeraiah
Mr.G.Vijay Kumar
Mr. K. Harish Kumar**

**South Asian Academic Publishers
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INTRODUCTION TO OPERATING SYSTEM CONCEPTS

Dr. T. Veeraiah

Assistant Professor,

*Department of Computer Science and Engineering
Mahindra University, Hyderabad, Telangana*

Mr. G Vijay Kumar

Head of Computer Engineering

Government Polytechnic, Masab Tank, Hyderabad

Mr. K .Harish Kumar

Assistant Professor

*Department of Computer Science and Informatics
Mahatma Gandhi University, Nalgonda,
Telangana,*

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Bimetallic silver and copper nanoparticles synthesis, characterization and biological evaluation using aqueous leaf extracts of *Majorana hortensis*

Ramchander Merugu ^a, Bishnupriya Nayak ^b, Kanchana Latha Chitturi ^c, Pramila Kumari Misra ^b  

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Abstract

The present work reports the synthesis of bimetallic Ag and Cu nanoparticles using aqueous extract of the leaf of *Majorana hortensis* plant. The resulting single pot green synthesized nanoparticles were characterized by analytical and spectral techniques. The analysis of elemental composition by EDAX revealed the presence of silver and copper elements in the sample. Transmission electron microscopy images visibly envisaged the formation of spherical nanoparticles with an average size of 10 nm. The formation of the nanoparticles was further manifested through FTIR, UV–visible, and XRD spectral data. The antibacterial activities of the nanoparticles were divulged against some human pathogenic bacteria. It was found that these nanoparticles can inhibit the bacterial growth and hence can be used as antibacterial agents.

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Keywords

Antibacterial activity; FTIR; Silver and copper nanoparticles; Single pot synthesis

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This volume is first part of the five-part set on bioenergy research. This volume covers current developments and both basic and advanced concepts in bioenergy production. Based on bioenergy road map, the book will also evaluate about the ratio existing between current challenges associated and practical implementation of these biofuels. The book compiles up to-date progressive development in available bioenergy options and discusses opportunities and existing risks. The main objective of the book is to provide insights into the opportunities and required actions for the development of an economically viable bioenergy industry for practical replacement of fossil fuels. This book is of interest to teachers, researchers, scientists, capacity builders and policymakers. Also the book serves as additional reading material for undergraduate and graduate students of environmental sciences. National and international bioenergy scientists, policy makers will also find this to be a useful read. Other four volumes of this set explore latest developments, commercial opportunities, waste to energy and integrated solution for bioenergy concerns.

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Editors and Affiliations

Chemical Engineering & Technology, IIT (BHU) Varanasi, Varanasi, India

Manish Srivastava, Neha Srivastava

Department of Environmental Studies, Satyawati College University of Delhi, Delhi, India

Rajeev Singh

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About the editors

Manish Srivastava is currently working as SERB-Research Scientist in the Department of Chemical Engineering and Technology IIT (BHU), Varanasi, India. He has worked as DST INSPIRE faculty in the Department of Physics and Astrophysics, University of Delhi, India. He has published over 50 research articles in peer-reviewed journals, edited 10 books for publishers of international renown, authored several book chapters, and filed one patent. He received his PhD in Physics from the Motilal Nehru National Institute of Technology, Allahabad, India. Presently, he is working on the synthesis of graphene-based metal oxide hybrids and their applications as catalysts. His areas of interest are synthesis of nanostructured materials and their applications as catalyst for the development of electrode materials in energy storage, biosensors, and biofuels production.

Dr. Neha Srivastava has received PhD in Biotechnology from Department of Molecular and Cellular Engineering, SHIATS, India in the area of bioenergy. She is working as Research Scientist Department of Chemical Engineering and

Technology, IIT (BHU) Varanasi, India. She has published more than 30 research articles in the in peer reviewed journals of SCI impact factor and have filed 03 patents, 1 technology transfer and 12 published book of international renowned publisher. She is working on bioprocess technology and biofuels production (Microbial screening and enzymes; production and enhancement, biohydrogen production from waste biomass, bioethanol production).

Dr. Rajeev Singh, Head, Department of Environmental Studies, Satyawati College, University of Delhi. He is working in the area of Environmental and Reproductive health. He is founder secretary of Bio electromagnetic Society of India. Dr. Singh is recipient of Young Scientist Award of Federation of European Microbiological Societies (FEMS), Gold Medal for best oral presentation etc. Dr. Singh is member of Faculty of Science, Delhi University, Expert, Board of Studies, Amity Institute of Environmental Science. Dr. Singh has participated in several national and international conferences and delivered invited lectures. He has published more than 60 research papers, chapters in books, conference proceedings of international repute.

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Biofabrication of nickel and bismuth bimetallic nanoparticles using aqueous toddy of *Borassus flabellifer*: Synthesis, characterization and elucidation of biological properties

Ramchander Merugu ^a  , Bishnupriya Nayak ^b, Kanchana Latha Chitturi ^c, Pramila Kumari Misra ^b  

^a University College of Science and Informatics, Mahatma Gandhi University, Nalgonda 508254, India

^b Centre of Studies in Surface Science and Technology, School of Chemistry, Sambalpur University, Jyoti Vihar 768 019, India

^c Indira Priyadarshini Govt. Degree College (Women), Nampally, Hyderabad, Telangana 500001, India

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Abstract

The bimetallic nickel and bismuth nanoparticles were synthesized using toddy collected from the *Borassus flabellifer* tree. The green synthesized bimetallic nickel and bismuth nanoparticles were characterized through UV-visible spectroscopy; Fourier transforms infrared spectroscopy; Scanning electron microscopy; and Energy dispersive X-ray studies. The size of the nanoparticles was determined to be less than 100 nm. The nanoparticles were found to be spherical, and these particles exhibited antioxidant activity as revealed from the DPPH and phosphomolybdenum reduction assays. The antibacterial activity performed against five different bacteria envisaged that the synthesized bimetallic nanoparticles could perform as an excellent antibacterial agent.



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Bioprocess Parameters for Thermophilic and Mesophilic Biogas Production: Recent Trends and Challenges

[Rahul Kumar](#), [Uttam Kumar Neerudu](#), [Ragini Gothwal](#), [Swati Mohapatra](#), [Pallav Kauhsik Deshpande](#), [M. Mukunda Vani](#) & [Ramchander Merugu](#)

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Abstract

The latest advancements in technology have led to the progress in designing more efficient anaerobic digestion (AD) systems which have incorporated modifications such as feedstock pretreatment methods, bioprocess improvements, techno-economic gas upgrading, and superior digester designs among others. The different types of feedstocks being used, the mechanism of biogas production, the operation of a biogas plant, and the different types of digesters used for anaerobic

digestion are explained. The various process parameters like pH, temperature, electrical conductivity, etc. are also discussed. Challenges in anaerobic digestion along with the advantages and disadvantages of biogas generation are deliberated. Further, the microbial population involved in various stages of process is presented. In this chapter, the existing state of biogas technology highlights the latest advancements in its applications as well as production.

Keywords

Biogas **Anaerobic digestion** **Feedstock**

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Author information

Authors and Affiliations

Department of Environmental Sciences, H.N.B. Garhwal University (A Central University), Srinagar, Uttarakhand, India

Rahul Kumar

Department of Biochemistry, Mahatma Gandhi University, Nalgonda, Telangana, India

Uttam Kumar Neerudu & Ramchander Merugu

Department of Biotechnology, Barkatullah

University, Bhopal, Madhya Pradesh, India

Ragini Gothalwal, Pallav Kauhsik

Deshpande & Ramchander Merugu

Amity Institute of Microbial Technology (AIMT),

Amity University, Noida, Uttar Pradesh, India

Swati Mohapatra

Department of Chemical Engineering, Anurag

University, Hyderabad, Telangana, India

M. Mukunda Vani

Editor information

Editors and Affiliations

Chemical Engineering & Technology, IIT (BHU)

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Evaluation of anti-bacterial and rice seed germination potential of green and chemically synthesized ZnO nanoparticles

Rama Koyyati ^a  , Latha, P.C ^b, Raju Sandupatla ^c, Laxman, V ^b, Ramchander Merugu ^d

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Abstract

The present study focus on evaluation of the seed germination as a agricultural important, by green synthesizes and (poly vinyl alcohol coated ZnO nanoparticles) chemical synthesis using co-precipitation method using urea as a reducing agent, its characterization has been done by various instrumental techniques. Synthesized ZnO nanoparticles were characterized by UV–Vis spectroscopy depicted the absorption peak around 350 nm which indicates that ZnO nanoparticles displays excitant absorption due to their large excitant binding energy at room temperature. The main functional groups responsible for reduction reaction which were presented in the sample were identified by Fourier Transform infrared spectroscopy, the crystalline structure and d-spacing of ZnO nanoparticles has been confirmed with “X-ray diffraction studies”. The average crystalline size of particles found to be 51 nm using Debye Scherer formulae. Scanning electron microscopy and atomic force microscopy were used for evaluate the morphology and particle size of ZnO nanoparticles and found that the particle size of nanoparticles are between 2 nm to 10 nm. The elemental signals of Energy dispersive spectroscopy analysis was confirmed the presence of Zn, O elements. Seed germination properties of synthesized ZnO nanoparticles have been successfully tested with different concentration as it is agriculturally essential element for development of high crop yields.

Keywords

ZnO nanoparticles; TEM; AFM; Seed germination; Anti bacterial activity

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Editors and Affiliations

Department of Biotechnology and Bioinformatics, Jaypee University of Information Technology, Wanknaghat, India

Ashok Kumar Nadda

Department of Biochemistry, Indian Institute of Science, Bengaluru, India

Sajna K. V.

University Institute of Biotechnology (UIBT), Chandigarh University, Mohali, India

Swati Sharma

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About the editors

Dr. Ashok Kumar Nadda is working as an Assistant Professor in the Department of Biotechnology and Bioinformatics, Jaypee University of Information Technology, Wanknaghat, Solan, Himachal Pradesh, India. He holds an extensive 'Research and Teaching' experience of more than 10 years in the field of microbial biotechnology, with research expertise focusing on various issues pertaining to 'nano-biocatalysis, microbial enzymes, biomass, bioenergy' and 'climate change. He worked as a post-doctoral fellow in Huazhong Agricultural University, Wuhan China. He also worked as a Brain Pool researcher/ Assistant Professor at Konkuk University, Seoul, South Korea. Dr. Ashok has a keen interest in microbial enzymes, biocatalysis, CO₂ conversion, biomass degradation, biofuel synthesis, and bioremediation.

Dr. Ashok has published more than 100 scientific contributions in the form of research, review, books, book chapters and others at several platforms in various journals of international repute. He is the main series editor of "Microbial Biotechnology for environment, energy and health" that publishes the books under Taylor and Francis, CRC Press USA. He is also a member of the editorial board and reviewer committee of the various journals of international repute. He has presented his research findings in more than 40 national/international conferences. He has attended more than 50 conferences/workshops/colloquia/ seminars etc. in India and abroad.

Dr. Kuttuvan Valappil Sajna (K V Sajna) is currently a postdoctoral researcher at the Department of Biochemistry, Indian Institute of Science, Bengaluru, India. She has completed her Ph.D. from the Department of Biotechnology, CSIR-National Institute for Interdisciplinary Science and Technology, Trivandrum, India in 2017. Her areas of interest are biosurfactants, exopolysaccharides, bioremediation and sustainable technology. Her work has been published in various internationally reputed journals namely Green Chemistry, Bioresource Technology, International Journal of Biological Macromolecules and Biochemical Engineering Journal. She has published 9 papers, 3 book chapters and 15 conference communications. She was a university gold medallist and one of the best business plan award winners in the CSIR Technology led entrepreneurship program. She has presented papers at international conferences including the 5th IFIBiop conference held at National Taiwan University, Taipei and ESBES-IFIBIOP 2014 Symposium held at Lille, France. She has also worked at the University of Naples, Italy for three months as a part of the Bioassort program under Marie Curie Actions – International Research Staff Exchange scheme.

Dr. Swati Sharma is working as assistant professor in University Institute of Biotechnology, Chandigarh

University, Mohali, Punjab India. She is working extensively on the waste biomass, biopolymers and their applications in various fields. Dr. Sharma has completed her PhD. from University Malaysia Pahang, Malaysia. She worked as a visiting researcher in the college of life and environmental sciences at Konkuk University, Seoul South Korea. Dr. Sharma has completed her masters (M.Sc.) from Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Naini Solan H.P. India. She has also worked as a program co-coordinator at the Himalayan action research center Dehradun and Senior research fellow at India agricultural research institute in 2013-2014. Dr. Sharma has published her research papers in reputed international journals. Presently, Dr. Sharma's research is in the field of bioplastics, hydrogels, keratin nano-fibers and nano-particles, biodegradable polymers and polymers with antioxidant and anticancer activities and sponges. Dr. Swati has published 20 research papers in various internationally reputed journals, 5 books, and a couple of book chapters.

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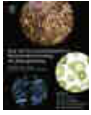
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New and Future Developments in Microbial Biotechnology and Bioengineering

From Cellulose to Cellulase: Strategies to Improve Biofuel Production

Book • 2019

Edited by:

Neha Srivastava, Manish Srivastava, ... Ram Lakhan Singh

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New and Future Developments in Microbial Biotechnology and Bioengineering: From Cellulose to Cellulase: Strategies to Improve Biofuel Production outlines new methods for the industrial production of the cellulose enzyme. The book compares the various processes for the production of biofuels, including the cost of cellulose production and availability.

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- Provides sustainable approaches to produce cellulase at low cost
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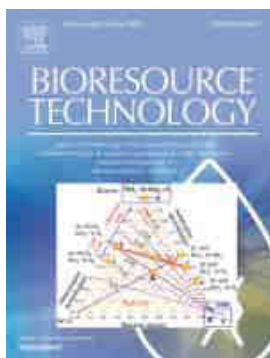
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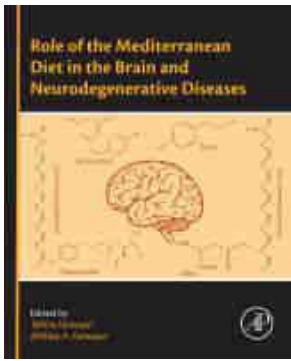


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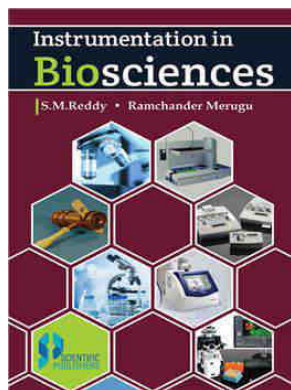
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Blurb

In recent times, the curriculum of the courses includes the instrumentation needed for understanding the different aspects of the discipline and has become an essential part. It is envisaged that students should the details and principles of the instrumentation used for biological investigations which will enable the students to be confident about the authenticity of his observations. This aspect will also promotes the students to plan different experiments which can give more evidences for any observed phenomenon. Further, the practicals are given more emphasis to train the students in any particular field. This also enables student to study independently and more confidently. So all Indian Universities are including instrumentation in the syllabi. As such very few books are available which can give information in totality to students all disciplines of biology.

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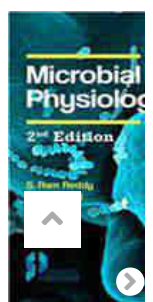
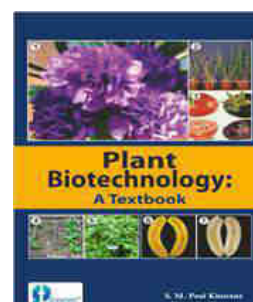
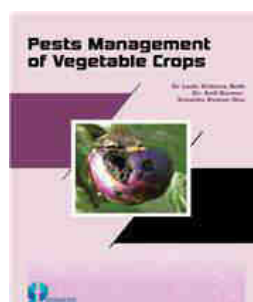
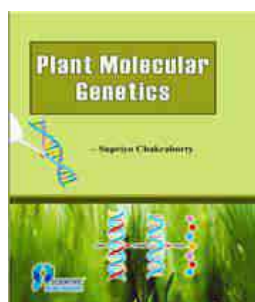
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Synthesis, characterization and antimicrobial activity of bimetallic silver and copper nanoparticles using fruit pulp aqueous extracts of *Moringa oleifera*

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Abstract

In the present study, synthesis of bimetallic silver and copper nanoparticles was carried out using *Moringa oleifera* (drumstick) fruit pulp aqueous extracts and the antimicrobial activity was assessed using this method. They were characterized using UV–Visible spectra, FTIR spectra, Electron microscopy and Raman spectroscopy. Antimicrobial activity was assessed by disc diffusion method. The size of the bimetallic nanoparticles formed was 9 nm. They showed a good zone of inhibition against pathogenic bacteria when compared to Ampicillin. Compared to other methods of synthesis, bimetallic particle synthesis was done using fruit extracts and these were found to show significant antimicrobial activity.

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Keywords

Single pot synthesis; Silver and copper nanoparticles; Characterization; Antibacterial activity

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AUTHORS

Prof. M. Usha

M.Com., M.Phil, Ph.D.
Department of Commerce (Retd.)
Osmania University
Hyderabad

Dr. P.Madhavi

M.Com., M.Phil, Ph.D.
Reader (Retd.)
Department of Commerce
Kasturba Gandhi Degree College
for Women, West Marredpally
Hyderabad

Dr. M. Ramesh Kumar

M.Com., Ph.D.
Assistant Professor
Department of Commerce
Mahatma Gandhi University
Nalgonda.

Dr. G.L.K.Durga

M.Com., M.Phil, Ph.D.
Principal (Retd.)
A.M.S.College for Women
Hyderabad

Dr. D.Sreenivasa Charya

MA,LLB,MBA,CAIIB, MPhil, Ph.D.
Associate Professor,
Department of Finance,
ICFAI Business School, IFHE,
Hyderabad

Dr. M. Saritha

M.Com.,MBA, MPhil, Ph.D.
Assistant Professor,
Department of Finance,
ICFAI Business School, IFHE,
Hyderabad

EDITOR

Prof. M. Srinivas

M.Com., Ph.D.
Professor (Retd), Department of Commerce
Osmania University
Hyderabad



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Prof. M. Usha, Dr. G.L.K.Durga, Dr. P.Madhavi, Dr. D.Sreenivasa Charya,
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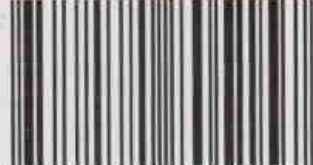
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Dr. M. Yadagiri

Professor & Dean, Faculty of Commerce
Telangana University, Nizamabad

Dr. Ramesh Kumar Miryala

Assistant Professor, Department of Business Management
Mahatma Gandhi University, Nalgonda

Dr. Hemalatha Gopisetty

Assistant Professor, Department of Management
Avinash Degree College, L. B. Nagar, Hyderabad



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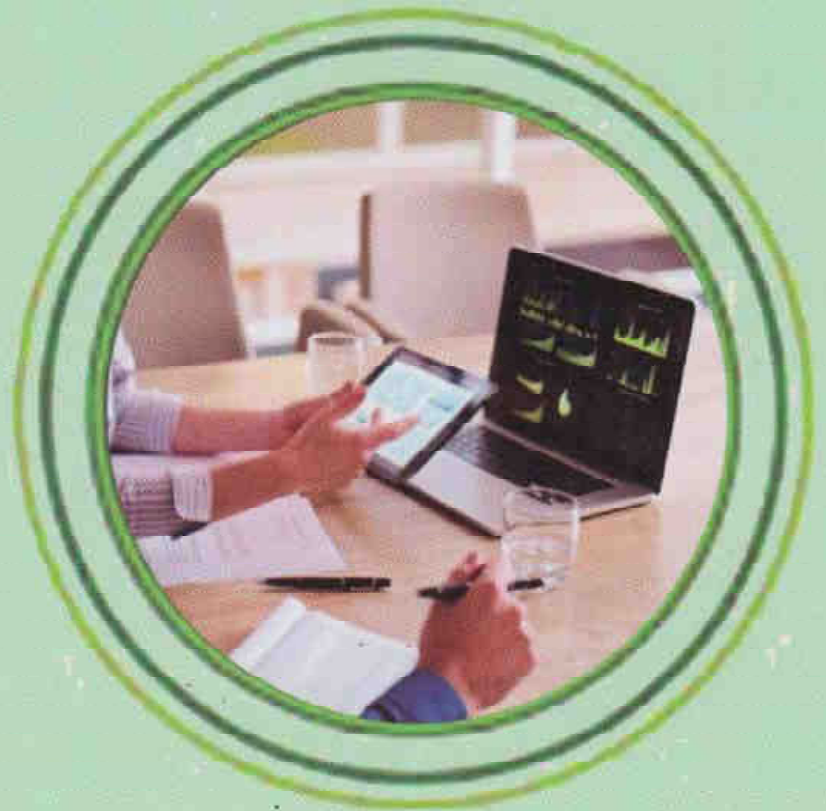
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Data Driven Decision Making



Ramesh Kumar Miryala
Hemalatha Gopisetty
Swetha Suram

KALYANI

(As per CBCS Syllabus)

DATA DRIVEN DECISION MAKING

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and various universities of Telangana State)*

DR. RAMESH KUMAR MIRYALA

Assistant Professor,

Department of Business Management,
Mahatma Gandhi University, Nalgonda

DR. HEMALATHA GOPISETTY

Assistant Professor,

Department of Management,
Avinash College of Commerce, Hyderabad

DR. SWETHA SURAM

Assistant Professor,

Department of Business Management,
Mahatma Gandhi University, Nalgonda



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Phone: (O) 040-23541383
(O) 040-23680441
Mobile: 098858 48800
Email: dr.anandpawar@yahoo.com

Dr. B. R. AMBEDKAR OPEN UNIVERSITY

Prof. G. Ram Reddy Marg, Road No. 45, Jubilee Hills, Hyderabad-500 033, Telangana State, India.

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Dept. of Business Management
Vaagdevi Degree & PG College
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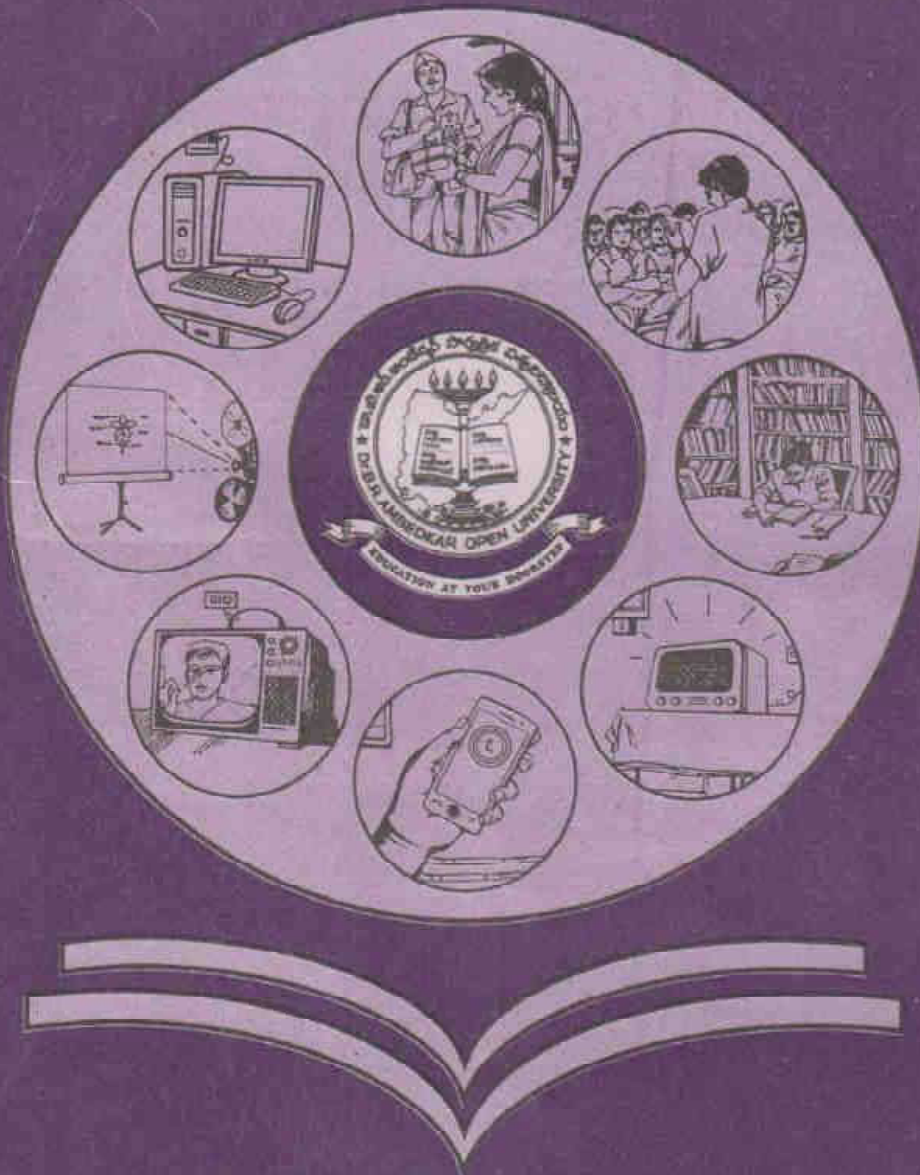
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Hyderabad - 500 033, Telangana State, India

Phone: 040-23680 000 (25 Lines), Web: www.braou.ac.in

ABOUT THE AUTHOR'S

AMIT BHOWMICK

AMIT BHOWMICK, A FREEDOM FIGHTER, NATIONAL RESEARCH FELLOW AND HONORARY FELLOW OF THE INSTITUTE OF MANAGEMENT STUDIES, DELHI, HAS BEEN INVOLVED IN RESEARCH AND WRITING ABOUT WOMEN'S RIGHTS AND DEVELOPMENT SINCE 1980. HE HAS BEEN VISITING FELLOW AT THE INSTITUTE OF MANAGEMENT STUDIES, DELHI, AND THE INSTITUTE OF MANAGEMENT STUDIES, DELHI, AND THE INSTITUTE OF MANAGEMENT STUDIES, DELHI. HE HAS BEEN VISITING FELLOW AT THE INSTITUTE OF MANAGEMENT STUDIES, DELHI, AND THE INSTITUTE OF MANAGEMENT STUDIES, DELHI. HE HAS BEEN VISITING FELLOW AT THE INSTITUTE OF MANAGEMENT STUDIES, DELHI, AND THE INSTITUTE OF MANAGEMENT STUDIES, DELHI.

MUZAMIL JAN

MUZAMIL JAN IS PROFESSOR OF MANAGEMENT IN THE INSTITUTE OF MANAGEMENT STUDIES, DELHI. HE HAS BEEN VISITING FELLOW AT THE INSTITUTE OF MANAGEMENT STUDIES, DELHI, AND THE INSTITUTE OF MANAGEMENT STUDIES, DELHI. HE HAS BEEN VISITING FELLOW AT THE INSTITUTE OF MANAGEMENT STUDIES, DELHI, AND THE INSTITUTE OF MANAGEMENT STUDIES, DELHI. HE HAS BEEN VISITING FELLOW AT THE INSTITUTE OF MANAGEMENT STUDIES, DELHI, AND THE INSTITUTE OF MANAGEMENT STUDIES, DELHI.

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WOMEN EMPOWERMENT: NEW DIMENSIONS

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MUZAMIL JAN

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Muzamil Jan



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LIST OF CONTRIBUTORS

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- Studies, Babasaheb Bhimrao Ambedkar University, Lucknow, Uttar Pradesh
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 - **Shubhangi Joshi**, Modern College of Arts Science and Commerce, Pune, Maharashtra
 - **Subhi Srivastava**, Research Scholar, Department of Community Medicine, IMS, Banaras Hindu University, Varanasi, Uttar Pradesh
 - **Tanveer Ahmed Khan**, Doctoral Fellow, Department of Sociology, Aligarh Muslim University, Aligarh, Uttar Pradesh
 - **Tariq Ahmad Safapuri**, Department of Food Technology, Islamic University of Science & Technology, Awantipora, Jammu & Kashmir
 - **Tariq Ahmad**, Research Scholar, Department of Food Technology, University of Kashmir, Jammu & Kashmir
 - **Wasia Hamid**, Department of Sociology, University of Kashmir, Jammu & Kashmir
 - **Yemisi Olawale Isaac**, Department of History, Niger State College of Education, Minna, Nigeria

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PREFACE

“Most countries today consider gender equality and women’s empowerment to be essential for the development and well-being of families, communities and nations. No nation, society, and family can flourish and be happy if fifty per cent of its population, i.e. women and girls, are not respected, free and happy. Not just in India, but in most countries of the world, women have been discriminated against, excluded from decision making at all levels, marginalized and disempowered.”

----Kamla Bhasin

Nation cannot make any progress if it isolates its women population. Women represent about one half of the universal population, but they are placed at various inconvenient positions due to gender divergence and bias. Still they are striving for social and economic justice.

Women are generally more stressed than men. They are involved in more roles at a time and are constantly rushing. Women’s work is less visible and relegated to subsistence production. Their work is mostly on domestic side in the form of unpaid family work and /or domestic work. The non paid work includes domestic chores like cooking, cleaning, child care and care for elderly. Subsistence activities like pitches gardening post harvest processing, feeding farm hands, live stock maintenance, gathering of fuel, forest produce, unpaid family labour in family farm or enterprise are usually done by women.

Ours is a traditional bound society where women have been socially, economically, physically, psychologically and sexually exploited from time immemorial, sometimes in the name of religion, sometimes on the pretext of writing in the scriptures and sometimes by the social

sanction. They have been the victims of violence and exploitation by the male dominated society all over the world. Society is generally sensitized to the prejudice perpetuated on woman over centuries. The trouble of women reared in a conventional lay down of associates and nation stay even when they take up employment.

Things cannot change much unless women are empowered. This can be achieved by allowing women to participate in governance and let them make their own decisions. The best way to obtain this is through socio-economic independence. Women should determine their financial and economic choices. Equal opportunity for women needs to be addressed for their empowerment. Their empowerment will bring equality for both genders and helps women by providing them strength and courage to become the decision maker of their own lives. Economic progress can never be achieved by isolating women or denying opportunities to them. Women have talent, ideas and sensibilities to the workplace. Therefore, women's economic empowerment is very important to achieve growth and sustainability. Women's education is equally important as it is their human right and required for the flourishing of many of their capacities. Government and society need to work together to make certain that women are facilitated in joining as equal in all aspects of the development of society and the nation. In order to make the presence of women in governance the need of the hour, instantaneous execution of legislative and policy measures for empowerment of women should be made a priority. There has been a laxity in devising schemes for promoting welfare and development among women. This situation needs to be rectified. This can only be achieved through a conscious effort. The path to nation's success can never be achieved without women being empowered.

Our long-cherished dream for publishing a research oriented volume on "*Women Empowerment: New Dimensions*" from reputed Publishing House has at last come true. As the volume "*Women Empowerment: New Dimensions*" is different and unique in nature, therefore, the authors too, come from diverse specializations with different types of topics which are highly expected to be the eye opener for the prospective readers of social science.

In this volume it has been tried to discuss almost all the issues related to the “*Women Empowerment: New Dimensions*” .If the readers are anyway benefited out it, it would be a great pressure for us, and also will provide us inspiration to go ahead with more development of the volume. We hope this volume will act as an inspiration and give readers much for thought and chapters conveyed in this volume will provide readers assertive behavior for women’s development. This volume is a contribution to supported women’s development and empowerment.

We would like to put forward our heartfelt gratitude to all the contributors who have been very accommodating and cooperative to make this task of writing a great success. We all are thankful to the publisher of this volume for their interest and co-operation in publishing this volume. We crave the indulgence of the learned readers if they happen to notice any kind of lapse in the volume, which is our maiden effort.

Amit Bhowmick (West Bengal, India)

Muzamil Jan (Jammu & Kashmir, India)

ABOUT THE VOLUME

Nation cannot make any progress if it isolates its women population. Women represent about one half of the universal population, but they are placed at various inconvenient positions due to gender divergence and bias. Still they are striving for social and economic justice. Ours is a traditional bound society where women have been socially, economically, physically, psychologically and sexually exploited from time immemorial. Things cannot change much unless women are empowered. This can be achieved by allowing women to participate in governance and let them make their own decisions. Equal opportunity for women needs to be addressed for their empowerment. Their empowerment will bring equality for both genders and helps women by providing them strength and courage to become the decision maker of their own lives. The path to nation's success can never be achieved without women being empowered. As the volume "*Women Empowerment: New Dimensions*" is different and unique in nature, and touches almost all the issues related to the Women Empowerment.

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EMPOWERING INDIA



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Prof. H. K. Singh | Dr. Meera Singh

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Biomolecules and Metabolism


4.1 Carbohydrates: Classification and function


Carbohydrates are the most abundant biomolecules in nature. They contain carbon (C), hydrogen (H) and oxygen (O) usually with hydrogen to oxygen ratio of 2:1 as in water (H₂O). Hence they were thought to be hydrates of carbon. Chemically they are polyhydroxy aldehydes or ketones. In addition to C, H and O, some carbohydrates also contain nitrogen, sulphur and phosphorus. The empirical formula of most carbohydrates is (CH₂O)_n. They are referred to as saccharides (Gr. sakcharon) meaning sugar. Carbohydrates are found in a wide variety of foods such as cereals (wheat, maize, rice etc.), potatoes and sweet potatoes, sugarcane (table sugar), fruits, milk etc. Certain carbohydrates (starch and sugar) are a dietary staple in most parts of the world, and the oxidation of carbohydrates is the central energy-yielding pathway in most organisms.


4.1.1 Classification of carbohydrates


There are three major classes of carbohydrates

- Monosaccharides:** one sugar unit, with 3 to 10 C atoms


- Disaccharides:** with two monosaccharide units.


- Oligosaccharides:** three to ten monosaccharide units.


- Polysaccharides:** many monosaccharide units.



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Third Year**



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Third Year - Semester - V
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(Physiology and Biochemistry)

AUTHORS

Dr. Nalam Vijay Kumar
Professor (Retd.)
Department of Zoology
Kakatiya University, Warangal

Dr. M. Thirumala
Assistant Professor in Biochemistry
Department of Applied Biosciences
University College of Science and Informatics
Mahatma Gandhi University
Nalgonda

EDITOR

Dr. Nalam Vijay Kumar
Professor (Retd.)
Department of Zoology
Kakatiya University, Warangal



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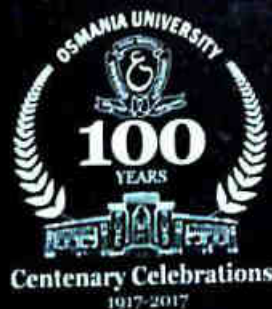
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Century Ahead



Editors :
V. Dashavantha Reddy
K. Venkateswara Rao
K. Rama Krishna

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Editors
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K. Venkateswara Rao
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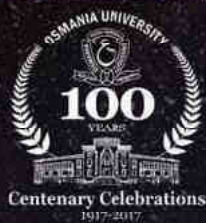
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Insights on
**Global Challenges and
Opportunities for the
Century Ahead**



Editors :
V. Dashavantha Reddy
K. Venkateswara Rao
K. Rama Krishna

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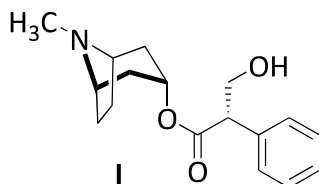
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Chiral pharmacology and natural product chemistry

Vasantha Mittapelli¹ and P.S.N. Reddy*²

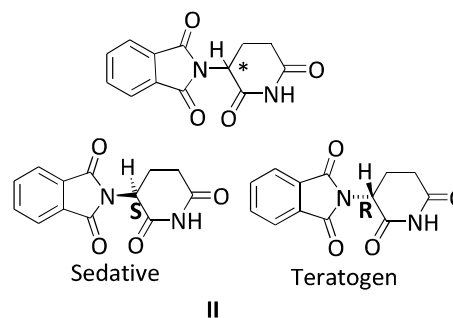
The discovery of Arthur R Cushny (1866-1926) that (-)-adrenaline is twice the potency of (+)-adrenaline (I) as vasoconstrictor and is 12-15 times more potent on sympathetic vessels has revealed the biological relationship of optically isomeric substances.



The story of thalidomide (II), a drug used as a sedative by women in their early pregnancy and the havoc it caused, confirmed that enantiomers of a molecule may have different biological properties often exhibiting conflicting pharmacological response. For example, the S-isomer of thalidomide is a sedative whereas the R-isomer was proved to be a teratogen causing phocomelia in new born children.

1. Department of Chemistry and
Pharmaceutical Sciences, Mahatma Gandhi
University, Nalgonda, Telangana-508 254
E-mail: vasanthamgu@gmail.com

2. Department of Chemistry, Osmania
University, Hyderabad, Telangana-500007
E-mail: psnreddyou@yahoo.com

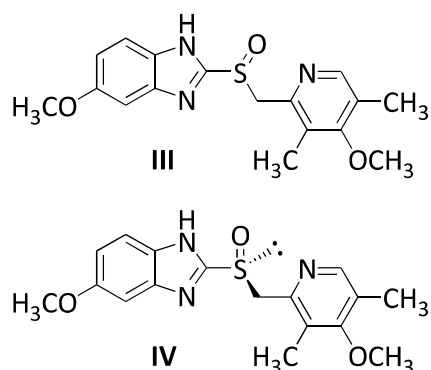


There are several drug molecules whose enantiomers exhibits radically different bioactivity (affectivity, toxicity, taste etc.) in the body and a few common examples are mentioned below to illustrate the point (Table-1).

The affinity of a drug for a specific receptor and its intrinsic activity are related to its chemical structure and minor changes in the molecular structure leads to major changes in pharmacological properties. Receptors of drugs, taste, bio-pharmaceuticals, agro-chemicals etc., are chiral and the natural ligand to a receptor is often specific to only one enantiomer. Thus, drug-receptor interactions are stereo selective. This observation led to the development of more structured drug regulations; control over drug use and development; and the importance of chiral isomer came into existence in pharmaceutical industries. In order to avoid the adverse effects of another isomer, US Food and Drug Administration (FDA) recently recommends the assessments of each enantiomer activity

for racemic drugs in body and promotes the development of new chiral drugs as single enantiomers. Single enantiomer drug sales show a continuous growth worldwide and many of the top selling drugs are marketed as single enantiomers.

Some drug companies have patented and developed a racemic drug, with the intention of patenting and developing a single enantiomer later. When the patent on the racemate expires, the company can undercut generic competition by launching the single-enantiomer. AstraZeneca, for instance, has developed esomeprazole (III, Nexium), a single enantiomer version of its \$6 billion anti-ulcer drug omeprazole (IV, Prilosec), which came off patent in 2002.



This value of single enantiomer drugs has spurred rapid development in research and development of several chiral technologies such as

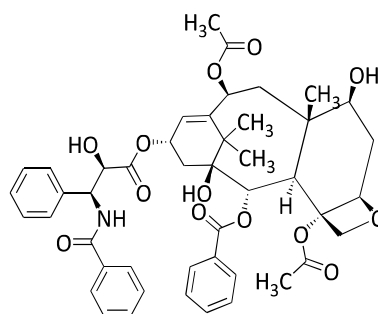
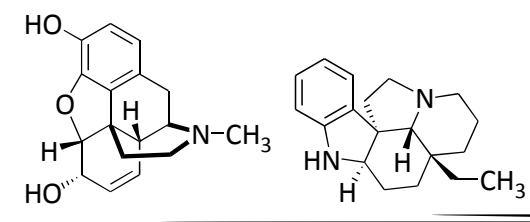
- asymmetric synthesis
- chiral separation techniques and analytical assays
- chiral stationary phases
- chiral selectors for GC, LC and CE
- chiral switches

- chiral drug synthesis using enzymatic, bio and organo-metallic catalysts
- chiral chemistry in natural product synthesis

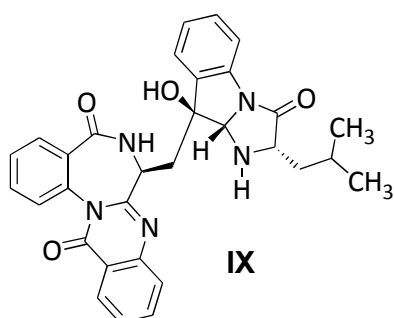
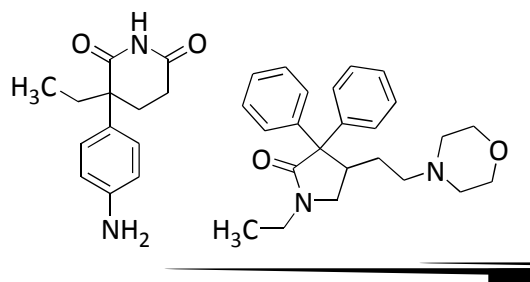
The pharmaceutical industry in India ranks 3rd in the world in terms of volume and 14th in terms of value though, a few questions surface in this context.

- Our country's contribution to chiral drug technology?
- The role of our pharmaceutical industry and universities in the development of chiral technologies?
- Future efforts to create a *niche* in chiral drug industry?

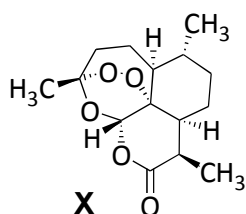
The future lies in the pursuit of natural product chemistry. Natural products represent a source of remarkable chemical diversity for drug discovery. Impressive numbers of drugs have been isolated and derived from natural resources, for instance morphine (V), aspidospermidine (VI), aminoglutethimide (VII), doxapram (VIII) vinblastine (IX), artemisinin (X), taxol (XI) and cyclosporine (XII) are a few chiral natural products which proved invaluable as drugs. Approximately, 80 % of the population still uses drugs exclusively from natural source, 35 % of drugs contain 'principles' (key structure elements) from natural products, but less than 5 lakh higher plant species underwent biological pharmacological screening. Each plant has potentially 10,000 different constituents.



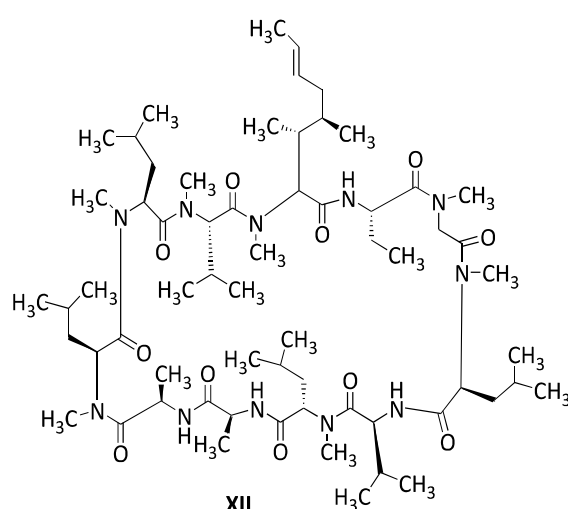
XI



IX



X



XII

Despite the great success of the 70s and 80s in natural product chemistry in our country, the policy makers and the universities have de-emphasized natural products research during the following decades. It is time to revive, lest the elevation of the pharmaceutical industry to the next level will remain a distant dream.

Table-1: Bioactivity of some drug molecules and their enantiomers

<i>Drug Name</i>	<i>Drug Activity</i>	<i>Enantiomer</i>	
		<i>R -</i>	<i>S -</i>
Salbutamol	β -Adrenergic receptor agonist	Active	Airway hyper responsiveness
Amlodipine	Calcium channel blocker	Peripheral edema	Active
Levobupivacaine	Localanesthetic	Cardio toxic	Active
Escitalopram	Selective serotonin reuptake inhibitor	Active	Faster onset
Chloramphenicol	Antibiotic	Active	Inactive
Ibuprofen	Analgesic	Distomer	Eutomer
Propranalol	β -blocker	Contraceptive	Active
Ethambutol	Bacteriostatic	(R,R)- causes Blindness	(S,S)- is Active
Penicillamine	Anti-arthritis	Active	Toxic



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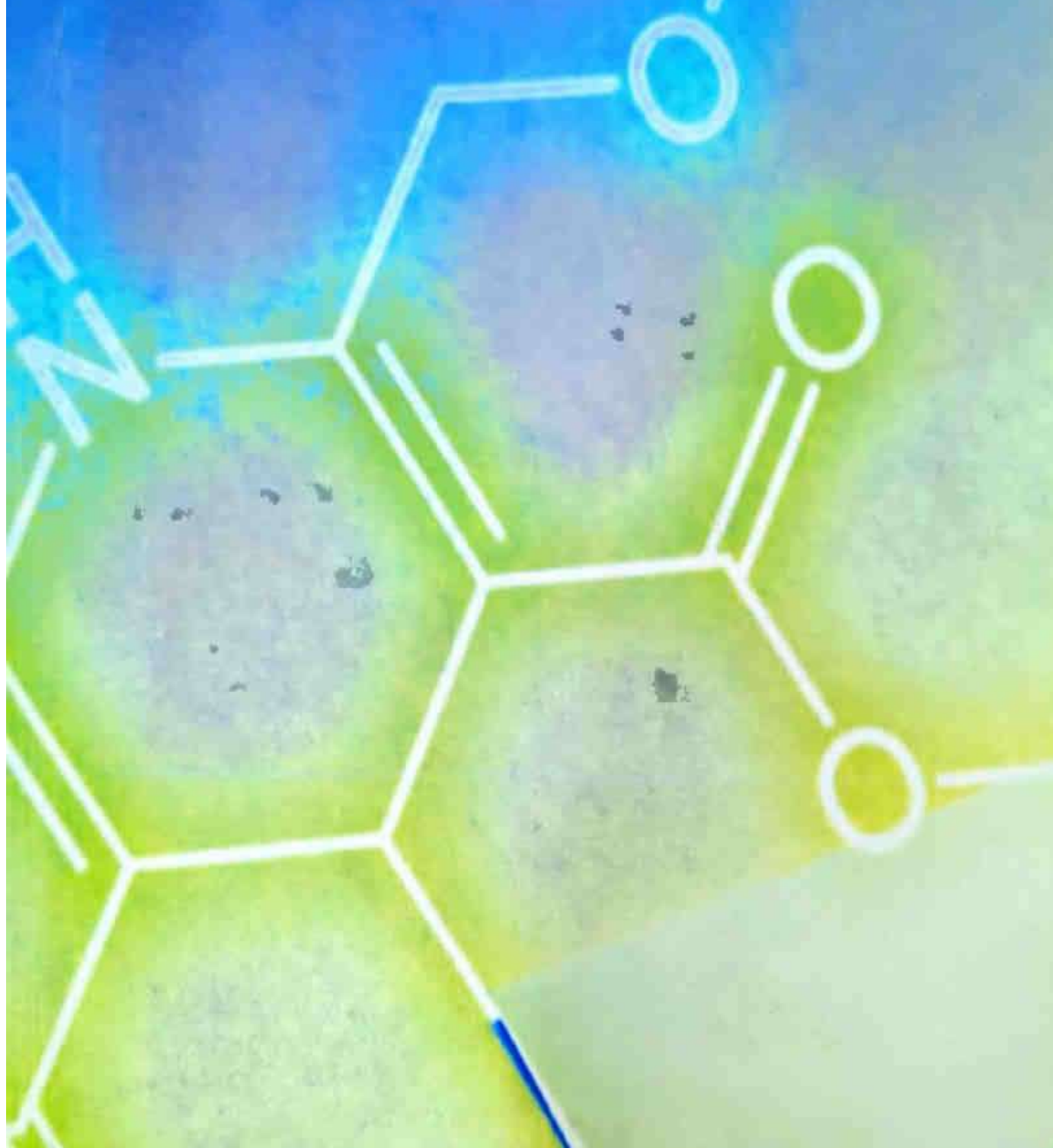
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(A HANDBOOK FOR M.Sc STUDENTS)



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ABOUT THE AUTHOR



DR. REDAMALA ROOPA IS AN ASSISTANT PROFESSOR IN ORGANIC CHEMISTRY IN MAHATMA GANDHI UNIVERSITY, NALGONDA, TELANGANA. SHE COMPLETED HER M.SC. IN ORGANIC CHEMISTRY AND PH.D. IN CHEMISTRY FROM DEPARTMENT OF CHEMISTRY, OSMANIA UNIVERSITY, HYDERABAD. SHE HAS 28 YEARS OF EXPERIENCE IN TEACHING DEGREE AND P.G. COLLEGES. SHE HAS 20 YEARS OF RESEARCH EXPERIENCE. SHE HAS GOOD PUBLICATIONS IN VARIOUS PEER REVIEWED NATIONAL AND INTERNATIONAL JOURNALS.

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ABOUT THE EDITORS



Dr. (Mrs.) Prashanta Athma

M.Com., M.Phil., Ph.D.

Dr. Prashanta Athma is a Professor in Commerce and Head, Department of Commerce, Osmania University, Hyderabad. Recipient of the Best Teacher Award from the Telangana State Government for the year 2017 and **Ideal Teaching Award** (ITAP 2017). She is a National Merit Scholarship holder and qualified UGC – JRF. She has to her credit 80 Research Articles in various reputed National Journals, 24 text books, 4 Minor Research Projects and guided 8 Ph.D candidates. She has put in 30 years of teaching experience and has been teaching Cost Accounting, Financial Management, Investment Management and Accounting for Management at Osmania University. She held positions of Vice-Principal and Principal. She has delivered audio video modules for BA (Hons.) for UGC sponsored TV Channel.

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Prof. D. Chennappa

M.Com, MBA, M. Phil, Ph. D, NET

Prof. D. Chennappa is a Professor of Commerce and Specializes in Quantitative Techniques & Marketing. He has completed one major and one minor research project awarded by the UGC. He has published 13 books. He has presented research papers in some of the reputed Universities in USA. Held various administration posts as Chief Warden, Principal of PG College Secunderabad. Life Member in Indian Commerce Association and Indian Accounting Association.



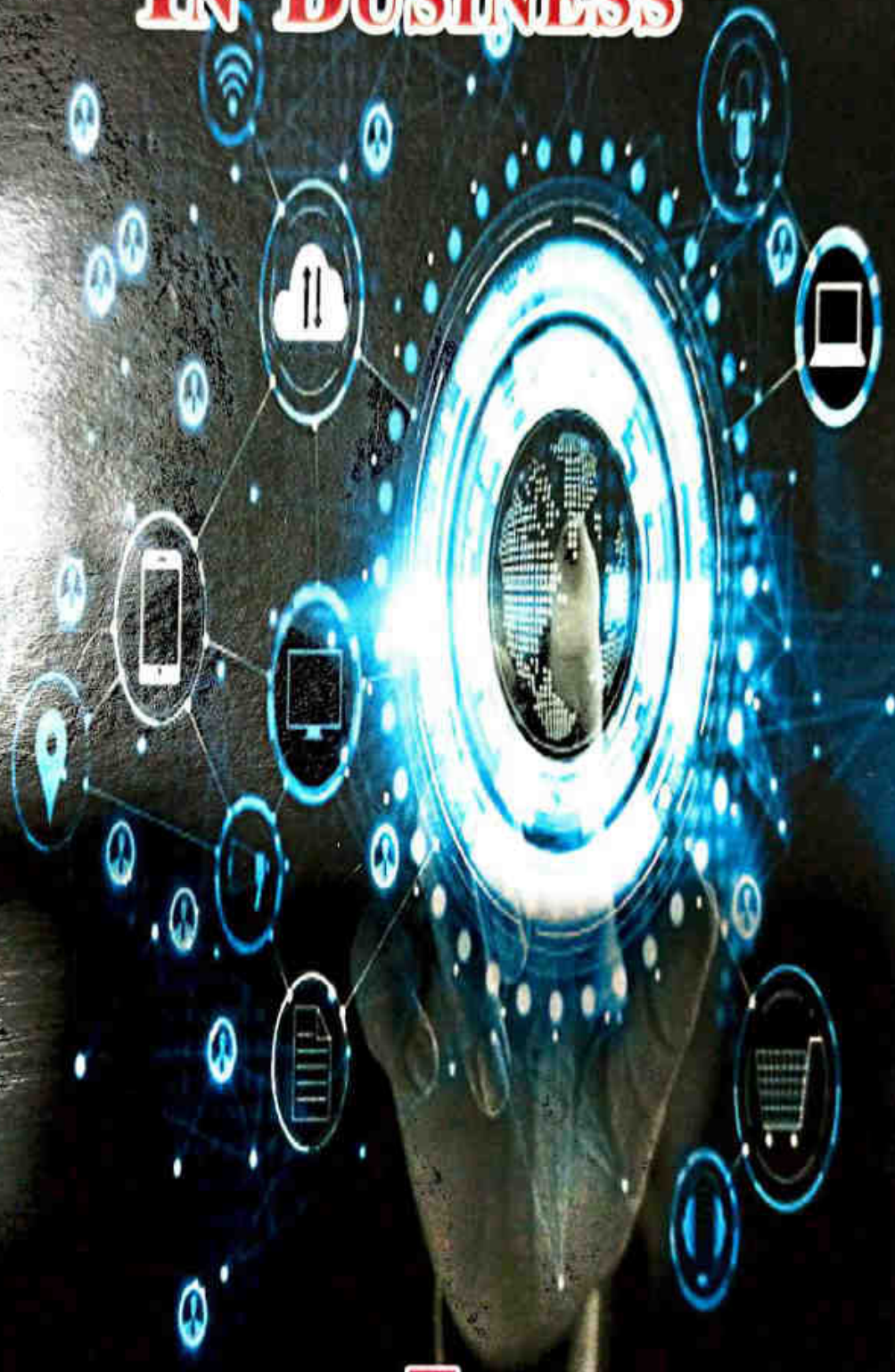
Dr. C.V. Ranjani

M.Com, MBA, Ph.D

Dr.C.V.Ranjani is an Assistant Professor with Marketing and Accounting specialization with gold medal at PG Level. She has to her credit 20 Research Papers and Membership in 3 Professional Bodies. She has organized 2 Conferences /Seminars / Courses.

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DISRUPTIVE INNOVATIONS IN BUSINESS



EDITOR
DR RAMESH KUMAR MIRYALA

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DISRUPTIONS IN BANKING INDUSTRY – BANK CHALLENGERS - A CASE STUDY

Dr Ravi Aluvala

Dr J. P. Senthil Kumar

The Financial institutions generally helpless against challenger bank rivalry are fair size and network money related organizations. Signs are that there will be expanded banding together between these organizations and fintechs. Cornerstone Advisors found that 65% of banks and 76% of credit associations need a fintech alliance in 2020, up from 49% and 60%, individually, in 2019. This would empower conventional foundations to "blot in" a superior client experience to their inheritance back end, as per Cornerstone President Steve Williams.

Marous notes, be that as it may, that this flood in enthusiasm for banding together with fintechs may come past the point of no return for some monetary foundations. "Proof shows that the quality of fintech firms and challenger banks might be more noteworthy than at any other time, giving a few firms certainty that they can 'go only it'," he states. Conventional organizations still unmistakably have a bit of leeway of buyer trust over fintechs and enormous specialists. However individuals are casting a ballot with their records, and a greater amount of them are eager to attempt new things. Progressively this even incorporates financial advice and direction. J.D. Power finds that advanced channels are presently nearly neck-and-neck with face to face alternatives as the spot for getting financial guidance. All the more

HR DISRUPTION: THE CHANGING FACE OF BUSINESS ORGANISATIONS

Dr Aluvala Ravi
Dr Sanjay Kumar Taurani

ABSTRACT

Disruptive technology is creating smarter people and better working environment in employment market. The term disruptive technology is gaining momentum with spread of innovative technologies and practices on larger scales making organizational interactions flexible, transparent, productive and proactive. The information has become the key resource for the New Age HR. Technology is changing the way businesses operate at every level. The present study focuses on the disruptions in HR practices. The current disruption calls for reengineering existing HR management. Some of the HR disruptions are being discussed in this paper. It is understood by the discussion that the Business Organizations must evolve for meeting the future challenges arising due to disruptive innovations requires HR to disrupt itself and reinvent its services.

Keywords: Disruptive Technology, Employment Market, HR function, Business model, Organization

INTRODUCTION

According to Christensen, Disruptive Innovation is an innovation that creates a new market by applying a different set of values, which ultimately (and unexpectedly) overtakes an existing market. According to him, over time, successful products become complicated and expensive and consequently niche. That leaves a huge opportunity for innovative companies to introduce a simpler and cheaper product to the mass market. Traditional practices of people management are insufficient to meet the demands of new generation. Technology innovations for human resource management can be applied with a defined set of values to develop synergetic values. It is



About the Editor

Dr. Ramesh Kumar Miryala is currently the Controller of Examinations, Mahatma Gandhi University, Nalgonda, Telangana, India. Prior to this responsibility, he served the University in the capacity of Director – College Development Council, Director – Directorate of Admissions and Principal – University College of Commerce & Business Management.

He obtained his MBA from Kakatiya University, Warangal, MSc (Psychology) from Kakatiya University and Ph.D in Business Management from Osmania University, Hyderabad.

He has vast experience of 22 years of teaching and research. So far he has published more than 53 Research articles in various National and International Journals and has authored eleven books.

He is a life member of All India Management Association (AIMA) and a member of Hyderabad Management Association (HMA) and also an editorial board member for many National and International Journals. He has chaired sessions at various National and International Conferences.

Prior joining Mahatma Gandhi University he served reputed Institutes in the capacity of Principal, Training and Placement Officer & Head of the Department. His teaching, research and consulting interests include Organizational Behavior, Consumer Behavior, Strategic Management, Service Marketing etc.,



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CHAPTER - 11

CHANGE MANAGEMENT

Management Education At Cross Roads in India: Issues & Challenges

Dr. Aluvala Ravi¹

¹Associate Professor, Department of Management Studies, Mahatma Gandhi University, Nalgonda, Telangana State.

Abstract:

In India a chain of institutions numbering more than 200 universities offering management courses both at the First Degree and Advanced levels has been started. The courses offered at the various institutions to date cover training at the Master's Degree level for the M.B.A. degree. Master of Business Administration is normally considered to be the basic and ideal post-graduate qualification for taking up a good and rewarding career in management. As per one estimate, every year about 10,000 MBAs are churned out by Indian Institutes of Management (IIMs) and a host of other universities and recognized institutes/deemed universities. A candidate with a good MBA degree finds no problem in getting a good job and freshers are usually inducted as Management Trainees for one to two years, before getting absorbed in regular scales. After a few years of experience, MBAs may choose the job of their own liking at very attractive terms.

All the aspects of Business education such as quality of MBA aspirants, curriculum, business research, quality of research publications, industry-institute interface, management development programmes, faculty development programmes, placements, compensation packages of B-school graduates, career development trajectory of alumni, diversity among faculty as well as students, governance and accountability, etc. are under critical scanner. Indian B-schools are not untouched by the contextual compulsions of the Management

The impact of Leadership on Organizational Effectiveness with reference to Indian Companies in India-A Study

Dr. Aluvala Ravi

Director, Academic Audit, Mahatma Gandhi University,
Nalgonda, Telangana State 508254,

Abstract:

Effective leaders influence their organization's effectiveness by motivating and inspiring the workforce. Committed and loyal employees expect their leaders provide a clear vision of the company's strategic direction. They also want to see consistency in decisions made in response to problems or issues. Clear, concise communication from leaders on a regular basis ensures that all employees know what to do. With this type of structure, leaders enable organizational effectiveness, productivity and profitability. The survey concludes that developing a participative culture in an organization enables them to maximize their employee participation and potential skills. If organization provides participative culture as their organization climate then employees will take their job extreme seriously and become more trustworthy to the organization. Which ultimately leads to the productive work, improves the quality of work and which intern reduces cost of the organization. Simultaneously it increases the motivation level, innovative thoughts, commitment towards work and sense of Belongingness in employees towards their organization.

Key words: Organization climate, Participative culture, organization goals

INTRODUCTION

Using a charismatic leadership style, an effective leader motivates his workforce to accomplish job tasks by giving inspirational speeches that describe the company vision in vivid detail. This motivates the employees to work hard to achieve the goals. When the leader shows a personal commitment to hard work and innovative approaches to problem solving, employees typically value these things too. Leaders provide incentives to employees, such as bonuses and other financial rewards, to increase production.

About the Editor



Dr. Moorthygarl Sree Lakshmi is working as Associate Professor in the Department of Management Studies (DMS), University College of Commerce and Business Management (UCCBM), Mahatma Gandhi University, Nalgonda, Telangana, India since 2013.

Presently she is Chairperson, Board of Studies for Management Studies at MGU. Her Qualifications are B.Com, MBA with HR and Finance. She has received Doctor of Philosophy From Sri Krishnadevaraya University, Anantapur for her contributions in the area of finance particularly Lease Financing in the year 2005. She has Cleared State Level Eligibility Test for Lecturer ship (SLET) in the year 1998.

She has started her career in Teaching profession at PG level from the year 1994. She has more than 23 years of teaching experience at MBA level. She has started her career as lecturer at KIMS, Karimnagar then worked at Warangal Institute of Management studies (ITM Group) and Alluri Institute of Management Studies at Warangal. She has worked as Assistant and Associate Professor, served for 12 years at Sarojini Naidu Vanita Mahavidyalaya, Hyderabad. She has moved to Acharya group of Institutes (AIT) as Professor in Department of Business Management located in Bangalore served for 2 years. She also has international experience as visiting professor in abroad Canada for short duration.

To her credit she has published three books, 20 articles in various national, international journals and book chapters. 20 papers were presented in national and international conferences. As a Resource person, she chaired for many conferences at national and international level. She is a good trainer, resource person for many training programmes at Nalgonda and Hyderabad. She has organized many FDP programmes as former Director, IQAC, Head of the Department, DMS and Chairperson - Women Protection Cell at Mahatma Gandhi University. She is active as external examiner, paper setter and Ph.D adjudicator for more than 10 universities in India.

She has visited more than 10 countries worldwide. She has life membership in many Management Associations in India.

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IMPACT OF TECHNOLOGY ON WORK AND WORKPLACES IN FUTURE ORGANIZATIONS

Dr. RAVI ALUVALA,

Head & Associate Professor,

Department of Management Science,

Mahatma Gandhi University, Nalgonda, Telangana, INDIA

Suryanarayana alamuri,

Former Dean, Faculty of Management,

Osmania University, Hyderabad, India

ABSTRACT

In an age of disruptions, it is no exaggeration to state that the rise of technology has all the potential to cause transformation of the entire operational context of Human Resource (HR) function. The power of technology in a highly networked world is too humongous and no aspect of HR could be cited as an exception from getting drastically altered due to its impact. Modern HR has already woken up to these new ground realities and newer wisdom has dawned on HR managers about the current rise and advancement of modern technology and its projection into the future. With the advent of computers and Internet, organizations of every kind and size have been getting impacted significantly and repeatedly by technology. In the Information Age, operating businesses without the use of computers is just unfathomable. Companies have witnessed the impact of technology in almost all the functional areas of business and the managerial and operative functions of HRM can't be an exception. Improved performance and enhanced effectiveness are the immediate byproducts of innovative technologies that are affecting directly and vitally most of the HR practices.

It has already changed the way in which HR officers manage and disseminate employee information and communicate, in general, with employees. Nowadays, employees are using freely intranets, wikis, webinars, and blogs internally to stockpile information, work collaboratively, and share opinions and project progress. There are companies that aggressively use social media to tie its far-flung and huge workforce together. Historically, technology-driven companies led the way in adoption of new technologies along with the work styles that go with them. Not surprisingly, these trends were most pronounced collectively in technology sector. Now, as technology has become more integral to the operation or mission of organizations, these themes and breakthroughs are now percolating to and permeating the larger work community without any exception. Modern HR trends generally don't impact the workplace directly, but have more to do with affecting how we work. The physical workplace is far more than just furnishings and real estate. Organizations are all about how people work and are managed, the technologies that enable the work, and how they employ the workplace for its own ends. Workplace even reflects forces of the larger external social and economic environment.

Managing Editor



Ms. Sharani Ponguru is Director of NARAYANA group and intensely involved in managing the affairs of NARAYANA colleges all over India. She has studied MBA at New Castle University, London (UK) and shows passionate interest in developing the MBA department of NARAYANA Engineering Colleges (Nellore & Gudur). She emphasizes on activity based learning, project based learning and takes keen interest in participating in business conferences & workshops in several countries.

About the Editors



Dr. Gangineni Dhananjhay, presently with MBA Department of Narayana Engineering College, Nellore (A.P) is an alumnus of IIM-Ahmedabad and completed his BTech and MBA (Finance) from SV University, Tirupati (A.P). He is a NSE Certified Market Professional (Level-5) having real time experience in Financial Markets, Stock Broking, Equity Research and Business Journalism. Gangineni Dhananjhay has intensive experience as an academic in finance area having worked with ICFAI, VSPGS, VJIM.



Dr. K. Sai Kumar obtained his B.Tech, in Mechanical Engineering from Sri Krishna Devaraya University. He also obtained post graduation degree in MBA, with specialization of Production and Operations Management from Sri Krishna Devaraya Institute of Management, S.K. University, Ananthapur, and also obtained his PhD on Materials Management from the same University.



Dr. Komma Vijaya Nirmala, MBA, PhD, presently working as Associate Professor in the Department of Management Studies, Narayana Engineering College, Nellore. She has completed her graduation (B.Sc Mathematics) and post graduation in Master of Business Administration (MBA) and Doctorate in Management Studies from Sri Venkateswara University, Tirupati, Andhra Pradesh.

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ISSUES AND CHALLENGES IN THE MARKETING OF FINANCIAL SERVICES IN THE TURBULENT TIMES

Dr. Aluvala Ravi, Director, Academic Audit, Mahatma Gandhi University, Nalgonda, Telangana E-mail: aravi13371@gmail.com

Dr Sanjay Kumar Taurani Associate Professor, TKRIMS, Hyderabad, Telangana, Sanjay.taurani@gmail.Com

ABSTRACT

In Financial Services today there is greater focus on making customers affordable to buy the products which are marketed to them. Companies need to put the customer first and be confident that they have in place the right processes to ensure both their brands as well as customers are protected. Affordability comes down to much more than verifying an individual's income. Extra layers of financial and lifestyle insight can help brands go much further and build up pictures of customers on which to base decisions. By measuring how sophisticated products are and identifying which customers they're appropriate for, it is possible to minimize risk while demonstrating compliance. The emergence of online comparison sites over the past few years has given customers a wider choice while buying financial products online. This paper deals with the issues and challenges associated with the marketing of financial services. The study takes into consideration the secondary data based on recent trends and regulations in financial services sector in India.

Keywords: Financial services, lifestyle, customers, brand experience, regulations.

1. INTRODUCTION

Indian financial services industry has been through the toughest of the times and yet stands strong and robust among the world economies. Having a deep impact of the far-reaching changes in the Indian economy since liberalization, the new face of this industry is evolving in a strong, transparent and resilient system. Over the last few years, financial markets have witnessed a significant broadening and deepening of service baskets with the introduction of several new instruments and products in banking, insurance and capital markets space. The sector was opened up to new private players including foreign companies who embraced international best practices and modern technology to offer a more sophisticated range of financial services to corporate, retail and institutional customers. Financial sector regulators too have been visionaries to ensure that new regulations and guidelines are in tandem with global norms. These developments have given a robust boost to the development and modernisation of the financial services sector in India.

Marketing of financial products is the aggregate function absorbed at providing facility to satisfy customer's monetary needs and wants, more than the rivalry keeping in view the organizational objectives. Financial service is a personalized service oriented industry and hence should provide services which satisfy the customers' needs. The marketing tactic includes forestalling, classifying, responding and satisfying the customers' needs and wants effectually, professionally, and beneficially. It can be said that the presence of the bank has miniature value without the presence of the customer. The main role of the bank is not only to attain and win more and more customers but also to preserve them through operative customer facility. Marketing as associated to banking is to explain a suitable promise to a customer through a variety of products and services and also to confirm operative distribution through satisfaction. The actual contentment delivered to a customer relay on how the customer is cooperated with. It goes on to prominence that every employee from the highest executive to the most junior employee of the bank should be concerned with marketing.

Nowadays customer is becoming more sophisticated about their choice and quality of service being served to them. Throughout the life, customers try their best to fulfill their demands. The place where

EMERGING TRENDS IN FINANCIAL SERVICES IN INDIA IN RECENT TIMES

Dr. Aluvala Ravi, Director, Academic Audit, Mahatma Gandhi University,
Nalgonda, Telangana E-mail: aravi13371@gmail.com

Dr. J. Varaprasad Reddy, Professor & Director, TKR Institute of Management,
Meerpet, Hyderabad-500097, jvpreddy2005@gmail.com

ABSTRACT:

India has a diversified financial sector undergoing rapid expansion, both in terms of strong growth of existing financial services firms and new entities entering the market. The sector comprises commercial banks, insurance companies, non-banking financial companies, co-operatives, pension funds, mutual funds and other smaller financial entities. The banking regulator has allowed new entities such as payments banks to be created recently thereby adding to the types of entities operating in the sector. However, the financial sector in India is predominantly a banking sector with commercial banks accounting for more than 64 per cent of the total assets held by the financial system. The Government of India has introduced several reforms to liberalize, regulate and enhance this industry. The Government and Reserve Bank of India (RBI) have taken various measures to facilitate easy access to finance for Micro, Small and Medium Enterprises (MSMEs). These measures include launching Credit Guarantee Fund Scheme for Micro and Small Enterprises, issuing guideline to banks regarding collateral requirements and setting up a Micro Units Development and Refinance Agency (MUDRA). With a combined push by both government and private sector, India is undoubtedly one of the world's most vibrant capital markets. The present study is based on secondary data taken from recent financial reports on financial services and instruments which will help to get an insight on recent trends in financial services in India.

Keywords: *India, Commercial Banks, RBI, MUDRA, Financial Services.*

1. INTRODUCTION

India has a diversified financial sector undergoing rapid expansion, both in terms of strong growth of existing financial services firms and new entities entering the market. The sector comprises commercial banks, insurance companies, non-banking financial companies, co-operatives, pension funds, mutual funds and other smaller financial entities. The banking regulator has allowed new entities such as payments banks to be created recently thereby adding to the types of entities operating in the sector. However, the financial sector in India is predominantly a banking sector with commercial banks accounting for more than 64 per cent of the total assets held by the financial system.

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The country's financial services sector consists of the capital markets, insurance sector and non-banking financial companies (NBFCs). India's gross domestic savings (GDS) as a percentage of Gross Domestic Product (GDP) has remained above 30 per cent since 2004. It is projected that national savings in India will reach US\$ 1,272 billion by 2019. Over 95 per cent of household savings in India are invested in bank deposits and only 5 per cent in other financial asset classes.

ABOUT THE BOOK

This book is an outcome of affluent and thoughtful contribution of Two Day National Seminar on "Emerging Trends in Insurance, Banking and Tourism" held at OU Campus on June 28th - 29th 2019.

This book is divided into of three parts: Part 1 covers insurance, part 2 covers banking and part 3 covers Tourism. The papers from banking area of the seminar highlighted on issues like Omni-channel for banking transactions, demonetization, digitalization and mobile banking. Insurance papers are highlighted the crop insurance, life insurance and livestock insurance and Tourism papers are highlighted eco-tourism, employability, skills developments in tourism and CSR in tourism sector. This book is a modest attempt to help, Research Scholars, Academicians and policy makers to understand the diversified emerging issues on Service Sector such as Insurance, Banking and Tourism.

- Editors

ABOUT THE EDITORS



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Osmania University, Hyderabad



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A STUDY ON E-MARKETING STRATEGIES FOR INSURANCE SERVICES

Dr. Vinay Kumar Nagu
Asst. Professor
College of Administration and Finance
Studies
Saudi Electronic University
Dammam Branch KSA
v.nagu@seu.edu.sa, vinnysri@gmail.com

Dr. RAVI ALUVALA
Associate Professor
Dept. of Management Studies,
UCC&BM, MG University,
Nalgonda
aravi13371@gmail.com

ABSTRACT:

This paper aims to identify, how traditional service companies use the internet in their marketing communication and How E-Marketing plays a pivotal role in an insurance company's success, because the industry specializes in immaterial, intangible products and is marked by sharp cut-throat competition. E-Marketing opens new ways for companies to make interaction with (potential) customers. It is quite significant that while nearly 40% of customers with internet access seek information in advance online, three quarters of these customers will then make out the policy in the conventional manner with an agent. Many insurance companies are adapting to these changes in consumer behaviour.

There also remains potential for more and more policies to be taken out online. Many insurance companies have recognized the potential of the internet and are investing heavily in the E-Marketing. Various statistics indicate that the internet is likewise affecting the specialized field of—Insurance related products. However, because these policies are mostly quite complex and have wide ranges of coverage needs, most policies are still taken out with the help of an agent. Nevertheless, customers are likewise using the internet to obtain information in advance of their meetings with their agents. Therefore, an insurance company specializing in this target group likewise needs an internet strategy.

Introduction

In the transformed competitive environment, the insurance company's priority is to gain more control over final market, or lay hold of the relationship with the customer. It is fundamental, to make progress in maintaining relationship with the customer. The growing competition in fact results in frequent reminders, and in continuous offers made to customers by a third party operators. In this new scenario, the only way to keep customers is to offer quality services, creating differentiating elements of their proposals, adding customization and consulting. The policyholders, after all, have the insurance and financial solutions tailored to their specific needs. And they're not exploiting pre-standard packages. The



Dr. INDRAKANTI SEKHAR, Sr. Asst. Professor, Department of Commerce
University College of Commerce & Business Management (UCC & BM) & Addl.
Controller of Examination, Exam branch, OSMANIA UNIVERSITY, HYDERABAD

Born on 18th day of November, 1971, as elder son of Shri Indrakanti Narasimha and Smt. Prameela in Nalgonda District – Telangana State. School education in Govt. municipal High School than intermediate Education completed from Govt. Jr. College and Graduation from Nagarjuna Degree College Nalgonda. Post Graduation & LLB from Osmania University, Hyderabad, MBA from B.R. Ambedkar Open University, Hyderabad and Ph. D from Andhra University, Visakhapatnam. He has 18 years of teaching experience and his specialization are Accounting and Taxation. 32 Papers has been presented in National and International Conferences and seminars. 11 articles have been published in National and International UGC approved Journals with ISSN & ISBN and two Books are published with ISBN.

Dr. I. Sekhar has visited Singapore for presentation of International research paper on "Role of Ombudsman in Banking service A Study on present Global scenario" and nominated as Discussant for World finance & Banking symposium, Singapore during the December 2014. He also served in various Administration positions like Addl. Controller of Examination, Osmania University; Coordinator for student activities (Industrial /Educational tours & Youth festival) ; Coordinator for ICIC And-on-Course; 4. Coordinator for NET Coaching classes and 5. Coordinator for Placements. He is Life member – Indian commerce Association (ICA), New Delhi ; Indian Accounting Association (IAA), Udaipur, Telangana Commerce Association (TCA), Hyderabad and Life Member – Bar council of India, AP as Advocate.

Dr. D. CHENNAPPA is Professor of Commerce at Osmania University, Hyderabad. He obtained his M.Com., M.Phil., and Ph.D. degrees from Osmania University, Hyderabad and MBA from IGNOU. He has 24 years of teaching and research experience. He qualified National Eligibility Test (NET-1996) conducted by UGC, New Delhi. He has been teaching Quantitative Techniques for Business Decisions, Research Methodology and E-COMMERCE. He undertook four 4 minor and Two major research project sponsored by ICSSR and UGC-New Delhi. He authored 2 books and edited 13 books. His published books were widely acclaimed.

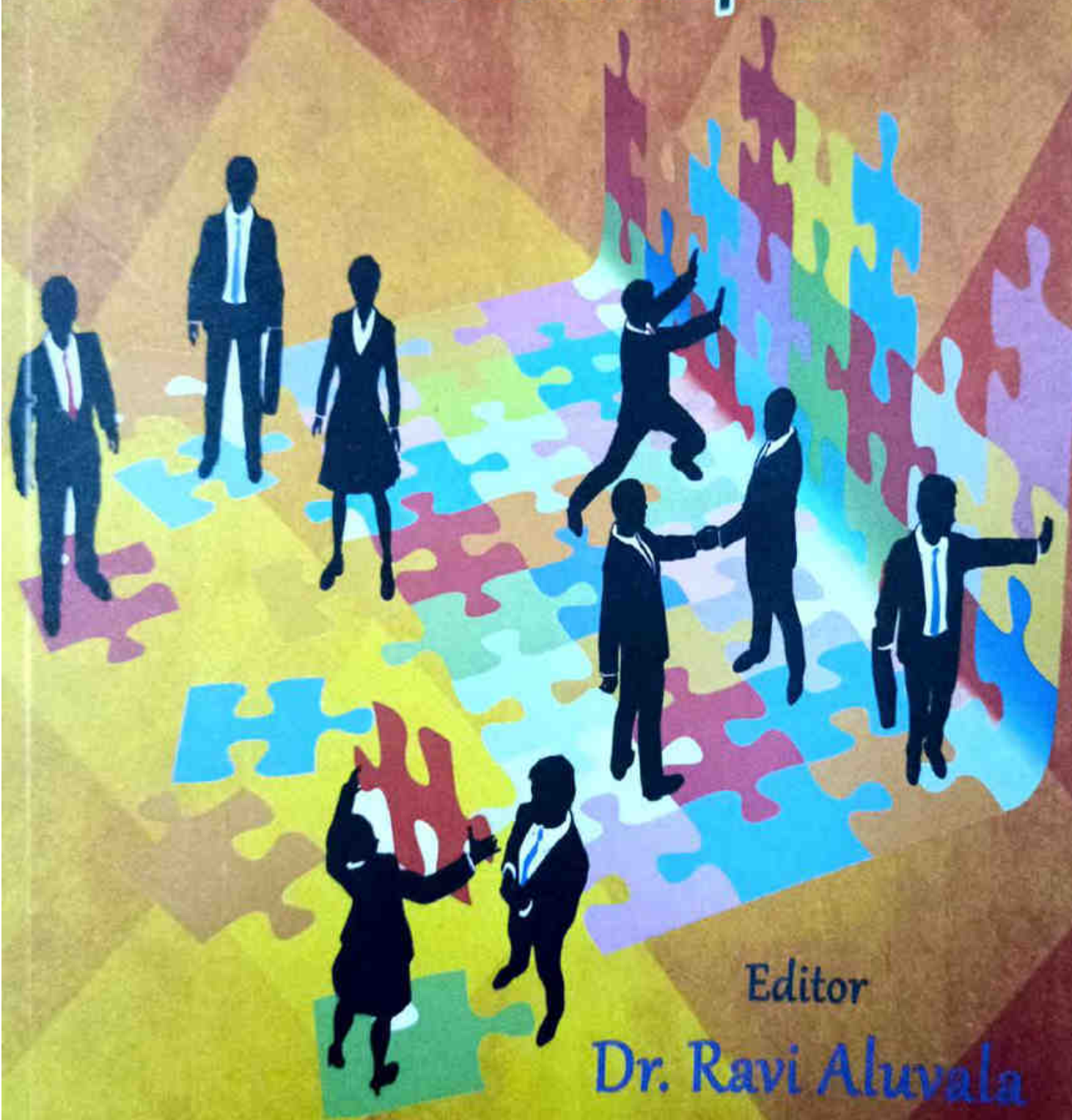


He got published 6 papers in International paper and 35 national papers in reputed refereed national journals. He organised three national seminars and three international Conferences on relevant topic. He participated in three International conferences at USA and more than 25 National Seminars at national level. Under his supervision 2 M.Phils and 8 Ph.Ds have been awarded. He is a UGC Research Awardee - (2012-14). He is a columnist for Eenadu daily News Paper.

Chennappa has served as NCC officer, NSS Co-ordinator, Warden, Vice Principal, and Chief Warden for university Mess and Hostels. As a chief Warden he has introduced Online Hostel admission system in the university in 2013.

Chennappa is a Founder- cum- Executive Editor for Osmania Journal for International Business Studies (ISSN 00973-5372) and President for Global Research welfare Society Publication (ISSN 978-81-910003-0-6). He is a life member INDO-US Foundation (INDUS) and the Indian Commerce Association and Indian Accounting Association. His areas of research interest include Insurance, E-Commerce and Indian Financial System.

Millennial Workforce – A Contemplation



Editor

Dr. Ravi Aluvula



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MILLENNIAL WORKFORCE
– A CONTEMPLATION

EDITOR

DR RAVI ALUVALA

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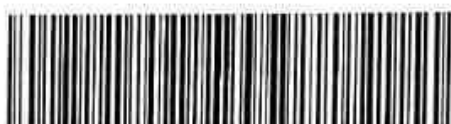
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Millennial Workforce - A Contemplation

A HISTORICAL PERSPECTIVE OF HUMAN RESOURCE MANAGEMENT AND ITS IMPLICATIONS FOR THE HUMAN RESOURCE MANAGER IN THE PRESENT SCENARIO

Dr. Aluvala Ravi¹

ABSTRACT

This paper introduces the development of Human Resource Management (HRM) from a historical perspective and explains the debate between HRM and personnel management. Thus, the paper identifies the historical developments and their impacts on HRM, outlines the development and functions of HRM, explains the differences between HRM and Personnel Management, evaluates 'hard' and 'soft' approaches to HRM, illustrates how diversity is an issue in Human Relations (HR) practice and finally considers HRM as an international issue. It concludes with a discussion about 'hard' and 'soft' models of HRM and its implications for the human resource manager.

INTRODUCTION

The term "human resource management" has been commonly used for about the last ten to fifteen years. Prior to that, the field was generally known as "personnel administration." The name change is not merely cosmetics.

Personnel administration, which emerged as a clearly defined field by the 1920s (at least in the US), was largely concerned the technical aspects of hiring, evaluating, training, and compensating employees and was very much of "staff" function in most organizations. The field did not normally focus on the relationship of disparate employment practices on overall organizational performance or on the systematic relationships among such practices. The field also lacked a unifying paradigm.

HRM developed in response to the substantial increase in competitive pressures American business organizations began experiencing by the late 1970s as a result of such factors as globalization, deregulation, and rapid technological change. These pressures gave rise to an enhanced concern on the part of firms to engage in strategic planning--a process of anticipating future changes in the environment conditions (the nature as well as level of the market) and aligning the various components of the organization in such a way as to promote organizational effectiveness.

Human resource management (HRM), also called personnel management, consists of all the activities undertaken by an enterprise to ensure the effective utilization of employees toward

¹ Director, Academic Audit, Mahatma Gandhi University, Nalgonda, Telangana



Dr. Ravi Aluvala is currently working as Associate Professor in the Department of Management Studies of Mahatma Gandhi University, Nalgonda. He is also the Director, Academic Audit Cell, MGU, Nalgonda.

He obtained his MBA and Ph.D from Osmania University, Hyderabad and has an overall experience of Twenty years, of which fifteen years of teaching and five years of industrial experience.

He has Published more than 35 papers in National and International Journals. He has Published five Edited Books and presented more than 30 papers in Various National and International Conferences.

His teaching, research and consulting interests include Human Resource Management, Participative Management, Industrial Relations etc.

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Editor

Dr. Ravi Aluvala



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HUMAN RESOURCE MANAGEMENT: NEW HORIZONS

EDITOR

DR RAVI ALUVALA

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Ravi Aluvala
V. Anuradha

Perceived employee motivation in select IT companies in Hyderabad



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Ravi Aluvala
V. Anuradha

Perceived employee motivation in select IT companies in
Hyderabad

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**Ravi Aluvala
V. Anuradha**

Perceived employee motivation in select IT companies in Hyderabad

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**PERCEIVED EMPLOYEE MOTIVATION - A
STUDY OF SELECT IT COMPANIES IN
HYDERABAD**

FOR AUTHOR USE ONLY
Authors:

Dr. Anuradha V
Assistant Professor

Department of Management Studies
Mahatma Gandhi University, Nalgonda
Telangana, India – 508254

Dr. Aluvala Ravi
Associate Professor

Department of Management Studies
Mahatma Gandhi University, Nalgonda
Telangana, India – 508254

This study highlights the perceived employee motivation in select IT companies of Hyderabad. In summary, the study investigated the various types of motivational tools utilized by managers to the motivate employees and even the employers' must think about innovative ways of improving and accommodating the benefit for their employees.

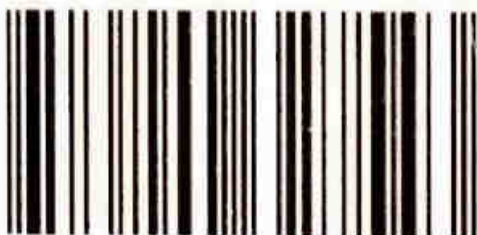
The research question sought to identify and evaluate the relevance of and the various types of motivational tools being used by managers in the select IT firms of Hyderabad. The findings show that the most prevailing motivational category is achieving better financial payment, promotion, job security, medical benefits, etc.

It is observed from the study, that some of the challenges ranged from funding through budgeting, organizational policy issues, centralization and decentralization of power and authority, the human nature of man that is limitless, and employees drifting/turnover. These barriers / challenges as they affect the IT industry were seen from the views of the respondents themselves. The study suggests that policy implications which would aid the current realities with motivational structures in the IT sector.



Dr. Ravi Aluvala is currently working as Associate Professor in the department of Management Studies of Mahatma Gandhi University, Nalgonda.

Dr. V. Anuradha, is currently working as Assistant professor, Mahatma Gandhi University, Nalgonda.



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FOR A

The decantation activity of nanoparticles on pesticide residues (Benylamino acid class fungicide of benilazol, strobilurin fungicides of azoxystrobin and Pyraclostrobin, conazole fungicides of epoxiconazole, tetraconazole and unclassified fungicide of tricyclazole in water) was investigated. The decantation of the pesticide residues was studied in Milli-Q water, pH 4, pH 7 and pH 9 buffer solutions under sunlight in natural climatic conditions. Kinetic parameters such as rate constant (k), DT50 and DT90 were calculated using the dissipation data of all pesticides. The reaction rate follows first order and the degradation was high in pH 9 buffer water for epoxiconazole, tetraconazole and tricyclazole and benilazol when compared to Milli-Q water and other buffer solutions, the degradation order was $\text{pH } 4 < \text{Milli-Q water} < \text{pH } 7 < \text{pH } 9$ and for azoxystrobin and Pyraclostrobin was in $\text{pH } 4$ buffer water.



K. Raghu Babu
Y. Prashanthi
Tenlu Nagarajwara Rao

PHOTO CATALYTIC APPLICATIONS OF NANOPARTICLES IN DISSIPATION KINETICS OF TOXIC FUNGICIDE RESIDUES IN DIFFERENT pH WATERS

PHOTO CATALYTIC APPLICATIONS OF NANOPARTICLES IN DISSIPATION KINETICS OF TOXIC FUNGICIDE RESIDUES IN DIFFERENT pH WATERS



Dr. Raghu Babu is Professor, Department of Engineering Chemistry AU College of Engineering (A) Andhra University. His research has included three fields: (1) Energy and Environment (2) Synthesis and analysis of Pharmaceuticals (3) Nano Science and Technology. He has authored more than 100 research articles/books on his research results.



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A pesticide is any substance or mixture of substances intended for preventing, destroying, or controlling any pest including vectors of human or animal diseases, unwanted species of plants or animals causing harm during, or otherwise interfering with, the production, processing, storage, or marketing of food, agricultural commodities, wood and wood products, or animal feedstuffs, or which may be administered to animals for the control of insects, arachnids or other pests in or on their bodies. The physical-chemical properties usually provided for regulatory purposes are necessary to identify and describe the active ingredient and the product. Vapour pressure, water solubility and octanol/water partition coefficient have particular value in the prediction of the environmental behavior of a pesticide. The nature and amount of data required for pesticide registration depends on the properties and use of each substance. Research resources should be focused on the identification and evaluation of major risks, and data requirements which are excessive and stifle innovation must be avoided.

Analytical methods for Pesticides



T. Nageswara Rao has completed M.Phil. from Andhra University, present he is doing Ph.D. in Krishna University He has worked as an analytical chemist in various Indian pharmaceutical companies. His area analytical methods for bio, environmental, and pharmaceutical samples. At present he is working as a Sr Scientist in the analytical Chemistry Dept.



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Tentu Nageswara Rao
Prashanthi Y
Benarji Patrudu T.

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✓ E. S. Gopi
Editor

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E. S. Gopi
Department of Electronics and Communication
Engineering
National Institute of Technology Tiruchirappalli
Tiruchirappalli, Tamil Nadu, India

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Machine Learning, Deep Learning and Computational Intelligence for Wireless Communication pp 93–107

Energy-Efficient Neighbor Discovery Using Bacterial Foraging Optimization (BFO) Algorithm for Directional Wireless Sensor Networks

[Sagar Mekala](#) & [K. Shahu Chatrapati](#)

Conference paper | [First Online: 29 May 2021](#)

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Abstract

In directional wireless sensor networks (WSN), the existing neighbor's discovery methods involve high latency and energy consumption, compared to the block design-based methods. Moreover, the duty cycle schedule of nodes has to be addressed to increase the network lifetime. In this paper, an energy-efficient collaborative neighbor discovery mechanism using the bacterial foraging optimization (BFO) algorithm is recommended. In this computation, each node with a directional antenna performs beamforming using BFOA with

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Innovations

T. Kishore Kumar
Ravi Kumar Jatoth
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AND TOURISM"** organised by Department of Commerce, Osmania University, Hyderabad, Telangana held on 28th and 29th
June 2019. in collaboration with Institute of Public Enterprise, Hyderabad.

He / She presented a Paper Titled Mobile Banking - Perceptions of Customeres in Nalgonda District

Prof. Prashanta Athma
Seminar Chairperson

Head, Department of Commerce, OU

Chairperson
Technical Session

Prof. D. Chennappa
Seminar Director



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Advances in Finance He / She Presented a Paper Titled

by Financial Literacy - perceptions of the respondents (with special Co-Authored reference to Apparatvapet villages)

Prof. K. SHANKARAIAH

Seminar Director &
Dean, Faculty of Commerce

Prof. PRASHANTA ATHMA

Seminar Chairperson &
Head, Dept. of Commerce

Dr. T. KRISHNA KUMAR

Seminar Convener, Incharge Coordinator &
Chairman, Board of Studies in Commerce



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_____ participated in Two-Day National Seminar on "Fintech Adoption in the Indian BFSI Sector – Opportunities and Challenges" organised by the Department of Commerce, Osmania University, Hyderabad, Telangana State, India during 19 - 20 March, 2019. He / She Chaired a

Technical Session IV He / She Presented a Paper Titled Mobile Banking – Perceptions of Customers in Nagonda.

Co-Authored by _____

Prof. S.V. SATYANARAYANA

Seminar Director &
Chairman, BoS in Commerce

Prof. PRASHANTA ATHMA

Seminar Chairperson &
Head, Dept. of Commerce

Dr. GADDAM NAREESH REDDY

Seminar Convener &
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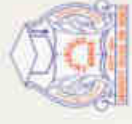
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MAHATMA GANDHI UNIVERSITY, HALGONDA, TS..... College / University ✓

has participated in the **NATIONAL CONFERENCE on "AGRICULTURAL MARKETING IN TELANGANA"** organised
by Department of Commerce, Palamuru University, Mahabubnagar, Telangana held on 18th April 2019.

He / She presented a Paper Titled **NABARD AND PRIORITY SECTOR LENDING - AN OVERVIEW**.....

Dr. K. Raj Kumar
Conference Secretary

Prof. K. Girija Mangatayaru
Registrar, P.U. Mahabubnagar
Prof. H. Venkateshwarlu
President TCA



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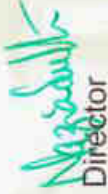
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This is to certify that Dr./Mr./Ms. **Rambabu Karpurapu**
from **UCC and BM**
has presented a paper titled **Marketing of Health-
care services** in the technical session- I/II/III/IV of

the Two Day National Conference held during February 22-23, 2019.


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UNIVERSITY
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Faculty, Dept. of Commerce, Mahatma Gandhi University, Nalgonda College / University
Submitted/Presented a reasearch paper titled... *Coop. In.sucramee in Andhra*.....
Awareness Levels of the farmers.....
in the National Seminar held at Department of Commerce,
Central University of Tamilnadu from 29th to 30th October 2018.

KKR
Dr.K.Kanaka Raju,
Seminar Convener
Assistant Professor

KKR
Dr.Velmurugan P.S.
Associate Professor & Head
Dean School of Commerce & Business Management
Department of Commerce



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MGU

has participated in a One Day National Workshop on "Research Methodology",
organized by the Department of Commerce, University College for Women
(Autonomous), Koti, Hyderabad, on February 1st, 2019.

Prof. (Mrs.) A. Roja Rani
Principal, UCW


Dr. K. Krishna Chaitanya
Program Chairperson


Dr. (Mrs.) B. Sandhya Rani
Program Director