# International Conferences on Basic Applied Sciences & Management

Date: 17- 19 Nov 2021



# **Organized By**

# **Department of Business Administration**

Koneru Lakshmaiah Education Foundation, AP -522502

Good morning, all! "Thank You" is a prayer that cannot be seen or touched. It must be felt by the heart. I feel honored and privileged to get the opportunity to propose a vote of thanks on this special occasion.

I thank all the honorable delegates who blessed us with their presence. I am also very thankful to all Program Advisory Committee members and the invited speakers. Words are not enough to thank their constant guidance and support in shaping the **International Conferences on Basic Appliesd Sciences & Management**.

I am very thankful for our current and formal faculty colleagues and non-teaching staff members who always stand by and motivate us. I feel proud, and thank you for making this event successful.

#### **President KLEF**

#### Er.Koneru Satyanarayana

It has been our pleasure to host all the participants of the **International Conferences on Basic Appliesd Sciences & Management** at K L E F. The participants were very enthusiastic.

I am thankful to all the participants for coming to KL University to attend the conference. We have been fortunate to have some eminent persons from academia, industry, and utility working in Current Research Areas. I am sure that the participants must have benefitted by attending this conference. I am very much thankful to all the sponsors of this conference. Without their generous financial support, organizing this conference would not have been possible.

#### **Vice-Chancellor**

#### Dr.G.Pardha Saradhi Varma

A splendid evening finally comes to an end. On behalf of K L E F, I feel honored to thank all the dignitaries who have taken valuable time to make the **International Conferences on Basic Appliesd Sciences & Management** a grand success.

I am thankful to the steering committee members for giving us the opportunity.

I take this opportunity to thank all the reviewers and technical committee members for providing their valuable comments in time and helping improve the quality of the papers presented at the conference.

My Best Wishes to the Technical Committee, Publication Chair, HoD, research scholars and faculty, and staff members. I am also thankful to all who have helped us organize the conference.

Registrar(I/C)

Dr.A. Jagadeesh

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# Female Entrepreneurship Entry Model through Small Business orientation (SBO) in India

<sup>1</sup>Dr. K HemaDivya , <sup>2</sup>Gaurav Kumar

<sup>1</sup>Associate Professor, <sup>2</sup>Research Scholar Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302 Mail id: <u>Gaurav.fddi07@gmail.com</u>, hema@kluniversity.in

### Abstract

The study approach to examine the opinions of the small business women entrepreneurs to develop an entry model for women entrepreneurship in an emerging economy like India. The study will be go through by adopting survey among the small business women entrepreneurs. For data sources triangulation the study also added participants and industry observation. The data coding and analysis were conducted based on the method of (Gioia et al., 2013). The study constructs an entry model regarding small women entrepreneurship from an emerging economy mainly in India. The grounded entry model of women entrepreneurship identified three crucial factors such as motives, challenges, and supports. All the components encompass the entrepreneur, society, and government. Hence the authors believe the grounded model is a 360-degree promotion model for the people who are engaged in women.entrepreneurship. The study will be highly productive in the sense of outcomes in that its research objective will play a great and crucial role in future research into the field of SBO and women's entrepreneurship for emerging economies like India.

Keywords: women entrepreneurship, entry model, small business orientation, retail business, emerging economy



# Expansion and Crediting of MSMEs: A Case study of Andhra Pradesh and Telangana

#### <sup>1</sup>Dr. K Hema Divya, <sup>2</sup>Gaurav Kumar

<sup>1</sup>Associate Professor <sup>2</sup>Research Scholar Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302 Mail id: <u>Gaurav.fddi07@gmail.com</u>, hema@kluniversity.in

#### Abstracts

Despite many credit and financial inclusion programmes at the bottom of the pyramid focusing on MSMEs' credit for expansion, the main reason for domestic and international economic development is MSME expansion and credit. Addressing their contribution to industrial production, exports, employment, and the nation's entrepreneurial foundation, MSMEs represent a major sector of the Indian economy with a scale of 90 per cent industry coverage, 40 per cent value addition in the manufacturing industry, 45 per cent industrial output, and 40 per cent export involvement. However, access to institutional finance (CBs) is main impediments to the expansion and achieving MSMEs development in industrialized and prominent nations that is not fitting as most credit aegis so last few financial year Non-banking financial institutions are growing as financial patronage. The Indian government has taken a number 4of steps to ensure the continued expansion of MSMEs, but the sector is very sick as a result of a lack of funding. Hereafter, regression analysis has been applied in an effort to analyse the association between credit flow by Scheduled Commercial Banks (SCBs) and the expansion of the MSME sector in India. In the study, domestic commercial banks in Telangana and Andhra Pradesh are compared with regard to the loan flows they make available to MSMEs.

Keywords: Credit, Expansion, MSME, Andhra Pradesh, Telangana



### A study on NBFC contribution to credit gap for MSME

#### <sup>1</sup>Dr. K HemaDivya<sup>2</sup>Gaurav Kumar

<sup>1</sup>Associate Professor<sup>2</sup>Research Scholar Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302 Mail id: <u>Gaurav.fddi07@gmail.com</u>, hema@kluniversity.in

#### Abstract

Although much research work has investigated the impact of capital investment by public sector bank on MSME and how they mutually impact on economy. The purpose of my study is to fill the gap of credit obstacle face by the MSME from the public sector bank so the MSME sector will get quick credit from a financial bodies without taking long time for this economy need a Government NBFC which sole and basic aim is to credit the MSME sector moreover for creating awareness about new innovation, market, to become internationally competent Indian economy's each state should have a state university.

Keywords: Credit, Non- Banking Financial Institutions, MSMEs, Economy



# Effectiveness of the "Raising and Accelerating MSME Productivity" (*RAMP*) Programme on the Performance of Micro, Small and Medium Enterprises

<sup>1</sup>Dr. K Hema Divya, <sup>2</sup>Gaurav Kumar

<sup>1</sup>Associate Professor <sup>2</sup>Research Scholar Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302 Mail id: <u>gaurav.fddi07@gmail.com</u>, hema@kluniversity.in

### Abstract:

The prime sector lending is MSME so large number of government financial ways is to adopt MSMEs as prime client for credit whereas this attempt for credit to MSMEs quite financial ineffective during covid-19 so world Bank implemented a programme for resilience and recovery interventions of the Ministry of Micro, Small and Medium Enterprises (MSMEs). Through this study research outcomes show that the effectiveness of RAMP financial support programmes to overcome and reduce the effective of Covid-19.

Key Words: MSME, Effectiveness, Productivity, and performance



# Cluster Development Programme (CDP) to act as a catalyst the MSMEs Sector: A Case study on Auto-Component Industry in Vijayawada

#### <sup>1</sup>Dr. K HemaDivya, <sup>2</sup>Gaurav Kumar

<sup>1</sup>Associate Professor <sup>2</sup>Research Scholar Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302 Mail id: <u>gaurav.fddi07@gmail.com</u>, hema@kluniversity.in

#### Abstract:

The concept of cluster development programme to enhance the capability of MSMEs in different ways like to support the growth and welfare of MSEs (Micro and Small Enterprises) by providing technology, tool up-gradation, skill development, market access, quality enhancement, infrastructure to automobile sector in the location of Vijayawada. The main objective of this study is to explore the relationship between facilities provided through CDP in auto component industry by using regression analysis. The possible analysis result and outcomes show the lacuna that can be more enhance the productivity of MSEs.

Key Words: MSME, Effectiveness, Productivity, and performance



#### **Small and Medium Business: Problem to Get Credit from Banks**

#### <sup>1</sup>Dr. K Hema Divya, <sup>2</sup>Gaurav Kumar

<sup>1</sup>Associate Professor<sup>2</sup>Research Scholar Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302 Mail id: <u>gaurav.fddi07@gmail.com</u>, hema@kluniversity.in

#### Abstract:

This paper presents recent research on access to finance by small and medium-size enterprises (SMEs). SMEs form a large part of private sector in many developed and developing countries. While cross-country research sheds doubt on a causal link between SMEs and economic development, there is substantial evidence that small firms face larger growth constraints and have less access to formal sources of external finance, potentially explaining the lack of SMEs' contribution to growth. Financial and institutional development helps alleviate SMEs' growth constraints and increase their access to external finance and thus levels the playing field between firms of different sizes. Specific financing tools such as leasing and factoring can be useful in facilitating greater access to finance even in the absence of well-developed institutions, as can systems of credit information sharing and a more competitive banking structure.

Keywords: SME, Credit, Bank,



**Small Business Manager's Resource Acquisition** 

<sup>1</sup>Dr. K Hema Divya <sup>2</sup>Gaurav Kumar

<sup>1</sup>Associate Professor <sup>2</sup>Research Scholar Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302 Mail id: <u>gaurav.fddi07@gmail.com</u>, hema@kluniversity.in

#### Abstract:

In recent years, small businesses have received much attention from policy makers and researchers, in that these businesses are considered important for economic growth and job creation. At the same time small businesses are assumed to face major problems in securing long-term external finance, which is regarded as restraining their development and growth. Small business managers are assumed to use institutional finance as a means of meeting the need for resources, and as a consequence the major part of the research on small business finance has focused on constraints in the supply of institutional (market) finance. As we see it, most small business managers handle the need for resources using means other than external finance by applying different kinds of financial bootstrapping methods. Financial bootstrapping refers to the use of methods for meeting the need for resources without relying on long-term external finance from debt holders and/or new owners. However, these other means of resource acquisition have, with few exceptions, not been focused on within earlier research on small business finance. Against this background, the purpose of this study is to describe small business managers' use of different financial bootstrapping methods, and, more importantly, to develop concepts that can help us better understand small business managers' financial bootstrapping behaviors. The research process was initiated with a number of unstructured interviews conducted with small business managers, accountants, consultants, bank officials, and researchers, in order to identify different financial bootstrapping possibilities. On the basis of the interviews and an earlier study on financial bootstrapping, resulting in the identification of 32 bootstrapping methods, a questionnaire was constructed and sent to 900 small business managers in Sweden. Given the limited knowledge within the area of financial bootstrapping, the study is based on explorative factor analysis and cluster analysis. From the cluster analysis six clusters of bootstrappers were identified, differing from each other with respect to the bootstrapping methods used and the characteristics of the business. On the basis of this information the different clusters were labeled: (1) delaying bootstrappers; (2) relationship-oriented bootstrappers; (3) subsidyoriented bootstrappers; (4) minimizing bootstrappers; (5) non-bootstrappers; and (6) private owner-financed.

Keywords: SME, Credit, Bank,



### A More Complete Conceptual Framework for SME Finance

#### <sup>1</sup>Dr. K HemaDivya<sup>2</sup>Gaurav Kumar

<sup>1</sup>Associate Professor<sup>2</sup>Research Scholar Department of Management, KoneruLakshmaiah Education Foundation, Guntur, India- 522302 Mail id: <u>Gaurav.fddi07@gmail.com</u>, hema@kluniversity.in

#### Abstract:

We propose a more complete conceptual framework for analysis of SME credit availability issues. In this framework, lending technologies are the key conduit through which government policies and national financial structures affect credit availability. We emphasize a causal chain from policy to financial structures, which affect the feasibility and profitability of different lending technologies. These technologies, in turn, have important effects on SME credit availability. Financial structures include the presence of different financial institution types and the conditions under which they operate. Lending technologies include several transactions technologies plus relationship lending. We argue that the framework implicit in most of the literature is oversimplified, neglects key elements of the chain, and often yields misleading conclusions. A common oversimplification is the treatment of transactions technologies as a homogeneous group, unsuitable for serving informational opaque SMEs, and a frequent misleading conclusion is that large institutions are disadvantaged in lending to opaque SMEs.

**Keywords:** MSMEs, Framework, Relationship landing, Governance



## Did the covid-19 Crisis Induce Credit Rationing for Indian SMEs?

### <sup>1</sup>Dr. K HemaDivya, <sup>2</sup>Gaurav Kumar

<sup>1</sup>Associate Professor<sup>2</sup>Research Scholar Department of Management, KoneruLakshmaiah Education Foundation, Guntur, India- 522302 Mail id: <u>Gaurav.fddi07@gmail.com</u>, hema@kluniversity.in

#### Abstract:

This paper focuses on the access of independent Indian SMEs to bank lending and analyzes whether the observed evolution of credit to SMEs over the recent period was "demand driven" as a result of the decrease in firms' activity and investment projects or was "supply driven" with an increase in credit "rationing" stemming from a more cautious behaviour of banks. Covid-19 is universally affected the economy the worst affected zone is small business. This shows SME goes against the common view that SMEs suffered from a strong credit restriction during the crisis but is perfectly after the covid-19 the sector access to finance of SMEs number of credit agencies came forward to fund and government also provided moratorium of interest to SMEs sectors.

Keywords: SME, Bank, Credit, Crisis



#### The Non-banking Financial Institutions in Perspective of Economic Growth of India

<sup>1</sup>Dr. K Hema Divya, <sup>2</sup>Gaurav Kumar

<sup>1</sup>Associate Professor<sup>2</sup>Research Scholar Department of Management, KoneruLakshmaiah Education Foundation, Guntur, India- 522302 Mail id: <u>Gaurav.fddi07@gmail.com</u>, hema@kluniversity.in

#### Abstract:

Globally, Non-banking Financial Institutions (NBFIs) are considered as an important source of financing to the underserved markets such as micro, small and medium enterprises. The purpose of the study is to ascertain the contribution of the NBFIs sector of India for the micro, small and medium enterprises and agriculture sector growth with the perspective of economic development of the country. Regression and Pearson's correlation techniques are adopted to analyse the financial performance of NBFIs extend the effective benefit to the shareholders and investors to expand business operations and NBFIs asset-based financing to the SME sector and the SMEs contribution to the GDP of India. Additionally, a sample independent t-test is conducted to find out the difference between the NBFIs total lease disbursement and SME lease financing to SMEs. However, there is a positive connection between NBFI's asset-based financing to the SME sector and the SME's contribution to the economic growth of India. The study recommends NBFI's operational scale should be expanded to semi-urban and rural areas of India.

Keywords: Economic Growth, MSMEs, lease dispersion



# Non-bank financial institution and economic growth: Evidence from India the emerging economies

<sup>1</sup>Dr. K HemaDivya, <sup>2</sup>Gaurav Kumar

<sup>1</sup>Associate Professor <sup>2</sup>Research Scholar

Department of Management, Koneru Lakshmaiah Education Foundation,

Guntur, India- 522302

Mail id: Gaurav.fddi07@gmail.com, hema@kluniversity.in

### Abstract:

In order for the post-2015 world development agenda termed the sustainable development goals (SDGs) – to succeed, there is a pronounced need to ensure that available resources are used more effectively and additional financing is accessed from the private sector. Given that traditional bank lending has slowed down, the development of non-bank financing has become imperative. To this end, this article intends to empirically test the role of non-bank financial companies (NBFCs) in stimulating economic growth. Aim: The aim of this article is to empirically test the existence of a long-run equilibrium relationship between economic growth and the development of NBFC, and the causality thereof. Setting: The empirical assessment uses time-series data from Indian economies, Results: The results showed that the long-run relationship between NBFC development and economic growth is relatively stronger in India. This suggests that a virtuous relationship between NBFIs and economic growth exists in India the relationship is positive and significant and predominantly runs from NBFC development to economic growth, implying a supply-leading phenomenon. In India, the results are weak and mixed. Conclusion: The study concludes that in countries with more developed financial systems, the role of NBFCs and their importance to the economic growth process are more pronounced. Thus, there is need for developing policies targeted at developing the NBFC sector, given their potential to contribute to economic growth.

Keywords: NBFC, Financing, Growth,



# Impact Of NBFC Assistance To MSME: Study with reference to MSMES and their Performance

<sup>1</sup>Dr. K HemaDivya, <sup>2</sup>Gaurav Kumar

<sup>1</sup>Associate Professor <sup>2</sup>Research Scholar Department of Management, KoneruLakshmana Education Foundation, Guntur, India- 522302 Mail id: <u>Gaurav.fddi07@gmail.com</u>, <u>hema@kluniversity.in</u>

#### ABSTRACT

The Gross Domestic Product of a country indicates the prosperity and wealth of a country. In the recent past India has become one of the fastest growing countries and completing with the most advanced and developed countries in several areas. The Micro, Small and Medium Enterprises (MSMEs) are cover 99% of industries contribute significantly to GDP, including one-third of India's manufacturing output. In India, 12 crores were employed through MSMEs and contribute to 45% of overall exports Most the developed countries contribution to GDP is more than 50%, and Centre for Economics and Business Research, 2018 reported that Indian would overtake both France and UK GDP by 2032. To achieve the countries ambition of 5 Trillion economies, there is an urgent need to strengthen the MSME in India. Financial institutions such as schedule commercial banks and IDBI are assisting in these priority sectors, but there is a need for a financial body that can act as both an assister and a promoter. Therefore, the presented research study makesa critical analysis on the assistance of NBFCs to MSMEs and its effect on their performance. The research concludes that efficient management and enhancement of MSMEs will boost the employment and enhance the country's GDP.

Keywords: Growth, MSME, NBFCs, Performance, Impact.



### Role of Capital Investment on NBFC and MSME for Economic Development in India: Emerging Needs and Challenges

<sup>1</sup>Dr. K HemaDivya, <sup>2</sup>Gaurav Kumar

<sup>1</sup>Associate Professor<sup>2</sup>Research Scholar Department of Management, KoneruLakshmaiah Education Foundation, Guntur, India- 522302 Mail id: <u>Gauray.fddi07@gmail.com</u>, <u>hema@kluniversity.in</u>

#### Abstract:

Although many studies have investigated the impact of public sector bank capital investment on MSMEs and how they interact with the economy. The purpose of the research is to bridge the credit barrier gap that MSME faces against public sector banks interested to invested capital in non-banking Financial companies (NBFC) in various sectors related to MSMEs in India. Therefore, the MSME sector can gain credit from financial institutions for this economy over a long period of time. The sole basic purpose of the state's NBFCs is to recognize the MSME sector and further recognize that it will create new innovations and markets. Internationally competent Indian economics of all states should take a stable position for economic development and sustainability in India.In this Research study, researchers conducted a comprehensive survey of various banks and financial institutions and their activities. How various financial institutions are intended to invest capital in NBFC and MSME sectors? Which encourages investment in various sectors for economic development and sustainability in India for 21<sup>st</sup> century?

**Keywords:**Capital Investment, Micro Small Medium Enterprises (MSME), Gross Domestic Product (GDP), Sustainable Economic Development (SED)



#### <sup>1</sup>Dr. K HemaDivya, <sup>2</sup>Gaurav Kumar

<sup>1</sup>Associate Professor<sup>2</sup>Research Scholar Department of Management, KoneruLakshmaiah Education Foundation, Guntur, India- 522302 Mail id: <u>Gaurav.fddi07@gmail.com</u>, hema@kluniversity.in

#### Abstract:

At present, Governments in many countries have provided financial and other support to SMEs (MSMEs) and their workers as SMEs become more vulnerable following the global COVID-19 outbreak. The negative impacts are more likely to affect the supply chain, labour supply, and end demand for goods and services than large companies. However, due to the variety of MSMEs, the severity of the impact of a pandemic on MSMEs will vary greatly depending on the characteristics of the MSME. Using online survey data from MSMEs from eight developing countries in South Asia, Southeast Asia, Northeast Asia, and especially India, small business owners suffer significantly economic losses due to the impact of the massive COVID-19 pandemic. Suffering from Hooray. This paper seeks to better understand the impact of pandemics on MSME, especially employment, turnover and cash flow. It also characterizes companies that have started online transactions and seeks to understand how online transactions relate to workplace use during this difficult time. It also considers the support of the MSME government and how well it meets the support needs of various MSMEs in India to improve economic development, sustainability and job creation.

**Keywords:**Micro Enterprise (SME), Financial Institution (FI), Pandemic VOVID19, Small and Medium Enterprise (SME), Employment Creation (EG)



# Women entrepreneur's empowerment in reference to SMEs and economic Sustainability

<sup>1</sup>Dr. K HemaDivya, <sup>2</sup>Gaurav Kumar

<sup>1</sup>Associate Professor <sup>2</sup>Research Scholar Department of Management, KoneruLakshmaiah Education Foundation, Guntur, India- 522302 Mail id: <u>Gaurav.fddi07@gmail.com</u>, hema@kluniversity.in

#### **ABSTRACT:**

In the present scenario of economic development in India, the MSMEs entrepreneurial development process for women plays a vital role in India. It is increasingly being recognised as an important untapped source of economic growth since women's empowerment creates new jobs for themselves and others. It seems likely that the future will favour women entrepreneurs to a greater and greater extent in Indian Economic Development and its sustainability. Even though we recognise that the journey of a female entrepreneur is paved with huge challenges, the major one of them is the availability of finance at different stages of the life cycle of the enterprise. We would like to study this problem from both the demand and supply side. This paper endeavours to create awareness about the contribution of women enterprises to the economic development and also the need for creation of a vibrant entrepreneurial ecosystem for women entrepreneurs. This study is primarily based on extensive secondary research and insightsdrawn from own experience upon the capital of Bihar in order to study the women empowerment through their entrepreneurial and economic sustainability in Indian economic development and its present context.

**Keywords**: Women Entrepreneurial and Empowerment (WEAE), Women Enterprises (WE), Access to Finance, Economic Sustainability (ES)



## Perception of Lecturers on the Analysis of Factors for Effective Academic Assessment

#### <sup>1</sup>Sorie Saidu Kamara and <sup>\*2</sup>Sundari Dadhabai (\*Corresponding Author)

1Research Scholar, KLBusiness School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India sskamara75@gmail.com

\*2Associate Professor, KL Business School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India.

sundaridadhabai@gmail.com

ABSTRACT: This study examined and analyzed summative and formative assessment as to which one that is more important for effective academic assessment. Synopsis of the justifications on how they complement with each other and differ only by the way they are used is provided. The study also explored the strategies, challenges, influence and important of assessment among Freetown Polytechnic College lectures in Sierra Leone. The researcher reported results of an investigation of a sample size of 142 lecturers from a population of 437lectures in the college. A systematic questionnaire with a five-point likert scale was used to obtain the primary data. Four objectives and three hypotheses were formulated. At the 0.05 level of significance, descriptive and inferential statistics were utilised to examine the objectives and test the hypotheses. Findings revealed that summative assessment is the most important method for effective academic assessment. Frequent assessment of students is the main important strategy; seating arrangement and invigilators' behaviour are the major challenges; and attending lectures regularly, creativity and intelligence of the student are the essential factors influencing students' academic assessment. Research hypotheses tested revealed that, the data are normal and statistically significant at 0.05 levels, for both summative and formative assessments. Result also indicates a weak correlation of 0.262\*\* but a significant relationship exists between summative and formative assessment because p-value of 0.002, is less than  $\alpha = 0.05$  (0.002 < 0.05).

**Keywords**: academic assessment, Formative assessment, Summative assessment, Assessment challenges, influence, important and strategies

# International Journal For Advanced Research In Science & Technology A peer reviewed international journal ISSN: 2457-0362

Principal's Leadership Style, School Climate and Teachers' Performance towards School Effectiveness

<sup>1</sup>Sorie Saidu Kamara and <sup>\*2</sup>Sundari Dadhabai (\*Corresponding Author)

 1Research Scholar, KLBusiness School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India sskamara75@gmail.com
\*2Associate Professor, KL Business School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India. sundaridadhabai@gmail.com

Abstract: The progress of a nation depends on quality human resources. An effort to improve the quality of human resources was to provide maximum education through good teachers' performance and school effectiveness. Teachers' performance improvement was influenced by organizational communication and other factors. The influence of school climate on some previous research has also been widely studied, for instance, the impact of school climate on teachers' performance. Good teachers' performance can be enhanced by several factors, including the Principal's Leadership style the school climate. This article aimed to determine the effect of school climate and organizational communication on teachers' performance. The researchers used a quantitative approach. Data collection used questionnaires and documentation. Analysis of the data in this study used a part analysis. The result shows a direct and indirect effect of the principal's leadership style variable, school climate, and teachers' performance on school effectiveness at Senior High School Lampung Province. The directeffectof the principal's leadership style is more significant than indirect through motivation on the teachers' performance. It shows that the principal's leadership style plays a role in improving teachers' performance.

Keywords: Principal's Leadership Style, School Climate, Teachers Performance, Schools Effectiveness


#### The Impact of Organizational Culture on the Quality of Educational Services in Public Senior High Schools in West Province of Sierra Leone

#### <sup>1</sup>Sorie Saidu Kamara and <sup>\*2</sup>Sundari Dadhabai (\*Corresponding Author)

 1Research Scholar, KLBusiness School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India sskamara75@gmail.com
 \*2Associate Professor, KL Business School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India. sundaridadhabai@gmail.com

ABSTRACT: The process of establishing an organizational culture cannot be separated from the environmental influence of an organization. A strong organizational culture will have an effect on both the increase of information quality and the coordination of behavior. The purpose of this study is to analyze the influence of organizational culture on the quality of education services at State Senior High Schools in West Province. The research sample comprised381 respondents, drawn from a universe of 54,150 people using the Krejcie sampling technique. Determination of 10 research informants using a purposive sampling technique. Collecting data using literature study, questionnaires, interviews, and observations. The data analysis technique uses SEM (Structural Equation Models) analysis in conjunction with Lisler software which in turn is used for regression testing. The results showed that the Organizational Culture on the Quality of Education Services at State Senior High Schools in West Java Province had a strong and significant effect reaching 0.69 which was determined by 12 manifest variables, namely: (1) Work perspective, (2) Work attitude, (3) Work behavior, (4) Education personnel ethics, (5) Educator ethics, (6) Student ethics, (7) Relationship between education personnel and educators, (8) Relationship between educators, (9) Relationship between educators and students, (10) Authority, (11) Division of tasks, (12) Description of tasks. This strong and significant correlation indicates that between State Senior High School Organizational Education Service Quality there is a meaningful causality relationship. Culture and Furthermore, it means that if the Organizational Culture of Public Senior High Schools is improved, it will stimulate an elevation in Organizational Culture of this study and will be accompanied by an incremental uplifting the Quality of Education Services. **Keywords**: Organizational culture, education, quality



The Curriculum of Inclusion Education at Madrasah Educational Institutions in Sierra Leone

<sup>1</sup>Sorie Saidu Kamara and <sup>\*2</sup>Kanimozhi (\*Corresponding Author)

 1Research Scholar, KLBusiness School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India sskamara75@gmail.com
 \*2Assisstant Professor, KL Business School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India.
 <u>drrkanimozhi@kluniversity.in</u>

ABSTRACT: The purpose of the article is to discuss the reality of developing the curriculum of inclusive education at madrasah as formal educational institutions in Sierra Leone. Since 2016, madrasah have administrated inclusive education programs, which was through the regulation of the Decree of the Directorate of Islamic Education No. 3211 in 2016. After 5 years of the program, the article intended to evaluate the development and implementation of inclusive education curricula in madrasah, which included the participation of educational components in content standards, process standards, and assessment standards. The benchmarking method was used in the research. And, it was found out that, the inclusive education curriculum in inclusive madrasah as educational institutions was developed by inviting the participation of the MI Principal, teachers, madrasah committees, madrasah supervisors, and foundations, but the role of counselors and assessors have not been involved on inclusive education. The curriculum was structured in two models, namely the regular curriculum model and the individual learning model for students with special needs. The teachers have also been participated and implemented the content standards, process standards, and assessment activities of inclusive education in madrasah.

Keywords: Benchmarking, Curriculum, Education, Evaluation, Inclusion, Madrasah



#### Faculty engagement in critical reflection and transformative learning

<sup>1</sup>Sorie Saidu Kamara and <sup>\*2</sup>Kanimozhi (\*Corresponding Author)

 1Research Scholar, KLBusiness School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India sskamara75@gmail.com
 \*2Assisstant Professor, KL Business School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India. drrkanimozhi@kluniversity.in

#### ABSTRACT

Sierra Leone's education system is at the crossroad of transformational measures under the 2030 vision of educational reforms and agendas. Faculty engagement in critical reflection has been attributed as the most effective technique in transformation learning. It identifies the gaps, efficient learning designs, and student-oriented outcomes. According to literature and theoretical understanding, critical reflection is an important the determinant of the educational system outcomes, incorporated into the teaching or faculty members. This study also explores the essential role of reflection theoretical framework in the faculty engagement to the educational system and its performance. Three types of critical reflection content, process, and premise under curriculum, instructional knowledge, and pedagogical knowledge have been analysed. The study design uses the mixed methodology based on the quantitative and qualitative assessment of the collected data. A Survey of the faculty members has been conducted on Kreber's framework of the interview guide. Theoretical implications of the critical reflection have been used as the analytical tools to develop the narratives about the engagement of the faculty members with types of critical reflection. The findings suggest that faculty require scholarships for reflection development to promote efficient educational learning outcomes in Sierra Leone's higher education system.

**Keywords:** Critical reflection, Transformational learning, Faculty engagement, Sierra Leone Education



## The HR Analytics with Reference to Banking Sector: "A Study on Organizational Performance, Training and Development and Recruitment"

<sup>1</sup>Sorie Saidu Kamara and <sup>\*2</sup>R.S.V. Rama Swathi (\*Corresponding Author)

1Research Scholar, KLBusiness School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India sskamara75@gmail.com

\*2Assisstant Professor, KL Business School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India.

#### ABSTRACT

Measures used to control the efficacy and efficiency of HR policies are known as HR metrics. People analytics, workforce analytics, and talent analytics are all terms used to describe HR analytics, which is the process of determining how much an organization's staff contributes to its overall success. Analytics is the study of what's occurring and why and how it's affecting other things. In the context of HR Analytics, measures such as recruitment costs, training expenditures, and performance evaluations are addressed. There is just one person responsible for these metrics: the HR manager. According to this article, the human resources department plays an important role when it comes to the implementation and use of HR Analytics and metrics in the banking industry. "Benchmarking is defined as the method of discovering and applying industry-wide best practices to boost performance," according to Wikipedia. It is now being used by banks to improve corporate performance after a successful adoption in the industrial sector.

**KEY WORDS**: HR Analytics, Training and Development, Performance, Outcomes, HR Metrics, Business-Oriented



# The Effect of Workload on Employee Organizational Commitment through Work-Family Conflict and Work Stress.

<sup>1</sup>Sorie Saidu Kamara and <sup>\*2</sup>R.S.V. Rama Swathi (\*Corresponding Author)

1Research Scholar, KLBusiness School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India sskamara75@gmail.com

\*2Assisstant Professor, KL Business School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India.

#### ABSTRACT:

This study aims to improve employee organizational commitment at trans-world company, by analyzing the direct effect of workload on work stress, direct effect of work-family conflict on work stress, direct influence of work stress on organizational commitment, direct influence of workload on organizational commitment, and direct influence of workload on organizational commitment. direct work-family conflict on organizational commitment, direct effect of workload on work-family conflict, indirect effect of workload on organizational commitment through work stress, and indirect effect of work-family conflict on organizational commitment through work stress. This study uses a quantitative approach with a survey method. The sample used as many as 207 people. Research data obtained from the distribution of questionnaires and analyzed using Structural Equation Modeling (SEM). The results showed that: (1) workload, work-family conflict had a direct effect on work stress, (2) workload, work stress, work-family conflict had a direct effect on organizational commitment, (3) workload had a direct effect on work conflict. work stress has an indirect effect on organizational -family, (4) workload through commitment, (5) work-family conflict through work stress has an indirect effect on organizational commitment. In addition, the emphasis in this study that to increase organizational commitment is to pay attention to work-family conflict and workload on organizational commitment.

Keywords: Workload, Work-Family Conflict, Work Stress and Organizational Commitment.



## Job Satisfaction among Road Transport Employees: A Case Study of Kambia Station in the Northern Province

<sup>1</sup>Sorie Saidu Kamara and <sup>\*2</sup>Shyamsundar Tripathy (\*Corresponding Author)

1Research Scholar, KLBusiness School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India sskamara75@gmail.com

\*<sup>2</sup>Assisstant Professor, KL Business School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India. shyamasundartripathy33@kluniversity.in

#### ABSTRACT

For me, employee satisfaction at the Kambia Station Division is a fascinating issue. The majority of workers are pleased with the company's performance. Employees have a positive impression of the company. The majorities of workers are aware of the organization's strategy and have faith in its leadership. The majority of employees get enough appreciation for their contributions. station that pay their workers a decent wage will continue to function. Employees must share tasks and work in line with the organization's goals, just as they would in a family. People are constantly given opportunities to demonstrate their abilities and be acknowledged. The upper management is quite accessible.

Key Words: Employees, Job Satisfaction, Kambia station, Northern Province.



## Women Entrepreneurship Development in Sierra Leone: Prospects and Challenges

<sup>1</sup>Sorie Saidu Kamara and <sup>\*2</sup>Shyamsundar Tripathy (\*Corresponding Author)

<sup>1</sup>Research Scholar, KLBusiness School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India sskamara75@gmail.com
\*<sup>2</sup>Assisstant Professor, KL Business School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India. shyamasundartripathy33@kluniversity.in

#### ABSTRACT

Women's entrepreneurship is critical for all countries. If we wish to compete with developed countries, men and women must participate equally in all activities. Women's entrepreneurship is a growing notion these days, offering the world a new definition. Women are demonstrating their potential in various sectors, competing on an equal footing with men. Women's entrepreneurship is becoming more popular in India, especially among the younger population. The government's policies and institutional framework for fostering entrepreneurial skills and vocational training have broadened the scope of women's economic empowerment. In order to give skill training, vocational education, and entrepreneurial development to the developing labour force, the Sierra Leone government created the National Skill Development Policy and National Skill Development Mission in 2009. Although there are many successful women entrepreneurs in Sierra Leone in both social and economic spheres, women still account for barely one-third of all economic firms. Women's entrepreneurship is not solely the responsibility of the government; other members of society must share the burden. This study attempts to focus on the issues and problems that women entrepreneurs encounter, as well as to analyze government regulations and problems that they confront when starting a firm.

Keywords: Women's entrepreneurship, Skill Development, Policy, Vocational training



Talent Management Practices and Organizational Performance in Sierra Leone Private Agricultural organization: A Structural Equal Modeling

<sup>1</sup>Sorie Saidu Kamara and <sup>\*2</sup>B. Vamsi Krishna (\*Corresponding Author)

<sup>1</sup>Research Scholar, KLBusiness School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India <u>sskamara75@gmail.com</u>

\*<sup>2</sup>Assisstant Professor, KL Business School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India.

#### vamsibu@kluniversity.in

**Abstract** :The research is intended to determine the impact of talent management on organizational performance in Sierra Leone private agricultural organization. It also identified how the talent management affects organizational performance. A sample of 435 employees working in Sierra Leone private agricultural organization was randomly selected from fifteen organizations out of twenty eight agricultural organizations based on operating more than ten years. Data analysis was done using descriptive statistics, Pearson correlation, regression analysis, and Multicollinearity. The study has used SPSS AMOS 21 for analyzing data collected from different private agriculture employees working in rice research station in Rokupr. The result revealed that three constructs i.e. Talent attraction, talent development, and talent retention have significant impact on organizational performance in Sierra Leone private agricultural organization. The findings are discussed with a view to improve the organizational performance in Sierra Leone agriculture sector. Modern organizational have found to have given much attention on talent management for the improvement of overall organizational performance atgloballevel.

**Keywords:** talents election, talent development, talent retention and Organizational performance



#### Developing Professional Competence among University Lecturers in

#### Sierra Leone

B.Vamsi Krishna (\*Corresponding Author)

Assisstant Professor, KL Business School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India.

vamsibu@kluniversity.in

#### ABSTRACT

Building professional competence of lecturers is fundamental to achieve goal of quality education. In this connection, a widespread research has been carried out to formulate methods and parameters to increase the competence of a lecturers to deliver to his students. Current study is an attempt to find out various factors which influence professional competence of the university lecturers. The study has been carried out using quantitative techniques of research and through survey, the study finds out that apart from knowledge enhancement of the university professors, their communication skills and attitude towards knowledge delivery requires to be improved in order to achieve required competence of the university professors.

Keywords: Profession, Competence, Teacher Development, University Lecturers



Factors Related to the Efficiency of Personnel Performance of Makeni

#### Provincial Administrative Organization

B.Vamsi Krishna

Assisstant Professor, KL Business School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India.

vamsibu@kluniversity.in

#### ABSTRACT

The purpose of this research was to study the efficiency of personnel performance level of the Makeni Provincial Administrative Organization and to study factors related to the efficiency personnel performance of the Makeni Provincial Administrative Organization. The population group used in this study was 1,294 personnel of the Makeni Provincial Administrative Organization sample size was determined using Taro Yamane method, a sample size of 305 people was obtained, sample size of each group was randomized by stratified random sampling, and later simple random sampling technique was used to recruit the participants from each group. The instruments used for collecting data were questionnaires. Data were analyzed by using statistical frequency, percentage, mean, standard deviation. The Pearson Product Moment Correlation statistic was used to analyze factors related to the efficiency personnel performance of the Makeni Provincial Administrative Organization by setting the statistical significance at 0.05 levels. The results of research revealed that 1. The efficiency personnel performance level of the Rayong Provincial Administrative Organization was at a high level when considering each aspect, quality of work with the highest average, followed by time, quantity of work and cost respectively. 2. The hypothesis test results showed that ability factor motivation factor and opportunity factor in working has a positive relationship with the efficiency personnel performance of the Rayong Provincial Administrative Organization with significant at 0.01 level.

**Keywords**: ability factor, motivation factor, opportunity to work factor, the efficiency personnel performance



## Upgraded Industrial Motor Control Trainer

Atanu Talukdar

Professor, KL Business School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India. atanutalukdar@kluniversity.in

#### ABSTRACT

The study attempted to construct and develop an Upgraded Industrial Motor Control Trainer (UIMCT) for Electrical l/ Electromechanical Technology students. Specifically, it aimed to upgrade the Industrial Motor Control Trainer (IMCT) to determine the level of acceptability of the Upgraded Industrial Motor Control Trainer in terms of maintenance workmanship, to determine the level of functionality of the Upgraded Industrial Motor Control Trainer in terms of variation of performed activities: motor control area; PLC area, and safety. To determine the level of relevance of the Upgraded Industrial Motor Control Trainer to the curriculum, On-the-job training participants, and industry, to determine the level of validity of the Upgraded Industrial Motor control Trainer, and to develop a manual for the administration of the Upgraded Industrial Motor Control Trainer. The study was focused on the upgrading, construction and development on the Upgraded Industrial Motor Control Trainer (UIMCT) through the initiative and resourcefulness of the researcher. It was found out that the developed Upgraded Industrial Motor Control Trainer is very greatly acceptable to use in terms of workmanship because all the necessary devices and materials installed in the trainer conformed to the provisions of the PEC. Grounding was provided, mountings were intact, verticality and horizontality were observed and terminal lugs were properly crimped. Based on the findings, the developed Upgraded Industrial Motor Control Trainer was very greatly functional to use in terms of variation of performed activities wherein various operations on motor control and circuit connection and PLC operation could be performed on the Trainer and vary greatly functional in terms of safety because the trainer eliminates factor of fear in conducting or performing various motor control and PLC operation and connections.

Key words: Motor control, Trainer, Industrial, Curriculum, maintenance



## The Role of the International Organization in Maintaining International Peace and Security

Atanu Talukdar

Professor, KL Business School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India.

atanutalukdar@kluniversity.in

#### ABSTRACT

The International Organization is that body formed according to an agreement between the states upon its formation to achieve a set of goals granting it, for that purpose, the autonomy to exercise the power and competencies that the charter establishing it guarantees to clarify and specify." Maintaining international peace and security, and the achievement of international cooperation in the economic, social, cultural and human fields", are among the goals of the International Organization. In light of these goals and principles of the International Organization, this entails a responsibility towards the member states and duties they must carry out, in their international actions and activities in order to maintain international peace and security, and the recommendations and UN resolutions issued by that organization in which we discuss the strength of its obligation to confront those states. Our research deals with the international activity of the countries of the region, and with the way of the International Organization of playing an effective role in the conflicts in the Middle East. So we discuss the nations' intervention and its role in maintaining international peace and security, or in the threats that may occur from this or that country, through the issued decisions of the Organization or the decisions of the Security Council, and the extent of the states' commitment to those UN decisions

Key words: International organization, Nation organization, competence, Social, Cultural



Human Resource Information System: A strategic Advantage to Business

Organisation

<sup>1</sup>Atanu Talukdar

Professor, KL Business School, Koneru Lakshmaiah Education Foundation, 522502, Vaddeswaram, Guntur, Andhra Pradesh, India. atanutalukdar@kluniversity.in

#### ABSTRACT

In this 21stcentury all the business organisations find themselves, growing in the global competitive market. Human Resource information system (HRIS) is gaining its importance day by day with the dynamic environment of business. It is an online solution for the data tracking and data entry of the employee's details. This paper aims to do the literature review on the various aspects of HRIS along with its importance in the organisation. HRIS generally provide different techniques for more effective plan, control and managerial effectiveness. In many situations HRIS also helps in enhancing the effectiveness of different HR related managerial decisions. The objective of HRIS is to merge different aspects of human resource like payroll, management, accounting function, human resource planning (HRP), training and development (T&D), performance appraisal, etc.

Key words: HRIS, HRP, Performance appraisal, T&D



## Implications of green optimism for production and recruitment strategies in a competitive market

#### <sup>1</sup>V Siva prasad kandi, <sup>2</sup>M V Ramana Raju

<sup>1</sup> Assistant professor, <sup>2</sup>Research scholar

<sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: <u>Kandi.vsp@kluniversity.in, ramanarajumataraju@gmail.com</u>

Abstract: Sustainable development has become an important issue for governments and the However, a firm's manager may have optimistic public. an bias about consumers' environmental awareness. Characterizing managers' green optimism and consumers' perception of green products through behavioral theory, this paper establishes a game-theoretical model in which green optimistic/realistic managers compete to sell similar products. We examine the impact of green optimism on green operating strategies in a competitive market by game theory. Furthermore, we shed light on how cap-and-trade regulation adjusts the performance of the industry. The results show that green optimism will always make the firm improve the greenness level of its products, but unilateral optimism may reduce the greenness level of the entire market. Taking the type of managers as exogenous and the firm's hiring strategy as a game, we show that when the quotas of duopoly firms differ greatly, (optimism, optimism) is the only Nash equilibrium; otherwise, (realism, realism) is the only one. Further research shows that the conflict between environmental interests and consumer surplus cannot be reconciled; (optimism, optimism) always leads to better environmental performance but lower consumer surplus. In general, social welfare under dual optimism will be better only when consumers have high environmental awareness.

Keywords: Sustainable development, Environmental awareness, Game theory, Nash equilibrium.



Cooperativeness in Early-Stage Financing

<sup>1</sup>S.Venkata Ramana, <sup>2</sup>M V Ramana Raju
<sup>1</sup> Assistant professor, <sup>2</sup>Research scholar
<sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India-522302
Mail id: <u>svramana@kluniversity.in, ramanarajumataraju@gmail.com</u>

Abstract: Building on social-psychological insights into social perception and judgment and empirical findings from the entrepreneurship literature, we propose that early-stage equity investors look at two main dimensions to assess entrepreneurs seeking early-stage financing: competence and cooperativeness. In all, 84 angel investors and venture capitalists active in Europe participated in a conjoint experiment. The results show that investors prioritize entrepreneurs' competence over their cooperativeness. Entrepreneurs' competence is even more appealing to investors when combined with coachability. We find that entrepreneurs can compensate for a lack of experience by demonstrating solid market knowledge and appearing to be coachable. Furthermore, the results suggest that investors differ in their consideration of entrepreneurs' cooperativeness, but not competence, when making investment decisions—a finding that is conditional on investors' usual level of involvement in their portfolio ventures. We discuss these findings from a theoretical and practical perspective.

Keywords: Social-psychological, Coachability, Investors, Cooperativeness.



#### Study of the Differences in the Perception of the Use of the Principles of Corporate Social Responsibility in Micro, Small and Medium-Sized Enterprises in the V4 Countries

<sup>1</sup>Ch Balaji, <sup>2</sup>M V Ramana Raju

<sup>1</sup> Assistant professor, <sup>2</sup>Research scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: <u>chbalaji@kluniversity.in, ramanarajumataraju@gmail.com</u>

Abstract: The aim of the study was to examine the differences in the perception of the use of selected principles by CSR managers and owners of Micro, Small and Medium-sized Enterprises (MSMEs) in the V4 countries. The results of our research show that CSR strategies are most used by entrepreneurs and managers of MSMEs in Hungary, Poland and Slovakia. They are the least used in the Czech Republic. The sectoral comparison within the V4 countries highlighted interesting findings. When considering the moral and ethical implications of decision-making, no significant differences were found between the sectors. Differences were found in the perception of the CSR concept and its use in business. The CSR concept was mostly used in tourism and agriculture, to a lesser extent in construction, retail, manufacturing and services. Managers and entrepreneurs understand the link between CSR and gaining reputation and business opportunities and that CSR helps build a competitive advantage. The size of the company affects whether the company can be classified as CSR-oriented. Compared to medium-sized enterprises, micro-enterprises are 45% less likely and small enterprises are 33.5% less likely to be perceived as CSR-oriented. Compared to companies from Slovakia, companies in the Czech Republic are 41% less likely to be perceived as CSR-oriented. Hungarian companies are 70% more likely to be perceived as CSR-oriented compared to companies from Slovakia. Companies run by women are more inclined to apply CSR principles than men. Keywords: socially responsible business, corporate social responsibility, competitive advantage, firm reputation, employee loyalty.

Keywords: Csr managers, Entrepreneurs, Companies.



## The evolving international entrepreneurship orientations and international entrepreneurship capital in the rapidly changing and digitizing international environments

<sup>1</sup>S. Ramesh Babu , <sup>2</sup>M V Ramana Raju

<sup>1</sup> Assistant professor, <sup>2</sup>Research scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: <u>srb.rameshbabu@kluniversity.in, ramanarajumataraju@gmail.com</u>

Abstract: The relationship between entrepreneurial orientations and internationalization has been examined extensively, but the recent developments in the rapidly changing environment point to the need for further examination of international entrepreneurs' orientations in their own embedding contexts and beyond. There is ample evidence suggesting a positive relationship between the firm's combined overall international entrepreneurial orientation, its extent of innovativeness, export (or international marketing), collaborative, and socio-cultural orientations and the scope and speed of its internationalization. The aim of this article is to examine the challenges and developments among the integral components of international entrepreneurial orientations and their associated activities, strategies, and resources to integrate their interactive impacts for better understanding of the broader concepts of *international entrepreneurship orientations* and *international entrepreneurship capital* in the increasing complexities of entrepreneurial internationalization processes.

Keywords: Entrepreneurial orientations, Collaborative, Impact, Associated activities.



<sup>1</sup>V Siva prasad kandi, <sup>2</sup>M V Ramana Raju

<sup>1</sup> Assistant professor, <sup>2</sup>Research scholar

<sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India-522302

#### Mail id: Kandi.vsp@kluniversity.in, ramanarajumataraju@gmail.com

Abstract: Degradation of the natural environment has raised major concerns about organization <u>sustainability</u>. The growing trend towards integrating responsible environmentalism into the supply chain has required many organizations to pivot to adopting <u>green supply chain</u> practices. In this paper, we assert that the external environment exercises institutional pressure on organizations to adopting a market orientation, aided by managerial commitment, that espouses green supply chain practices as a strategic resource. A survey of 196 manufacturing managers, largely from the United States, United Kingdom, and India, found that institutional pressure had a significant impact on marketing orientation and market orientation had a significant impact on green supply chain practices. Managerial commitment played a key role in strengthening the relationship between market orientation and green supply chain practices. Lastly, the survey found no difference among United States, United Kingdom, and India manufacturers. We postulate that this no difference could be attributable to the tightly coupled systems found within manufacturing.

Keywords: Sustainability, Green supply chain, External environment, Market orientation



#### Political Connections, Investment Opportunity Sets, Tax Avoidance: Does Corporate Social Responsibility Disclosure in Indonesia Have a Role?

<sup>1</sup>A.Udaya Shankar <sup>1</sup>Associate professor,

<sup>1.</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: <u>dr.udayashakar@kluniversity.in, ramanarajumataraju@gmail.com</u>

**Abstract :** This study aims to obtain empirical evidnce of the effect of political connections and investment opportunity sets on tax avoidance. In addition, the use of corporate social responsibility in this study as a moderating variable aims to examine the implementation of sustainability by companies, which is a global issue of concern to many parties today. Corporate social responsibility has rarely been used in previous studies as a moderating variable in examining the relationships between investment opportunity sets and tax avoidance and political connections and tax avoidance. This study analyzed 42 manufacturing companies listed on the Indonesia Stock Exchange from 2014 to 2019, selected through a purposive sampling method to produce 252 observations. This study used a quantitative method with two-panel data regression models, namely the model and without moderation. The results suggest that political connections and investment opportunity sets positively affect tax avoidance. Meanwhile, corporate social responsibility disclosure can weaken the positive effect of political connections and investment opportunity sets on tax avoidance. This study indicates that the Indonesia Tax Authority.

Keywords: Tax avoidance, Investment opportunity, Listed.



## Optimal Pricing Policy in a Three-Layer Dual-Channel Supply Chain Under Government Subsidy in Green Manufacturing

<sup>1</sup>Ch Balaji, <sup>2</sup>J Sai Sudha

<sup>1</sup> Assistant professor, <sup>2</sup>Research scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: <u>chbalaji@kluniversity.in, ramanarajumataraju@gmail.com</u>

Abstract : As global governments pay more attention to environmental issues, the idea of environmental protection has now been incorporated into the supply chain, and green supply chain management has become particularly significant. As such, this paper proposes a three-layer green supply chain model with a dual-channel structure consisting of a supplier, a manufacturer, and a retailer. The manufacturer sells the product through a (a) traditional retail-channel or (b) direct online-channel. The manufacturer sets a green product standard, while the government offers a subsidy to the manufacturer for green investment. We analyze the optimal decision under government subsidy and no government subsidy to maintain the profit maximization criteria of the supply chain. In addition, both the centralized and decentralized marketing strategies are evaluated using the Stackelberg game approach. To achieve the best pricing decisions for supply chain members, we compare the optimal pricing under consistent and inconsistent sales prices in both online and offline channels. The prime objective of the paper is to explore and compare the optimal pricing strategy with and without government subsidy pertaining to maximizing the overall profit of the supply chain. The numerical illustration and sensitivity analysis indicate that government subsidy can reduce the cost of green items and is beneficial to both manufacturer and supplier. Our research findings can lead to better decisions with and without government subsidy for members of the dual-channel green supply chain as well as enhance green product market competitiveness.

Keywords: Green supply chain management, Subsidy, Profit maximization, Channels.



#### Organizing for Social Media Marketing: A Case of Conglomerates in Mauritius

S. Ramesh Babu

Associate professor, Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: <u>srb.rameshbabu@kluniversity.in</u>

Abstract : Conglomerates in Mauritius are leveraging social media as a marketing tool. However, studies on the implementation of social media marketing by companies are limited. This paper aims to explore the internal organization of businesses in Mauritius to use social media as a strategic marketing tool. A qualitative research design has been developed to gather data from Chief Communication Officers and Chief Marketing Officers of major conglomerates in Mauritius. Semi-structured interviews were conducted. This study shows that conglomerates either manage their social media marketing in-house or they hire an agency to manage their social media accounts. To guide behaviors of employees, all conglomerates have developed a social media policy. Social media marketing requires specific skills and competencies and has given rise to new job descriptions. This study adds to the body of knowledge of social media marketing by providing insights about the approaches conglomerates have adopted to leverage social media.

Keywords: Conglomerate, Social media marketing, Communication.



## Sustainable Human Resource Management in the Supply Chain: A New framework

<sup>1</sup>S.Venkata Ramana, <sup>2</sup>M V Ramana Raju <sup>1</sup> Assistant professor, <sup>2</sup>Research scholar

<sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation,Guntur, India-522302 Mail id: <u>svramana@kluniversity.in, ramanarajumataraju@gmail.com</u>

Abstract : Sustainable Human Resource Management (SHRM) involves balancing the activities of an organisation, considering environmental, economic, and social aspects, which can enable corporate sustainability. The research analysed the SHRM in the Supply Chain (SC) in João Pessoa/PB, based on the structuring of the SHRM\_SC model. The differential in connecting sustainable HRM to stakeholders in the supply chain allowed the structuring of a new framework through three stages: adaptation, validation, and application. The 15 largest construction companies in the city were selected, and 15 specialists affiliated with Associação Brasileira de Recursos Humanos da Paraíba (Brazilian Human Resources Association - Paraíba) participated in the validation stage. As a result, specific characteristics of the subsector were identified, and it has been integrating sustainability into its activities, though incipient. The fact that sustainable HRM is emerging reveals a greater tendency to apply the model in the Health, Safety and Quality of Life at Work, and Training and Development subsystems. This article contributes to the academy and professionals in the area in an innovative way, as it suggests a sustainable HRM classification, capable of answering how much the people management of a construction company contributes to sustainability. The authors recommend using the model in further studies and adapting and applying it in other economic sectors and localities.

Keywords: Sustainability, Adaption, Subsystems, Economic sectors



<sup>1</sup>V Siva prasad kandi, <sup>2</sup>M V Ramana Raju <sup>1</sup> Assistant professor, <sup>2</sup>Research scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation,Guntur, India-522302

#### Mail id: Kandi.vsp@kluniversity.in, ramanarajumataraju@gmail.com

Abstract : Using information technology, a growing number of companies have adopted a digital approach to human resource management (i.e., e-HRM). This metaanalytic review systematically integrates research on the antecedents, consequences, and moderators of e-HRM. Our results show that system usefulness, organizational resources, users' knowledge, and social influence could facilitate the adoption of e-HRM; in addition to the technology, organization, and people factors, the social factor can also predict e-HRM adoption and has incremental validity in predicting e-HRM adoption after controlling for the other three factors. Further, the findings indicate that e-HRM positively relates to the overall organizational performance as well as three specific organizational performance categories and that the predictive power of e-HRM for organizations' operational performance is significantly higher than that for their relational performance and transformational performance. Furthermore, the findings also show that the positive link between e-HRM and organizational performance is stronger in countries with higher ICT development levels and countries with lower human capital quality. The theoretical and practical implications for future research and e-HRM practitioners are discussed.

Keywords: Integrate, Performance, e-HRM, Adoption.



<sup>1</sup>V Siva prasad kandi, <sup>2</sup>M V Ramana Raju

<sup>1</sup> Assistant professor, <sup>2</sup>Research scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation,Guntur, India-522302 Mail id: Kandi.vsp@kluniversity.in, ramanarajumataraju@gmail.com

Abstract: In this paper, an exploratory study of the drivers of sustainability, sustainable environmental and social practices, and firm performance for Indian manufacturing SMEs is presented. Exploratory/confirmatory factor analysis and structural equation modelling have been employed for data analysis. Some of the major findings of the study are as follows. The leadership and ethical orientation of owners/managers and employees has a strong positive impact on sustainable waste management and human resource management (HRM) practices, environmental benefits and firm performance. A positive association has been found between sustainable HRM practices and waste management. Although no direct relationship has been found between sustainable HRM practices and firm performance, sustainable HRM practices have an indirect positive impact on firm performance through the mediating role of environmental benefits. Further, the effects of moderating variables on the structural relationships have been explored. The study highlights the managerial implications and concludes with possible directions for future research.

Keywords: Sustainability, Exploratory, Confirmatory, Ethical.



<sup>1</sup>S. Ramesh Babu , <sup>2</sup>M V Ramana Raju

<sup>1</sup> Associate professor, <sup>2</sup>Research scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: <u>srb.rameshbabu@kluniversity.in, ramanarajumataraju@gmail.com</u>

Abstract: In the modern world, the stock market plays a crucial role in the country's economic development and is amongst the most versatile sectors in the country's financial system. It provides a platform for investors to trade shares, bonds, and debentures and allows the companies to raise the much-required funds to boost their business. In this way, the stock market plays a crucial role in enhancing the country's industry and commerce growth. The reason for selecting this topic is that the Indian Share Market has grown unprecedented after the introduction of Dematerialization by the government of India in the mid -90's. Hence, to study how the Dematerialization and electronification of shares have shaped the tremendous growth and potential of the Indian Stock Market became an interesting study to explore its various possibilities. The journey traces the growth of the Indian Stock Market from its humble beginning with just a few traders to the globally competitive and colossal stock market of the present day. Currently, the Indian Stock Market boasts of having 5 70 000 traders and a total market capitalization worth 2.27 trillion dollars, leading to becoming the world's 11th largest stock exchange. This paper explores the multiple benefits that they share trading industry gained as a result of Dematerialization.

Keywords: Economic development, Share market, Dematerialization.



## Commodity Dynamism in the COVID-19 crisis: Are Gold, Oil, and Stock Commodity Prices, Symmetrical?

<sup>1</sup>S. Ramesh Babu , <sup>2</sup>M V Ramana Raju

<sup>1</sup> Associate professor, <sup>2</sup>Research scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: srb.rameshbabu@kluniversity.in, ramanarajumataraju@gmail.com

Abstract: The current research intends to examine the commodities' dynamism connection with stock prices under the COVID-19 crisis. DCC-GARCH model was applied to the data of Asian economies, including China, India, Sri Lanka, Bangladesh, and Pakistan to achieve the study objectives. The study's results indicated a significant connection between gold prices with stock prices and oil prices for all Asian stock markets. The results of the study constructs were symmetrical. In general, the connection grows with the frequency. The lowest frequency months contributed the most to the total relationship, followed by more than 12 months. Overall, gold and oil prices influence the Asian stock markets. These research findings can avoid contagion in times of economic uncertainty. This study also suggested policy implications decision-making of stakeholders. Dynamic for better kev coefficient values were about 0.8 of  $\beta$ 2 because nations' internal markets were more closely linked. There are also dynamic relationship factors between crude oil and foreign currency markets, where the correlations in India and China have always been around 0.

Keywords: Commodities, Stock markets, Internal markets, Economic uncertainty.



The new model for medicine distribution by combining of supply chain and expert system using rule-based reasoning method

#### <sup>1</sup>Ch Balaji, <sup>2</sup>M V Ramana Raju

<sup>1</sup> Assistant professor, <sup>2</sup>Research scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation,Guntur, India-522302 Mail id: <u>chbalaji@kluniversity.in, ramanarajumataraju@gmail.com</u>

Abstract: The medicine distribution supply chain is important, especially during the COVID-19 pandemic, because delays in medicine distribution can increase the risk for patients. So far, the distribution of medicines has been carried out exclusively and even some medicines are distributed on a limited basis because they require strict supervision from the Medicine Supervisory Agency in each department. However, the distribution of this medicine has a weakness if at one public Health center there is a shortage of certain types of medicines, it cannot ask directly to other public Health center, thus allowing the availability of medicines not to be fulfilled. An integrated process is needed that can accommodate regulations and leadership policies and can be used for logistics management that will be used in medicine distribution. This study will create a new model by combining supply chains with information systems and expert systems using the rule-based reasoning method as an inference engine that can be developed for medicine distribution based on a mobile hybrid system in the Demak District Health Office, Indonesia. So that a new framework model based on a mobile hybrid system can facilitate the distribution of medicines effectively and efficiently.

Keywords: Pandemic, Logistics management, Supply chains.



## Supply Chain Decisions and Coordination in the Presence of an Imperfect Spot Market

#### <sup>1</sup>Ch Balaji, <sup>2</sup>M V Ramana Raju

<sup>1</sup> Assistant professor, <sup>2</sup>Research scholar

<sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: <u>chbalaji@kluniversity.in</u>, <u>ramanarajumataraju@gmail.com</u>

Abstract: This study considers a supply chain consisting of a commodity supplier and a final product manufacturer with uncertain demand. In addition to purchasing from the supplier through a forward contract, the manufacturer can adjust their inventory by trading the commodity in an online spot market after observing the actual demand. However, the spot market is imperfect in that transactions cannot be certainly realized and come with additional transaction costs. Furthermore, the spot price is volatile such that overly relying on the spot market is unwise. To investigate how the spot market affects the decisions and coordination in a supply chain, we develop a game-theoretical model incorporating spot trading. We derive the optimal ordering decision in a centralized supply chain, as well as the supplier's and manufacturer's equilibrium pricing and ordering decisions in a decentralized supply chain. The impact of the imperfect spot market on the optimal decisions and profits is analyzed. This study also demonstrates how the supply chain can be coordinated in the presence of an imperfect spot market. Finally, a numerical analysis is performed to examine the analytical results. Our results indicate that the spot market can generally improve the performance of the centralized supply chain and benefit the manufacturer in the decentralized one. However, it can be detrimental to the supplier. The supply chain can be coordinated by a revenuesharing contract, and both parties' profits can be improved. Our findings suggest that the manufacturer could take advantage of the spot market, and the supplier should attempt to integrate or coordinate the supply chain to share the benefits of spot trading.

Keywords: Spot market, Volatile, Supply chain.



<sup>1</sup>A.Udaya Shankar , <sup>2</sup>M V Ramana Raju <sup>1</sup>Associate professor, <sup>2</sup>Research scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: <u>dr.udayashakar@kluniversity.in, ramanarajumataraju@gmail.com</u>

Abstract: Venture capital is an important funding source for sustainable entrepreneurship and, thus, drives <u>sustainable development</u>. However, sustainable startups have trouble acquiring venture capital. Hence, existing literature focuses on dedicated impact investors or aims to understand why traditional venture capitalists (tVCs) avoid sustainable investment opportunities. In contrast, this study investigates investment decisions from venture capitalists without a dedicated "green" focus on sustainable startups. We investigate about 80 cases containing business plans and decision documents of sustainable and non-sustainable new ventures. Thereby, we explore whether investors react differently to <u>sustainable business models</u>. Using <u>Natural Language Processing</u> (NLP) and topic modeling, we find that tVCs do not integrate sustainability into their decision justification. However, Linguistic Inquiry and Word Count (LIWC) reveals that tVCs argue more emotionally when writing about a sustainable business case. However, this is not only the result of a stronger emotional connection to sustainability, as it might also be influenced by emotional contagion from entrepreneurs' business plans.

Keywords: Sustainable development, Natural language processing, Emotional connection.



## care funding: state-of-the-art in medical crowdfunding

<sup>1</sup>A.Udaya Shankar , <sup>2</sup>M V Ramana Raju <sup>1</sup>Associate professor, <sup>2</sup>Research scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: <u>dr.udayashakar@kluniversity.in, ramanarajumataraju@gmail.com</u>

Abstract: Crowdfunding is emerging as an alternative form of funding for medical purposes, with capital being raised directly from a broader and more diverse audience of investors. In this paper, we have systematically researched and reviewed the literature on medical crowdfunding to determine how crowdfunding connects with the health care industry. The health care industry has been struggling to develop sustainable research and business models for economic systems and investors alike, especially in pharmaceuticals. The research results have revealed a wealth of evidence concerning the way crowdfunding is applied in real life. Patients and caregivers utilize web platform-based campaigns all over the world to fund their medical expenses, generally on a spot basis, using donation-based or even reward-based schemes, regardless of the health care system archetype (public, private insurance-based or hybrid). Academics have also focused on funding campaigns and the predictors of success (which range from social behaviour and environment to the basic demographics of the campaigners and their diseases) and on social and regulatory concerns, including heightened social inequality and stigma. While equity crowdfunding is disrupting the way many ventures/businesses seek capital in the market, our research indicates that there are no relevant or consistent data on the practice of medical equity crowdfunding in health care, apart from a few anecdotal cases

Keywords: Crowdfunding, Sustainable research, Social behaviour, Insurance.



<sup>1</sup>V Siva prasad kandi, <sup>2</sup>M V Ramana Raju

<sup>1</sup> Assistant professor, <sup>2</sup>Research scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation,Guntur, India-522302 Mail id: <u>Kandi.vsp@kluniversity.in, ramanarajumataraju@gmail.com</u>

Abstract: Customer care and satisfaction are on-demand and sought by any business, especially in increasing online activities and interactions, and purchases. Providing such services simultaneously is a crucial and essential matter to get customers' loyalty. This paper examines how banks in Jordan rely on E-marketing to build long-lasting relationships with customers and the main factors assigned to understand their bank loyalty. Theoretically, based on the TAM paradigm and online survey of n = 330 respondents, the study found that all the E-marketing factors (e.g., social media features, word of mouth, informativeness) and the two TAM factors (mainly PEU and PU) reported having a positive impact on Jordanians' bank loyalty, suggesting that these factors played a vital role in evaluating the bank services. The possible techniques about the online environment that can practically improve the commitment and loyalty among the banking sector in Jordan are also discussed.

Keywords: E-marketing ,Social media, Loyalty, Banking, Customers.



<sup>1</sup>V Siva prasad kandi, <sup>2</sup>M V Ramana Raju

<sup>1</sup> Assistant professor, <sup>2</sup>Research scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation,Guntur, India-522302 Mail id: <u>Kandi.vsp@kluniversity.in</u>, <u>ramanarajumataraju@gmail.com</u>

Abstract: This chapter describes the role of IoT in digital financial inclusion. According to the World Bank, approximately 19 crore individuals are without basic banking services. Individuals who are unbanked or underbanked can benefit from financial inclusion by overcoming physical, technological, and behavioral barriers to finance usage accessibility. Unbanked persons can gain access to financial services and break out of the poverty cycle by combining online financial tools (such as smartphone remittances via IoT) with psychological tools (such as financial education). The study focuses to identify the underlying factors affecting the role of IoT in digital financial inclusion. The study is based on a sample size of 120 respondents from the National Capital Region. The principal component analysis method is used to find the factors. Total seven significant factors are identified, viz., IoT awareness, financial service awareness, usability, benefits, trust, security, and privacy, as well as accessibility.

Keywords: Digital financial inclusion, IoT awareness, Financial service awareness, usability.



<sup>1</sup>A.Udaya Shankar , <sup>2</sup>M V Ramana Raju <sup>1</sup>Assistant professor, <sup>2</sup>Research scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation,Guntur, India-522302

#### Mail id: dr.udayashakar@kluniversity.in, ramanarajumataraju@gmail.com

Abstract: Banking credit risk analysis is a form of evaluation conducted by financial institutions to determine applicants' ability to repay their debt obligation. Financial institutions, such as banks, set objectives to offer credit to creditworthy customers, after spending time trying to evaluate their repaying capacity. In this paper, we propose a credit risk analysis system based on an artificial neural network (ANN) to identify customers who will default. A feedforward propagation algorithm is used to train the model consisting of three layers. Data pre-processing is performed to clean the datasets and check for missing variables. The datasets were normalized using min–max normalization to get the correlation among the variables. The datasets are applied to the proposed model and logistic regression models, and the comparison shows the proposed model which has a better performance.

Keywords: Credit risk analysis, Artificial neural network, Logistic regression, Default.



### Performance Analysis of Indian Mutual Funds During Covid-2019

<sup>1</sup>V Siva prasad kandi, <sup>2</sup>M V Ramana Raju <sup>1</sup> Assistant professor, <sup>2</sup>Research scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation,Guntur, India-522302 Mail id: <u>Kandi.vsp@kluniversity.in, ramanarajumataraju@gmail.com</u>

Abstract: The outbreak situation of the COVID-2019 pandemic is an Unpredictable shock to the world economy. World Economy faces the slowdown of share market prices, especially the value of mutual fund value decreases. Companies and Businessmen primarily invested in the mutual funds to play a safer role, modify their risk into the return, and increase the Net Assets Value (NAV). This study attempts to describe the state of mutual funds in India during this COVID 2019 period. Thus the performance of mutual funds when compared with before and during COVID 2019, the proposed model specifies on testing the performance of mutual funds both in the public and private sectors and attains to access the impact of COVID 2019 on mutual funds. The author has used correlation for finding out the relation of COVID 2019 and Mutual Funds. This paper mainly addresses the causes of investors during economic fluctuation and the return of top mutual companies by comparing the return of 1 year and during these last three months. COVID 2019 is not only on particular sectors; it affects almost every sector like construction, manufacturing, business, agriculture. While all the sectors are affected by COVID 2019 pandemics, it hits the society and the economy; once the economy comes down, the inflation rate increase, the Forex rate will increase, and it affects our whole country. In this paper, the author included sectors that are affected and their performance now and how well the different types of funds are performing, which will be helpful for the reader to analyze the affected areas. The paper concluded with the help of a survey and statistical tools whether the investors can make a further payment and hold for some period or continue with the investment whatever situation crisis impacts our economy.

Keywords: Mutual funds, Economy, Performance, Forex rate, Investment.



<sup>1</sup>V Siva prasad kandi, <sup>2</sup>M V Ramana Raju

<sup>1</sup> Assistant professor, <sup>2</sup>Research scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation,Guntur, India-522302 Mail id: <u>Kandi.vsp@kluniversity.in, ramanarajumataraju@gmail.com</u>

Abstract: COVID-19 affects the banking sector to its maximum and moreover the repayments of the loans have become very dicey. Financial Industries like SBI are one of the major elements of the economic development of India. In the pandemic the Government has formulated various monetary and fiscal policies to deal with crisis for commercial banks under the supervision of Reserve Bank of India. To pursue these policies forward ensuring economic, industrial, socio-political and methodical development, they need proper funds to support lending to various corporate and individual customers. If any of the loan facilities granted become bad debt or doubtful debts then the goal of the policies is not fulfilled and it will mount the record of bad debt in the books of commercial banking especially after demonetization and pandemic. The paper deals with the factors like Loan Portfolio Management, Term Loan, Monetary Policies, and Change in Tax Rates and Loan performances. It represents and compares the input variables and its relations to predict the upcoming low performer of the credits. It determines to what extent the factors are affecting an individual and a corporate customer of the State Bank of India. A model through fuzzy logic and neural network is being developed to predict the low performing creditors. The factors are evaluated on the platform of python and the results are satisfactory.

Keywords: Lending, Asset recovery, Forward propagation, Membership function.



#### **Study on Recruitment and Selection**

Dr. Atanu Talukdar, Professor

Department of MBA, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 atanutalukdar@kluniversity.in

Abstract

In any kind of organization, recruitment and selection processes are considered useful, because they help in finding the most suitable candidates for the jobs. Recruitment and selection are important operations in human resource management, designed to the best use of employee strength to meet the strategic goals and objectives of the employers and the organization as a whole. It is a process of screening, sourcing, shortlisting, and selecting the right candidates for the vacant positions. Employers put into practice recruitment strategies and methods that would be the most beneficial to achieve organizational goals and objectives. The main purpose of this research paper is to understand recruitment and selection procedures. The main areas that have been taken into account include, the significance of recruitment and selection, principles of recruitment and selection, factors affecting recruitment and selection, posting vacancies, recruitment and selection process, types of recruitment and types of interviews.

Keywords: Recruitment, Selection, Candidates, Organizations, Jobs, Factors, Interview


# A STUDY ON EMPLOYEE SATISFACTION AND ORGANIZATIONAL COMMITMENT

Dr. D. Sundari, Associate Professor,

Department of MBA, Koneru Lakshmaiah Education Foundation, Guntur, India-522302

sundaridadhabai@kluniversity.in

Abstract

Employee satisfaction is a factor in motivation, retention and goal achievement in the place of work and commitment is a factor that include no excess work load, treating employee with respect, provide recognition & rewards, fringe benefits and positive management. The purpose of this topic is to study th employee satisfaction and organizational commitment and to examine the satisfaction level of staff and impact on Commitment. This is descriptive and empirical in nature and purposive sampling technique is used . The study is based on primary data, which has been collected through structural questionnaire , filled by member stake 50 respondents of has been selected on random sampling basis percentage metho is used for data analysis. According to findings of this data the employee satisfaction effects commitment are rewards ,stress, leave, benefits and compensation given to the staff by the management which are important to improve t motivation level and employee satisfaction.

Keywords :- Management , Organizational Behaviour , Goal Achievement , Satisfaction , Sampling



# A STUDY ON EMPLOYEE SATISFACTION AND ORGANIZATIONAL COMMITMENT

Dr.B.Vamsi Krishna, Assistant Professor Department of MBA, Koneru Lakshmaiah Education Foundation, Guntur,India-522302

vamsibu@kluniversity.in

Abstract

Employee satisfaction is a factor in motivation, retention and goal achievement in the place of work and commitment is a factor that include no excess work load, treating employee with respect, provide recognition & rewards, fringe benefits and positive management. The purpose of this topic is to study th employee satisfaction and organizational commitment and to examine the satisfaction level of staff and impact on Commitment. This is descriptive and empirical in nature and purposive sampling technique is used . The study is based on primary data, which has been collected through structural questionnaire , filled by member stake 50 respondents of has been selected on random sampling basis percentage metho is used for data analysis. According to findings of this data the employee satisfaction effects commitment are rewards ,stress, leave, benefits and compensation given to the staff by the management which are important to improve t motivation level and employee satisfaction.

Keywords :- Management , Organizational Behaviour , Goal Acheivement , Satisfaction , Sampling



# A study on job evaluation

Dr.Shyamsundar Tripathy,Assistant Professor Department of MBA, Koneru Lakshmaiah Education Foundation, Guntur,India-522302

shyamasundartripathy33@kluniversity.in

Abstract

This is the first of two articles concerned with the theory and practical use of methods of job evaluation. In this article the links between job evaluation and wages are examined together with the problems involved in work analysis and description which are important components in any job evaluation programme. There are numerous job evaluation methods which, to a greater or lesser extent, have had some practical application over the years. In this article the more recently developed schemes are examined in some detail. The second article will examine the criteria might consider important in determining what method, if any, it should adopt for use in its job evaluation programme. The perennial question of custom built or readymade methods will be examined as will the ever important question of costs and benefits both in a monetary sense and also in terms of staff relationships. In addition the links between work analysis and description, job evaluation and other elements involved in human resource management will also be discussed.

Keywords :- job evaluation programme, job evalution programme



# Study of the Work- Life Balance amongthe Academics of Higher Education Institutions: Life Balance among the Academics of Higher Education Institutions:

Dr.R.S.V.Rama Swathi, Assistant Professor

Department of MBA, Koneru Lakshmaiah Education Foundation, Guntur, India-522302

#### Abstract

Work –Life balance is about people having a measure of control over when, whereand how they work. It is achieved when an individual's right to a fulfilled life inside and outside paidwork is accepted and respected as the norm, to the mutual benefit of the individual, business and society.Work Life balance has always been a concern of those interested in the quality of working life and itsrelation to broader quality of life (Guest, 2002). The articulation of work and life, cast as work-life balance, has become a key feature of much current government, practitioner and academic debate (Eikhob, Warhurt & Haunschild, 2007). It is believed that balancing a successful career with a personalor family life can be challenging and impact on a person's satisfaction in their work and personal life'sroles (Broers, 2005). Dundas(2008) argues that Work Life balance is about effectively managing the juggling act between paid work and all other activities that important to people such as familycommunity activities, voluntary works, personal development and leisure and recreation. The ability to balance between workplace's needs and personal life's need is perceived as an important issue amongworkers globally and academics in higher education institutions were not excluded (Mohd Noor, Stanton& Young, 09).

Educational institutions are regarded as knowledge industry and these are related to creation of knowledge. All other activities and industries will be meaningless if knowledge is not created by someinstitutions or people. The persons engaged in creation and imparting knowledge are very importantones for all societies and countries in the world. Effectiveness and efficiency of these persons dependupon the balance of their work life and family and personal life. People engaged in imparting higher education have to play a vital role in every society. Assam, which is a state of India and Golaghatdistrict of Assam are not exceptions in this regard.

Keywords: articulation of work and life, Effectiveness and efficiency



# **Assessment of Performance Appraisal Practices in Ethiopia**

Dr. Kanimozhi, Assistant Professor

Department of MBA, Koneru Lakshmaiah Education Foundation, Guntur, India-522302

drrkanimozhi@kluniversity.in

Abstract:

Performance Appraisal is the systematic, periodic and impartial rating of an employee's excellence, in matters pertaining to his present job and his potential for a better job. Performance refers to "outcomes, results or accomplishments", Performance appraisal is "the systematic description of an employee"s strengths and weaknesses." .The main objective of the study was to assess the performance appraisal practice of Ethiopian road authority in Kombolcha branch. Both qualitative and quantitative research approaches were used to gather data required for the present study from sampled employees which were selected from the total population of 55 and included to the study through simple random sampling techniques. The collected data, which was gathered using questionnaire, observations and secondary documents was sorted, clarified and analyzed manually with descriptive statistics, i.e. Percentages" and tables in order to make valid generalization. Ultimately the research provide reasonable results that could help the management to take reasonable decision for their future activity such as employee"s performance is evaluated on regular basis or procedure; employees do not know for what purpose that the performance appraisals conducted in their organization; employee cannot know whether they are strong or weak at their performance and rater committees the error seen inthisorganization.

Keyterms: - Performance Appraisal, Employees' Efficiency, Contribution of Apprais



# WORKERS PARTICIPATION IN MANAGEMENT DECISION MAKING WITH SPECIAL REFERENCE TO CHENNAI PORT TRUST

Dr. Atanu Talukdar, Professor

Department of MBA, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 atanutalukdar@kluniversity.in

#### Abstract

The research is on the basis of a study on workers participation in management decision making with special reference to Chennai Port Trust. Surveys are an effective way of knowing about workers participation in management decision making. The concept of worker participation represents a popular theme in the analysis of the world of work among scholars in the fields of Industrial Sociology, Industrial Relations as well as management. It refers to any arrangement which is designed to involve all cadre employees (workers) in the important decision making within the workplace. The study was based on the descriptive research design. The sample size is 200 has been used. Permanent employees of Chennai Port Trust are respondents. Thus, this report seeks to utilize primary research, through Structured Questionnaires and secondary method involves data collection through case journals, magazines and websites. The tools being used for analysis and interpretation are Chi-square test and five point liker scales. SPSS software was used for the statistical analysis. Most of the employees are agree that effective workers participation management improve the working condition welfare measures better superior subordinate relationship and increase the morale, peace and productivity. The Suggestion made by the employees where mostly implemented whenever they were applicable

#### Keywords:

Decision making; Employee; Impact; Industrial relation; Management; Participating; Productivity



International Journal For Advanced Research In Science & Technology

> A peer reviewed international journal ISSN: 2457-0362

www.ijarst.in

# STUDY ON EMPLOYEE RETENTION

Dr. D. Sundari, Associate Professor,

Department of MBA, Koneru Lakshmaiah Education Foundation, Guntur, India-522302

sundaridadhabai@kluniversity.in

#### ABSTRACT

Employee Retention refers to the ability of the organisation to retain its employees and it's emerging as a big challenge to organisations. Organisation culture, pay and remuneration, flexibility and job satisfaction highly influence the retention rate for any company. The paper provides the prevalent and potential reasons for an employee to leave his job and also talks extensively about the problems faced by an organisation associated with the high employee turnover. The paper elaborates on the retention factors such as training, skill recognition, career development, etc and helps in understanding the importance of effective communication and employee motivation for the cause of employee retention.

KEYWORDS: Employee Retention, Factors, Strategies, Employee Turnover



# A REVIEW OF LITERATURE ON EMPLOYEE RETENTION

Dr.B.Vamsi Krishna, Assistant Professor

Department of MBA, Koneru Lakshmaiah Education Foundation, Guntur, India-522302

vamsibu@kluniversity.in

Abstract

This paper attempts to contribute to a holistic view concerning the practices and strategies adopted by organizations to retain committed and talented workforce globally. Engaging and retaining employees of 21st century workforce in this competitive era is a toughest job for HR people. Now-a-days, almost every organization is driven by technology, but human resources are needed to carry out the works through technology. Hence human resources are the life energy for the organization for its survival growth and development. It is the challenge of a HR manager to retain employees in an organization for a long run in a dynamic environment. This is a secondary research, which reviews various research articles in journals and books and attempts to explore the reviews on employee retention in various sectors, industries etc., to understand the concept of retention, factors influencing retention and the strategies to retain the employees in a better way.

Keywords: Hence human resources, employee retention, retain the employees



# **Employee Retention Strategies – An Empirical Research**

Shyamsundar Tripathy, Assistant Professor Department of MBA, Koneru Lakshmaiah Education Foundation, Guntur, India-522302

shyamasundartripathy33@kluniversity.in

#### Abstract

Human resources are the livelihood of all types of an organization. Even though all types of the organizations are now a days, found to be technology driven, yet human resources are required to run the technology. With all round development in each and every area of the economy, there is stiff competition in the market. With this development and competition, there are lots and lots of avenues and opportunities available in the hands of the human resources. The biggest challenge that organizations are facing today is not only managing these resources but also retaining them. Securing and retaining skilled employees plays an important role in any organization, because employees' knowledge and skills are central to companies' ability to be economically competitive. Besides, continuously satisfying the employees is another challenge that the employers are facing today. Keeping into account the importance and sensitivity of the issue of retention to any organization, the present study tries to review the various available literature and research work on employee retention and the factors affecting employee retention and job satisfaction among the employees.

Keywords: employee, human resource, organization, retaining, satisfaction.



# **Factors Affecting Employee Retention**

Shyamsundar Tripathy, Assistant Professor Department of MBA, Koneru Lakshmaiah Education Foundation, Guntur, India-522302

shyamasundartripathy33@kluniversity.in

#### Abstract

In today's dynamic business environment, increased globalization, with social, economic and technological developments has resulted with a fierce competition among companies. Talent shortage being identified as a salient issue globally; had caused competition even in the labour market. Thus, this had made it crucially important and mandatory for companies to retain their existing employees, although it is a challenging issue encountered by firms across the globe. Thus, the sole purpose of this study is to identify and analyze the major factors that affect employee retention. The initial chapter introduces this study, by providing the background and scope of the study, problem statement and justification, research objectives and the significance of this study. Secondly, through the gathering of a vast literature, a literature review is presented, where it initially provides an idea on what employee retention is, and through the gathered articles, four commonly identified factors were selected; compensation, work-life-balance, working environment and superiorsubordinate relationship, and are comprehensively analyzed with literature and thereafter this finally concludes, with the conclusion that if the aim of employee retention is to be achieved, all these factors will have to be put into practice together, rather than individually, because only if all four are implemented together, will the objective of achieving employee retention be successful, both in the short and long term. This report has utilized journal articles and books mainly, to critically and comprehensively analyze and evaluate the factors in different views.

Keywords: Employee Retention, Compensation, Work-life-balance, Work environment, Superior-subordinate relationship



# A STUDY ON EMPLOYEES GRIEVANCE MANAGEMNET PROCEDUREFOLLOWED IN BMTC, SOUTH DIVISION, BENGALURU

Dr.R.S.V.Rama Swathi, Assistant Professor

Department of MBA, Koneru Lakshmaiah Education Foundation, Guntur, India-522302

ABSTRACT

The purpose of the study to understand the employee's grievance handling mechanism followed in BMTC, South Division. The study gives information on the grievance handling procedure followed in BMTC. It also includes information aout the cause for the grievance in theorgani!ation. The study was conducted at BMTC, South Division, and Bangalore. "primary data was obtained from employees with the help of structured questionnaire which was handed over to \$%& employees chosen randomly. The secondary data was collected through company records. Results of the study found that employees are facing grievance which is economic in nature. It was also found that the e(siting grievance settlement mechanism is not much satisfactory to the employees. Suitable suggestions to overcome the employee's grievance were provided based on the results of the study.

Keywords: Employee satisfaction, grievance handling mechanism



International Journal For Advanced Research In Science & Technology

A peer reviewed international journal ISSN: 2457-0362

www.ijarst.in

# A study on Training and Development

Dr. Kanimozhi, Assistant Professor

Department of MBA, Koneru Lakshmaiah Education Foundation, Guntur, India-522302

drrkanimozhi@kluniversity.in

Abstract

Training and development are regarded as imperative areas in the case of human resource management. In every organization, they are given utmost significance. They are connected to the business objectives and performance, they are an essential part of the organization, they are focused on setting tangible objectives for the employees and they are an integral part of the organization policy. The main focus of these aspects is to improve the knowledge and skills of the employees that is necessary in the achievement of organizational goals as well as personal goals. The main purpose of this research paper is to acquire adequate understanding of training and development. The main areas that have been taken into account include, objectives of training and development, stages in the training and development process, methods of training and development, types of training, the need for analysis and assessment in training, trainers, and benefits of training and development programs.

Keywords: Development, Efficiency, Knowledge, Methods, Organization, Skills, Training



# A STUDY ON WORK LIFE BALANCE

Dr. Atanu Talukdar, Professor

Department of MBA, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 atanutalukdar@kluniversity.in

#### ABSTRACT

Work life balance has recently taken the attention of both researchers and executives. This subject interests almost everyone with a professional career. This widespread interest is partly due to its reflection on all aspects of life. For those who think that the main objective in life is to work, their career becomes the core of life. However, people have limited time and therefore have to perform many other activities other than their jobs. Without a balance between the two, many mishaps can be experienced in both. In this study work –life balance is analyzed from organizational context. This study has the potential to enable the working people to consider their stand point in terms of work –life balance and the executives to gain new perspective in order to cope with such a problem..

Keywords: professional career, organizational context.



# Effective Communication as a Tool for Achieving Organizational Goal and Objectives

D. Sundari, Associate Professor,

Department of MBA, Koneru Lakshmaiah Education Foundation, Guntur, India-522302

Email: <u>sundaridadhabai@kluniversity.in</u>

Abstract

Basically, communication touch every sphere of human activity, it informs or better still disseminate information/message to target audience. One of the peculiarities of humans is communication among the members of the society. Communication is an essential attribute of human behaviour. Indeed, communication is perhaps man's most important singular activity because every other human activity revolves around communication.

Animals and trees also communicate, but it is man's ability to create symbol, ascribe meanings and interpret messages that elevate him above the status of the lower animals and gives form and character to his existence. All organizations encourage effective communication by having established channels (formal and informal) of transmitting information to people. In all enterprises, effective organization channel is required to transmit company policies, programmes, rules and regulations. It is also required in dealing with customers, regulatory agencies, and the generals public. It is through good communication with business owners, board of directors, management, peers, and subordinates that an organization maintains goodwill, grows and waxes. Communication also serves as an instrument of social interrelation. It helps us understand ourselves, to keep in touch with other people, to understand them and to predict their response to situation, its means by which power is acquired, exercised and sustained. It is the medium through which relationship are established, extended, and maintained, it provides a means by which people in business policies make decision and management and materials. In business and industry, communication helps to orient workers to work with one another and to achieve the good goals of the organization, and it is the means by which such goals can be pursued, attained sustained and improved.

It is the lubricant that keep the machinery of an organization functioning. It is the means through which roles are identified and assigned, it is the life blood of an organization.

The above brief historical consideration of communication emphasizes its importance in human existence. To organize is to communicate; thus, no organization can survive without communication.

The effect of marketing communication is an organization can be measured in terms of attitude and performance for it affects the morale of the employees, and their attitude towards the organizational productivity.

**KEYWORDS:** Effective Communication, Achieving Organizational Goal and Objectives, employees, and their attitude towards the organizational productivity



# Digital Marketing and Its Consequence: An Empirical Study of the Effectiveness of E-Commerce Business in the Metro Cities (Cuttack & Bhubaneswar) of Odisha

# <sup>1</sup>Dr. A Udaya Shankar, <sup>2</sup>Monalisa Pattanayak

<sup>1</sup>Associate Professor, <sup>2</sup>Research Scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302

Mail id: <u>dr.a.udayashankar@kluniversity.in</u>, <u>monalisapattanayak36@gmail.com</u>

Abstract: Digital marketing is a marketing method to promote products in online. In every era, marketing has evolved based on what the customer is using. If you go back in history, you can see that at times when customers used Radio, it gave birth to radio advertising and marketing. Next, we got the boom of televisions; it is one of the widely used devices globally, which allowed the companies to reach a mass audience with TV ads. Even today TV advertising is one of the most used advertising strategies for companies. Since the boom of Internet, more customers started using the Internet, which gave birth to a new era of marketing originally called as Internet marketing, which is now called as Digital Marketing. Digital marketing is the marketing of products or services using digital technologies, mainly on the Internet, but also including mobile phones, display advertising, and any other digital medium. Digital marketing simply means marketing products or developing business through digital channels. This has a great impact at the present time because of more internet users. We can showcase our products, buy, sell our products and services completely through online. Moreover, we can specifically target audience, location, age, and their interests. This study has described various forms of digital marketing, effectiveness and the impact on firm's sales. The examined sample consists of one hundred fifty firms and fifty executives from the twin cities (Cuttack and Bhubaneswar) which have been randomly selected to prove the effectiveness of digital marketing. Collected data has been analysed with the help of various statistical tools and techniques.

Keywords: Digital marketing, Promotion, Customer reach, Consistence, Effectiveness.



# A Study on Consumer Behaviour towards online shopping in India – A Review of Literature

<sup>1</sup>Dr. A Udaya Shankar, <sup>2</sup>Monalisa Pattanayak

<sup>1</sup>Associate Professor, <sup>2</sup>Research Scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: <sup>1</sup>dr.a.udayashankar@kluniversity.in, <sup>2</sup>monalisapattanayak36@gmail.com

Abstract: Consumer behaviour is said to be an applied discipline as some decisions are significantly affected by their behaviour or expected actions. Many companies have started using the Internet with the aim of cutting marketing costs, thereby reducing the price of their products and services in order to stay ahead in highly competitive markets. Companies also use the Internet to convey, communicate and disseminate information, to sell the product, to take feedback and also to conduct satisfaction surveys with customers. The growing use of Internet in India provides a developing prospect for online shopping. If E-marketers know the factors affecting online Indian behaviour, and the relationships between these factors and the type of online buyers, then they can further develop their marketing strategies to convert potential customers into active ones, while retaining existing online customers. Online shopping is a rapidly growing e-commerce area. Online stores are usually available 24 hours a day, and many consumers have internet access both at work and at home. A successful web store is not just a good-looking website with dynamic technical features, listed in many search engines. This study is basically a study on the behaviour of the consumers towards online shopping based on India only based on various literature reviews. This paper is descriptive in nature and based on the previous studies some additional findings and suggestions are given.

Keywords: Consumer, Consumer Behaviour, Online shopping, Internet, E-market.



# **Artificial Intelligence Tools for Enhancing Customer Experience**

# <sup>1</sup>Dr. A Udaya Shankar, <sup>2</sup>Monalisa Pattanayak

<sup>1</sup>Associate Professor, <sup>2</sup>Research Scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302

Mail id: <sup>1</sup>dr.a.udayashankar@kluniversity.in, <sup>2</sup>monalisapattanayak36@gmail.com

**Abstract:** Customers are the key to any business and the major challenge for any established business is retaining an existing customer and acquiring a new customer. One of the many ways to reduce the churn rate and increase customer retention is to improve the customer experience. As businesses are growing, their customer base is also increasing. Each and every customer is different and needs different kind of motivators to engage with the business and hence we need to understand each and every customer uniquely. Artificial Intelligence tools can blend the gap between the business and the client, creating enormous information that can prompt further comprehension of the client's preferences. Understanding these artificial intelligence tools and how these tools can assist organizations with retaining clients and help them give better involvement to their clients is significant. However, in academic research this significant research area stays under-focussed. Hence this study tries to address this gap by proposing a conceptual model for understanding how the Artificial Intelligence tools are can help in enhancing customer experience. The narrative literature review approach has been adopted for conceptualization of the model. The study provides implications to practitioners for designing and developing AI tools such that they enhance customer experience, to managers for designing the information technology strategy of their companies, to academicians as it helps explore new technologies in the marketing domain and to the society as it will help improve customer experience thereby leading to customer satisfaction.

**Keywords:** Artificial Intelligence, Big Data, Customer Experience, Personalization. Service Quality, Hassle free service.



International Journal For Advanced Research In Science & Technology

A peer reviewed international journal ISSN: 2457-0362

www.ijarst.in

# **Artificial Intelligence (AI) Impact on Digital Marketing Research**

# <sup>1</sup>Dr. A Udaya Shankar, <sup>2</sup>Monalisa Pattanayak

<sup>1</sup>Associate Professor, <sup>2</sup>Research Scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302

Mail id: <u>dr.a.udayashankar@kluniversity.in</u>, <u>monalisapattanayak36@gmail.com</u>

Abstract: This paper maps and describes the current and potential relationship between two different scientific branches of marketing science and computer science. It examines the interaction of digital marketing and artificial intelligence (AI) in academia, proposing, at the same time a machine learning model that could fit in several aspects of digital marketing scientific area. There are numerous scientific publications regarding artificial intelligence (AI) across the disciplines. However, referring to digital marketing aspects, this number remains small. Scientific research on artificial intelligence (AI) could benefit marketing science in numerous ways. Nowadays, only a small amount of scientific research referring to digital marketing and artificial intelligence (AI) is related to specific digital marketing methods. Most of the scientific research examines generic aspects such as e-business, consumer behaviour, e-commerce strategies, social media advertisement, search engines and consumer predictive modelling avoid being more related to specific marketing issues in which business world is more aware of, like consumer behaviour on social media, targeted advertisements, social media marketing, conversion optimization, predictive models in online purchases, chatbots etc. Despite the vast research area and a certain number of publications, it seems that there is a lack of scientific publications regarding specifically digital marketing and artificial intelligence (AI). Nevertheless, there are some very extensive research attempts on specific digital marketing matters and artificial intelligence (AI) that are promising. This paper through the mapping of the current state of artificial intelligence (AI) applications on digital marketing scientific area, highlights the corner stone publications, comes up with areas of absence or lack of its presence, mentioning at the same possible reasons why that occurs and provides a machine learning model that could fit in several digital marketing occasions.

**Keywords:** Artificial Intelligence (AI), Digital Marketing, Big Data, Customer Behaviour, Decision Making, Predictive Modelling.



# A Prospective study of Consumer Buying Behaviour with using Digital Wallet: Special Reference to Smart City, Bhubaneswar

<sup>1</sup>Dr. A Udaya Shankar, <sup>2</sup>Monalisa Pattanayak

<sup>1</sup>Associate Professor, <sup>2</sup>Research Scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302

Mail id: <u>dr.a.udayashankar@kluniversity.in</u>, <u>monalisapattanayak36@gmail.com</u>

Abstract: Now-a-days, human beings' lifestyle has been changed tremendously in the world due to fast-moving Consumer Goods availability in the market and Consumer's need to adopt more convenient and secure gadgets to make their life style more comfortable. Thus, for achieving this goal, there is an innovative mode of transactions of products called Digital Wallet, which refers to an electronic device or online service provided to the concerned user for enabling them to conduct electronic mode of digital transactions when they are doing online shopping. The best example of a Digital Wallet is online shopping which is also known as an e-wallet. Today, most people prefer online shopping as it is providing them with the benefits like it is less time consuming, for example, use of Paytm, Mobikwik, Google Pay, Phone Pe, PayPal, Samsung Pay, PayUMoney, etc. It is a system that securely stores the payment information or passwords of the consumers which have been more secure with strong password use. In an invited research paper, we the researcher have a plan to investigate the Prospective study of Consumer buying behaviour using a Digital Wallet with special reference to the smart city, Bhubaneswar, Odisha, India. Again, we proposed to use an innovative model of digital wallet through the biometric lock and its safe and secure use. In this study we the researcher has planned to use a good questionnaire among 1000 respondents and expected to receive 650 Consumers responses from 20 shopping malls from Bhubaneswar. This research will investigate the usefulness of this digital wallet in the current scenario as well as the willingness of consumers to adopt this innovation using Questionnaire Survey method through Goggle form as well as use of the electronic mode of data collection such as: E-mail, WhatsApp and direct interaction with various consumers related to study their online buying Behaviour at different shopping malls like: Esplanade One, D.N. Regalia Mall, The Pal Heights, Forum Mart, BMC Keshari Mall, Symphony Mall, OSRTC Mall, Maruti Mall, The World Mall, Galaxy Mall, Pantaloons, Big-Bazar, Reliance fresh, BMC Bhawani Mall, etc. This research study will be analyzed by using Statistical tools and techniques of SPSS Software for the scientific study of online buying through digital shopping and conclusions are drawn from the analysis through using Chi-Square, ANOVA, Correlation, Regression Test as per deemed fit thereon.

**Keywords:** Innovative Mode of Digital Wallet (IMoDW), Electronic mode of Digital Transactions (EMoDT), Consumer Buying Behaviour (CBB), Online Shopping (OS), Digital Payments (DP).



# <sup>1</sup>Dr. A Udaya Shankar, <sup>2</sup>Monalisa Pattanayak

<sup>1</sup>Associate Professor, <sup>2</sup>Research Scholar<sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302

Mail id: <sup>1</sup>dr.a.udayashankar@kluniversity.in, <sup>2</sup>monalisapattanayak36@gmail.com

Abstract: Digital Marketing has become most preferred way of communicating to the customers. In a State like Odisha, where the potential customers have increasing been influenced by Digital Marketing, its scope has grown manifold in the recent years. The customers of Odisha have been increasingly drawn towards online shopping in the last few years. In regards to the results of this study and the theoretical understanding about the subject matter through literature review, this study analysed the hypotheses and discussed their comparisons with the literatures. Consumers of Odisha are medium users of the Internet and they research moderately for product/service information. And their favourite searching mode for product/service information is company website and then social networking sites. In this context, Consumers mainly acquire information for intangible products (education) more than the tangible products via the Internet. In addition, they tend to buy electronic and FMCG products online. A part from that majority of the consumers in the study has the intention to buy online in the future. Nevertheless, the present study has contributed to our understanding of online buyer behaviors, which has profound implications for organizations conducting business via the Internet. It helps online retailers better address the needs and wants of their consumers and devise their online retail strategies for website design and online advertising. Data on online consumer buying behaviors are much needed in lieu of the gaining importance of online retailing.

Keywords: Digital Marketing, Buying Behavior, Purchase Decision



# **Impact of Digital Marketing on the growth of Consumerism**

<sup>1</sup>Dr. A Udaya Shankar, <sup>2</sup>Monalisa Pattanayak

<sup>1</sup>Associate Professor, <sup>2</sup>Research Scholar<sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302

Mail id: <u>dr.a.udayashankar@kluniversity.in</u>, <sup>2</sup>monalisapattanayak36@gmail.com

Abstract: Consumerism plays a significant role in the transition taking place in a world where everything is digitized. Businesses have started adopting various digital marketing approaches, the most favoured methods being content, social and mobile marketing. Various channels that constitute digital marketing such as mobile, search engine optimization, content marketing, social media marketing and media marketing need to be utilised by companies effectively to reach out to their consumers and in also ensure the success of the business. All of these elements put together sum up a cohesive digital marketing strategy. The adoption of innovative strategies is crucial as companies stand the risk of losing competitive advantage in an increasingly commoditized world. As technological change continues its advancement in an exponential manner with new digital platforms and devices it is only wise for businesses to make haste in embracing this market evolution. Furthermore, India's consumption power is so big owing to its huge market of over billion people where the youth below twenty on its own are defined by a population of 600 million. The internet users are also growing at a fast and steady pace. This paves way to huge opportunities for the marketers to take advantage of as there is positive and continuous growth by the internet users. All this advancement brings in a tectonic shift between the businesses and the consumer until a balance is attained in the digital marketing approach. Consumption structure and consumer needs are changing and their desires are growing. The future of digital marketing will be based in how marketers create ways to puzzle together the new and traditional media into a perfect fix based on the market environment. This paper intends to identify the factors that influence consumers through the growth of digital marketing.

**Keywords:** Digital marketing, Digital channels, Digital marketing strategies, Consumerism, Consumer



### A study on e-commerce and online shopping: issues and influences

# <sup>1</sup>Dr. A Udaya Shankar, <sup>2</sup>Monalisa Pattanayak

<sup>1</sup>Associate Professor, <sup>2</sup>Research Scholar<sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302

Mail id: <sup>1</sup>dr.a.udayashankar@kluniversity.in, <sup>2</sup>monalisapattanayak36@gmail.com

Abstract: With the changing market scenario and economical growth, the demand for online shopping has increased. Explosion of e-commerce has changed the buying patterns and preferences of customers. The important brands are also moving towards e commerce technology for increased sale of their products. There is no doubt about it that ecommerce has made the transactions smooth, quick, faster and easier. Both the sellers and the buyers get benefited by his technology. As we all are aware that Commerce and Business are the backbones of a country's development, if they were supported by the electronic technology and tools like e-commerce, it will make wonders in the economical growth of the country. An important part of e-commerce is online shopping. It helps in many ways both parties, the buyer as well as the seller. The e-commerce technology and the usage of online shopping has increased in tremendous ways in India. Today almost every big company has adopted these technologies to increases sales, to make branding all over the globe. Online shopping in India saw a 128% growth in interest from consumers in 2012 as compared to the previous year, according to a new report. The growth was only 40% between 2010 and 2011, said the report compiled by Google and TNS Australia. The report used data from Google Trends and a sample survey of 800 users in November 2012. Consumers were most interested in apparels & accessories (30%) and consumer electronics (34%). Other categories that Indians searched for online were Books (15%), Beauty & Personal care (10%), Home & furnishing (6%), Baby products (2%) and healthcare (3%). The present paper is an attempt to study the recent trends, influences, preferences of customers towards e-commerce and online shopping and to give the suggestions for the improvement in online shopping websites.

Key Words: e-Commerce, Internet, Online Shopping, Business.



# <sup>1</sup>Dr. A Udaya Shankar, <sup>2</sup>Monalisa Pattanayak

<sup>1</sup>Associate Professor, <sup>2</sup>Research Scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302

Mail id: <u>dr.a.udayashankar@kluniversity.in</u>, <u>monalisapattanayak36@gmail.com</u>

Abstract: This paper describes the current and potential relationship between digital marketing and artificial intelligence (AI), proposing, at the same time, ways of artificial intelligence (AI) engagement in app development. As a genuine branch of Marketing science, digital marketing managed to create value to the organizations and increased the engagement with the customers through electronic services. Digital era has helped industries monitor their procedures including branding, promotion, advertising, production, channel distribution etc. Based on gathered data, interactive customer experience and a digital overview of procedures and sales, business managers could make more accurate and data driven decisions. Due to the excessive amount of data which is daily generated customers journey and experience turn to become extremely complicated. Organizations invest high budgets to cover the lack of information or the potential customers which have never been mapped. The large volume of data generated lead to a chaotic environment which marketer must handle. Users data daily change and decision makers must deal with this reality. The need of use smart applications within organizations emerges to better analyze, classify, optimize and target audiences. Technology aware customers lead industries to bigger financial investments and sophisticated solutions. Based on a high complex data world, marketers must identify their needs and search for advanced technological solutions. Business world manage to implement smart apps which directly affect marketing world and decision makers. Intelligent data-based driven models could lead to customer action predictions based on dependent variables of interest. Data mining, artificial intelligence (AI), machine learning, deep learning could act complementary to marketing science. User profiling, data classification, content optimization, optimized targeted audiences, predictive models, search engine ranking factors optimizations are some of the benefits that artificial intelligence (AI) could provide and generate highly accurate results.

**Keywords:** Artificial Intelligence, Digital Marketing, Big Data, Customer Behavior, Decision Making, Predictive Modeling.



# A Critical Review of Digital Marketing with Special Reference to an Indian Market

<sup>1</sup>Dr. A Udaya Shankar, <sup>2</sup>Monalisa Pattanayak

<sup>1</sup>Associate Professor, <sup>2</sup>Research Scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302

Mail id: <sup>1</sup>dr.a.udayashankar@kluniversity.in, <sup>2</sup>monalisapattanayak36@gmail.com

**Abstract:** This study is subjected in context to the critical review of digital marketing in reference to the Indian market. Digital marketing is an attribute that is spreading rapidly in this era. Consumers and organizations are keeners towards digital marketing rather than traditional marketing. The review is mainly generated in terms of Core of digital market, Concept of Digital Marketing, Comparison of Digital Marketing with Conventional Marketing, Important Benefits of Digital Marketing, Digital Marketing in as Internet Marketing, Social Media and Digital Marketing, Impact of Digital Marketing on IT Sector, Evidences That Discloses the Effect and Usefulness of Digital Marketing. This study also revolves around the Impact of Digital Marketing on Business and an increase in brand awareness. The study is significant from both the application perspective of management as well as from an academic point of view. The contemporary market is flooded with offers of different kinds. And consumers' behaviour is changing day by day. They are more likely to go for digital marketing as well as online marketing rather than the traditional way of marketing. This study will help the marketers identify the dimensions of Consumer Based Brand Equity which are affected by Sales Promotions and specifically what type of Sales Promotions, whether Price Promotion or Premium Promotion is suitable for a digital marketer.

Keywords: Digital, business, It, organization, internet, Marketing, Social media.



# **Changing Trends of Digital Marketing using Artificial Intelligence Techniques**

<sup>1</sup>Dr. A Udaya Shankar, <sup>2</sup>Monalisa Pattanayak

<sup>1</sup>Associate Professor,<sup>2</sup>Research Scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India-522302

Mail id: <sup>1</sup>dr.a.udayashankar@kluniversity.in, <sup>2</sup>monalisapattanayak36@gmail.com

Abstract: The current and potential relationship between two different scientific fields of marketing science and computer science is mapped and described in this study. It looks at how digital marketing and artificial intelligence (AI) interact in academia, while also presenting a machine learning model that might be applied to numerous facets of the digital marketing field. Across disciplines, there are numerous research articles on artificial intelligence (AI). However, when it comes to digital marketing, this figure is still minimal. Artificial intelligence (AI) research could assist marketing science in a variety of ways. Only a limited percentage of scientific research on digital marketing and artificial intelligence (AI) is now focused on specific digital marketing techniques. The majority of scientific research looks at broad topics like e-business, consumer behaviour, e-commerce strategies, social media advertising, search engines, and consumer predictive modelling, rather than focusing on specific marketing issues that the business world is more aware of, such as social media consumer behaviour, targeted advertisements, social media marketing, conversion optimization, predictive models in online purchases, chat bots, and so on. Despite the huge research area and a large number of papers, it appears that scholarly publications on digital marketing and artificial intelligence are lacking (AI). Nonetheless, some highly thorough study efforts on specific digital marketing topics and artificial intelligence (AI) are promising. This paper, by mapping the current state of artificial intelligence (AI) applications in the scientific field of digital marketing, highlights key publications, identifies areas of absence or lack of presence, and discusses possible reasons for this, as well as providing a machine learning model that could be used in a variety of digital marketing scenarios.

**Keywords:** Chat bot, AI, Digital Marketing, Big Data, Customer Behaviour, Decision Making, Prediction analysis.



# Role of Digital Marketing and Innovations on E-Commerce Practices - An Exploratory Study

<sup>1</sup>Dr. A Udaya Shankar, <sup>2</sup>Monalisa Pattanayak

<sup>1</sup>Associate Professor,<sup>2</sup>Research Scholar<sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302

Mail id: <u>1dr.a.udayashankar@kluniversity.in</u>, <u>2monalisapattanayak36@gmail.com</u>

Abstract: Banking sector is an important subset of our economy and plays a very crucial and significant part in its growth and development. The expansion and credibility of banking sector is attributed to the fact that it caters to their financial needs and accordingly provides products and services to the customers. The new millennium has witnessed metamorphosis in the banking sector. The pace and trend of transformation is all set to accelerate in the coming decade. The process of Liberalisation, Privatisation and Globalisation Model (LPG Model) banking services which were unleashed a few decades back will reach to greater heights as we step into the next decade. The innovation. Technology has brought about a paradigm shift in all aspects of banking like routine operations, transactions, products and processes, delivery of services in terms of various e-channels, credit administration and credit management, audit and compliance and Fin Techs partnership. Digital transformations in the banking sector have received much needed thrust because of "The Digital India Moment". The article makes an attempt to highlight the role of technology in banking and how technology-led innovations and initiatives will determine the business of banking as a whole. The significance of these technology- driven innovations and transformations is that they put both banker and customer in a win- win situation. The objective of this study is to investigate the digital innovations adopted by the Public Sector Banks and Private Sector Banks for e-commerce Practices in India. This study draws on existing literature in the form of scholarly articles, annual reports of various Banks, Newsletters and various websites related to digital innovations being adopted by the Indian Banks. It seeks to explore various aspects of digital innovations and transformations that took place in the Indian Banking Sector. In this Study, we will discuss various aspects of Digital Innovations like Internet Banking, M-Banking, etc. We will analyse as to how Banks have achieved considerable advancement in technological innovations and are constantly endeavouring to integrate various technological platforms to create synergistic benefits so as to engage in long term relationships with customers, offer superior customer experience, strengthen customer-orientation leading to business growth.

#### **Keywords:**

Digital Innovations (DI), Indian Banking System (IBS), Block Chain (BC), Artificial Intelligence (AI), Fin-Tech (FT)



# <sup>1</sup>Dr. A Udaya Shankar, <sup>2</sup>Monalisa Pattanayak

<sup>1</sup>Associate Professor,<sup>2</sup>Research Scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302

Mail id: <u>1dr.a.udayashankar@kluniversity.in</u>, <u>2monalisapattanayak36@gmail.com</u>

**Abstract:** The article's main theme is how the internet and digitalization have fundamentally changed the globe. With the help of digital marketing, farmers can reach a larger audience of prospective customers and earn higher prices for their goods. It aids in the launch of new agribusiness enterprises. Due to the increasing literacy rate in rural areas and the development of agribusiness infrastructures, young farmers are eager to use digital marketing platforms. Farmers' mentalities are transformed via COVID-19, which pushes them to embrace digital marketing. This study aims to get a deeper understanding of farmers' viewpoints, levels of knowledge, and experiences about the impact of digital marketing on the agriculture sector. A total of 120 respondents' primary data were obtained in order to reach this objective. The data were tabulated and reviewed with the use of numerous statistical methods in order to achieve the objectives of the study. Like other businesses, agriculture has embraced internet marketing and is growing to new heights while providing services that are better to those offered in conventional marketing venues. Farmers may sell their products online in a number of ways. They further promote their agricultural products online. The agriculture industry sector is adjusting its marketing channels as a result. Farmers may now sell their agricultural products on IKISAN, NAPANTA APP, NAFED, e-Choupal, AGMARKNET, and other online marketplaces thanks to the "e-NAM" infrastructure, which our prime leader Narendra Modi launched. Agriculture marketing locates, creates, and delivers markets for agricultural products. Produce from agriculture includes food grains (such as rice, wheat, millets, red, green, and black grams), fruits (such as apples, bananas, oranges, lemons, and grapes), vegetables (such as peppers, tomatoes, brinjal, coccinea, carrot, beetroot, and potato), and commercial crops (Tobacco, Cotton, Sugar cane etc.,). The agriculture marketing industry has changed during the last 60 years. The purchasing power of consumers has increased due to rising urbanisation and income levels. Fertilizers, micro irrigation systems, and seed varieties with high yields have all helped to raise agricultural output each year. ICT is being used by farmers, farmer groups, and FPOs to market their agricultural products online (ICT). Farmers and FPOs use Android phones to access the web, WhatsApp, Facebook, Twitter, and YouTube. They connect with local and international marketplaces using the digital data mentioned above to sell their agricultural products at the greatest pricing. Digital marketing is also useful. Digital marketing is used by all farmers-small, medium-sized, and large-to increase sales and pricing. Digital marketing gets rid of commission brokers and middlemen so that customers may get farm-fresh goods at reasonable rates.

**Keywords:** Digital Marketing, Agri-Business, Agri-Products, Conventional Marketing, Government Schemes.



# An analysis of how digital marketing has affected Indian Businesses

<sup>1</sup>Dr. A Udaya Shankar, <sup>2</sup>Monalisa Pattanayak

<sup>1</sup>Associate Professor,<sup>2</sup>Research Scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302

Mail id: <sup>1</sup>dr.a.udayashankar@kluniversity.in, <sup>2</sup>monalisapattanayak36@gmail.com

Abstract: As the dominance of Internet is tremendously increasing with a pace, Customers are getting engaged with internet more and making use of digital devices to spend maximum of their times. They are making use of different social media channels for the communication purpose, they are using different platforms for study purpose, booking their traveling online and last but not the least using digital platforms for shopping purposes. All in all, the maximum of the daily activities is turning out to be online. As the world is going digital, business organisations have also started looking for online platforms to expand their businesses. They are seeing a great scope in digitalisation. Business organisations have started using digital technologies for the advertisement and promotional activities. They are using different modes of digital marketing for this purpose. Digital marketing is acting as a catalyst and an enabler to boost the marketing and promotional activities within the organisation. As India has started following the different schemes of Government like "Start-up India", "Make in India", "Stand-up India" and "Digital India", individuals are thinking of starting their own ventures, start-ups. In this, Digital Marketing can be a very much effective, efficient and helpful aspect for the growth of their start-up or business. These things generate a curiosity to study the different impacts of digital marketing with their motivational factors as well as the challenges in the adoption so that it can be easy for the business organisation to make strategies accordingly. The present study, "Impact of Digital Marketing on Indian Firms" is an attempt in this direction. With this it becomes important to understand the perception of customers too, as they are one of the main assets of growth of any business. In this study, the perception of customers towards digital marketing is also studied. And the found results have shown that digital marketing is influencing customers in a great way and also in their decision making. Keeping all this in mind this study is carried out which can be a beneficial move for the business organisations in coming time.

Keywords: Influencing, Perception, Digital Marketing, Advertisement.



# The transforming trend of Digital marketing using Artificial

# **Intelligence for Value Added Service**

<sup>1</sup>Dr. A Udaya Shankar, <sup>2</sup>Monalisa Pattanayak

# <sup>1</sup>Associate Professor,<sup>2</sup>Research Scholar <sup>1,2</sup>Department of Management, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302

Mail id: <sup>1</sup>dr.a.udayashankar@kluniversity.in, <sup>2</sup>monalisapattanayak36@gmail.com

**Abstract:** The current technical advancements have moved the industries forward. The evolution of marketing has reached a stage where it is essential to adjust to current digital trends. Although it could seem like a push for marketers, all artificial intelligence-based automated applications and systems do little more than reduce the complexity of traditional targeting and personalization procedures. The platforms used for internet promotion frequently have algorithms for determining the optimum combinations, but in other cases, the businesses take the initiative to create and deploy specialized internal systems. The authors' objectives are to outline the current status of artificial intelligence in marketing procedures and to investigate the effects of value-added services addition to the marketing campaign using a six-step sequential model that makes use of an intelligent marketing strategy to increase the sales of a company. The proposed work aims to design a hybrid model based on Artificial Intelligence and Value-Added Services (VAS) for FMCG (Fast moving Consumer Goods) industries.

Keywords: AI-based Model, VAS, FMCG, Digital marketing, Higher Sales Pitch.



Electrochemical synthesis of PdNPs@MnO2-PPy nanocomposite and its electrocatalytic application towards glycerol oxidation Direct alcohol fuel cell; Electrocatalysis; Electrocatalyst; Electrochemical measurement; Glycerol oxidation

Bhavani K.S., Anusha T., Brahman P.K.

Department of Chemistry, Electroanalytical Lab, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh 522502, India

#### Abstract:

Direct alcohol fuel cell (DAFC) exhibits several unique features, such as the high tendency to energy conversion, low cost, abundance of fuel, less hazardous to the environment, and simple handling, and has diverse applications in microelectronics. In this context, the present study describes a facile and straightforward method to fabricate the PdNPs@MnO2-PPy catalyst as an anode electrode for the oxidation of glycerol in an alkaline medium. Herein, the PdNPs@MnO2-PPy catalyst was developed through a two-step electrochemical deposition technique. The asprepared catalyst was characterized by physicochemical and electrochemical techniques. Electrochemical measurements revealed that the PdNPs@MnO2-PPy catalyst exhibits excellent catalytic properties, anti-poisoning resistance to intermediates, and durability than that of already reported catalysts and Pd/C. These unique advantages of the proposed catalyst have been achieved due to PdNPs, strong synergistic effects, and MnO2-PPy support providing superior electron transfer. The proposed electrocatalyst exhibits high current density (240.2mA/cm2), large electrochemically active surface area (302.1 m2g-1), and good long-term stability (450 cycles). Further, the electrocatalysis mechanism of glycerol oxidation was studied. The design, synthesis, and excellent catalytic response of PdNPs@MnO2-PPy offer a conception and promising potential to be used as an anode electrode in direct alcohol fuel cells. © 2021 Elsevier Ltd

**Keywords**: Direct alcohol fuel cell; Electrocatalysis; Electrocatalyst; Electrochemical measurement; Glycerol oxidation



# Design, synthesis and biological evaluation of amide derivatives of oxazol-benzofuran-isoxazols as anticancer agents Amiodarone; Benzofuran; Isoxazole and anti-proliferative potential; Valdecoxib

Kumar V.K., Puli V.S., Prasad K.R.S., Sridhar G. Department of Chemistry, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh 522502, India; Department of Chemistry, Kakatiya Institute of Technology and Science, Warangal, 506015, India

#### Abstract:

A library of amide derivatives of oxazol-benzofuran-isoxazols (13a-j) have designed, synthesized and their structures were characterized by spectroscopic techniques. These compounds were investigated for in vitro anti-proliferative potential against human prostate cancer (PC3), human lung cancer (A549), human breast cancer (MCF-7) and human cervix cancer (SiHa) cancer cell lines by using of MTT asaay, and the etoposide used as standard reference. All compounds displayed remarkable anti-proliferative potential. Among them, compounds 13a, 13b, 13c and 13d showed most promising activities than etoposide. In which one of the compound 13c possessed superior activity. Further the structure-activity relationships (SARs) of these compounds were also examined. © 2021

**Keywords**: Amiodarone; Benzofuran; Isoxazole and anti-proliferative potential; Valdecoxib



# New indolo[1,2-c]quinazolines for single-crystal field-effect transistor: A united experimental and theoretical studies indolo[1,2-c]quinazoline; single-crystal field-effect transistors; TDDFT studies; π–π stacking

Puli V.S., Kilaru S., Bhongiri Y., Marri S.R., Tripathi A., Chetti P., Chatterjee A., Vukoti K.K., Pola S.

Department of Chemistry, Koneru Lakshmaih Education Foundation, Vaddeswaram, Guntur, India; Department of Chemistry, University College of Science, Osmania University, Hyderabad, India; Department of Physics, Osmania University, Hyderabad, India; Department of Chemistry, National Institute of Technology, Kurukshetra, India; Department of chemistry, Raghu Engineering College, Visakhapatnam, India

#### Abstract:

Here, we account the synthesis and characterization of a series of symmetrical fused heterocyclic aromatic hydrocarbons (HAHs) with an indolo[1,2-c]quinazoline (IQ) as the core moiety. All the new HAHs IQ series were systematically investigated by using various spectroscopic methods. Furthermore, their photo-physical properties were supported by density functional theory (DFT) and time-dependent density functional theory (TDDFT) studies to support the experimental findings. The tetramethyl-substituted indolo[1,2-c]quinazoline (TMIQ) compound is shown to exhibit the shifted type of  $\pi$ - $\pi$  stacking interactions, which render this series as a new semiconducting material. Single-crystal-based field-effect transistor devices of TMIQ exhibited efficient charge transport behavior, giving a p-channel field-effect mobility of 0.25 cm2 V-1 s-1 with an on/off ratio of 5 × 105.

**Keywords**: indolo[1,2-c]quinazoline; single-crystal field-effect transistors; TDDFT studies;  $\pi$ - $\pi$  stacking



Crystallographic and spectroscopic analysis of 9,10-bis-alkyl imidazolium anthracene hexatungstate supramolecular complexes Crystallography; Ion-pair solids; Polyoxometalates; Stoichiometric solids; Supramolecular interactions

Mubeena S., Annapareddy G., N M., Sarma M. Department of Chemistry, KL Deemed to be University (KLEF), Greenfields, Vaddeswaram, Andhra Pradesh 522502, India

#### Abstract:

This article describes the ionic and supramolecular association of bis-dialkyl imidazolium anthracene dications with hexametalate cluster anions. In the relevant compounds, the length of the alkyl chain was varied to observe its effect on the crystal packing. Despite the endothermicity in the crystals due to structural incompatibility between planar anthracene and spherical polyoxometalate ion, packing stability is attained by coulombic interaction together with the supramolecular interactions between the components. The nature of supramolecular interactions depends on the number of carbon atoms in the alkyl chain in the organic counterparts of the crystals which ultimately modifies the packing pattern.

**Keywords**: Crystallography; Ion-pair solids; Polyoxometalates; Stoichiometric solids; Supramolecular interactions



# Phytochemical profiling, pharmacological activities, isolation and identification of phytochemicals from Sterculia urens Roxb. leaves Characterization; Flavonoid; Pharmacological activities; Phenolic compounds; Preparative HPLC; Sterculia urens Roxb

#### Darapureddy C., Prasad K.R.S., Phani R.S.C.

Department of Chemistry, Koneru Lakshmaiah Education Foundation, Guntur District,

Andhra Pradesh, Vaddeswaram, 522502, India

#### Abstract:

The study is intended to evaluate the pharmacological activities, isolation and characterization of the bioactive phytochemical constituents from the crude leaf extract of Sterculia urens Roxb. The extraction of the phytochemicals from the leaves was carried on Soxhlet extraction apparatus using solvents like hexane, ethyl acetate, methanol and water. Pharmacological activities such as DPPH free radical scavenging assay (antioxidant),  $\alpha$ -amylase inhibition assay (antidiabetic), albumin denaturation assay (anti-inflammatory), blood clot lysis method (thrombolytic) and well diffusion method (antibacterial) of the crude extracts were evaluated and then the semi-preparative HPLC analysis followed by spectral studies was carried for the purification and identification of bioactive compounds. The methanolic extract showed high DPPH radical scavenging activity,  $\alpha$ -amylase inhibition activity and albumin denaturation inhibition activity with IC50 values of 29.51±0.11, 146.85±0.18 and 149.91±0.19 µg/mL respectively. The % clot lysis of the methanolic extract was found higher than the other extracts and all the extracts have potential inhibition on the growth of the bacterial studied. From the leaf methanolic extract, 4 phenolic compounds (2,4-dihydroxybenzoic acid, methyl 4hydroxycinnamate, p-coumaric acid and stercurensin) and 3 phenolic compounds (gossypetin, farrerol and quercetin 5,7,3',4'-tetramethyl ether) were isolated and characterised. Based on the results observed, it can be concluded that the leaf extracts of Sterculia urens Roxb are having rich phytochemical constituents with prominent pharmacological activities.

**Keywords**: Characterization; Flavonoid; Pharmacological activities; Phenolic compounds; Preparative HPLC; Sterculia urens Roxb



# A Simple and Effective Bio-adsorbent Generated from the Stems of Momordica charantia Plant for the Simultaneous Removal of Lead and Cadmium Ions from Wastewater Adsorption; Applications; Biosorbent; Cadmium(II); Lead(II); Momordica charantia; Thermodynamic parameters

Vabanagiri R.B., Ravindhranath K., Pala S.L., Biftu W.K. Department of Chemistry, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Green Fields, 522502, India; Ethiopian Radiation Protection Authority, Addis Ababa, Ethiopia

#### Abstract:

Sulphuric acid generated activated carbon from the stems of Momordica charantia (MCSAC) was identified to adsorb lead(II) and cadmium(II) ions from water. Extraction conditions were optimized. At pH: 6, both the ions can be simultaneous removed by 2.0 mg/L of MCSAC after an equilibration period of 90 min at room temperate (30  $\pm$  2 °C). The sorption capacities were observed to be 21.0 mg/g for Pb2+ and 18.9 mg/g for Cd2+. MCSAC was characterized by conventional methods and also by surface morphology assessing techniques such as XRD, FTIR and FESEM. The sorption mechanism was investigated by evaluating thermodynamic parameters and by adopting various kinetic and isothermal models. High  $\Delta H$  values of 29.399 KJ/mol for Pb2+ and 33.222 KJ/mol for Cd2+, indicated that the mechanism of sorption is ion exchange and /or complex formation between Pb2+/Cd2+ ions and surface functional groups present in MCSAC. Further, high positive  $\Delta S$  values imply the presence of disorder at solid-liquid interface, favouring the metal ions to overcome the surface barrier and get adsorbed. The negative  $\Delta G$  values indicates the spontaneity of sorption process. Spent MCSAC can be regenerated and reused for three cycles. The procedure developed using MCSAC as sorbent was successfully applied to treat real effluents samples collected from several industrial effluents. The novelty of the present investigation is that a simple biosorbent is developed for the effective simultaneous removal of highly toxic Pb2+ and Cd2+ from contaminated water.

**Keywords**: Adsorption; Applications; Biosorbent; Cadmium(II); Lead(II); Momordica charantia; Thermodynamic parameters



# Synthesis and characterization of palladium nanoparticlescorannulene nanocomposite: An anode electrocatalyst for direct oxidation of methanol in alkaline medium And electrocatalytic activity; Anti-poisoning ability; Corannulene; Electrocatalyst; Methanol oxidation; Palladium nanoparticles

Sai Bhavani K., Anusha T., Stuparu M.C., Brahman P.K. Electroanalytical Lab, Department of Chemistry, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh 522502, India; Division of Chemistry & Biological

#### Abstract:

Herein a facile route to anchor transition metal nanoparticles on a bowl-shaped carbon material has been described to prepare a novel nanocomposite as an anode electrode for fuel cell applications. To accomplish this, palladium nanoparticles (PdNPs) have been electrochemically decorated on corannulene-based curved carbon material. The proposed catalyst was structurally and morphologically characterized by various techniques. The performance of the catalyst was evaluated by electrochemical techniques such as CV, EIS, LSV, and CA. The PdNPs@Corannulene catalyst shows high MOR activity of 102.1 mA/cm2 in an alkaline medium and good stability when compared with most of the reported Pd-based catalysts and Pd/C. The developed electrocatalyst exhibited a high surface area, good current density, excellent anti-poisoning ability, and superior catalytic activity towards methanol oxidation. The results presented herein revealed that molecularly curved carbon-corannulene as a novel support material in the design of nanostructured catalysts will open a new avenue for high-performance fuel cell applications.

**Keywords**: And electrocatalytic activity; Anti-poisoning ability; Corannulene; Electrocatalyst; Methanol oxidation; Palladium nanoparticles


# Development and Validation of A New Hplc Bioanalytical Internal Standard Method for The Analysis Of Remdesivirin Human Plasma Abacavir; Bio-analytical Method and ICH Guidelines; Internal Standard Method; Remdesivir; RP-HPLC

### Kishore D., Prasad K.R.S., Darapureddy C., Phani R.S.C.H.

Department of Chemistry, K.L. University, Andhra Pradesh, Vaddeswaram, 522

502, India

### Abstract:

Remdesivir (RMDSVR) is a pro-drug of an ATP analog, with antiviral activity against RNA viruses. In 2016 RMDSVR is used in the treatment of Ebola and 2017 RMDSVR was tested against SARS-CoV-2. The HPLC analysis was performed on the Agilent 1100 series HPLC with Quaternary G1311 A pump, ChromosilC18 column (250 X 4.6 mm,  $5\mu$ ) column, with a mixture of Acetonitrile, Methanol and 0.1% OPA in the ratio of 65:30:5 (v/v) as the mobile phase, at 0.8 mL/min flow rate and UV detection at 272 nm. Abacavir (ABVR) is considered an internal standard and the retention time was observed at 6.0 min and 9.1 min for RMDSVR and ABVR respectively. The calibration curve was obtained linearly in the concentration range of 10-70 ng/mL. the method was validated and all the validated parameters were within the acceptable limit confirms that the method is suitable for the analysis of RMDSVR in spiked human plasma.

**Keywords**: Abacavir; Bio-analytical Method and ICH Guidelines; Internal Standard Method; Remdesivir; RP-HPLC



separation and quantification of agomelatine and its impurities in solid oral dosage forms using hplc Agomelatin; HPLC Analysis; Method Validation; Quality by Design Approach

Prasad S.S., Kasimala B.B., Anna V.R.

Department of Chemistry, Koneru Lakshmaiah Education Foundation, Guntur District,

Vaddeswaram, Andhra Pradesh, 522502, India

### Abstract:

A simple and precise reversed-phase high-performance liquid chromatographic (HPLC) method was developed for the separation of Agomelatine and its impurities in the tablet dosage form. The method was developed by utilizing the quality by design (QbD) statistical approach. The method optimized as pH 2.6 buffer containing potassium dihydrogen orthophosphate (KH2PO4) and 1-octane sulphonic acid sodium salt anhydrous and Acetonitrile in the ratio of 80:20 (v/v) as mobile phase A and Milli-Q water and acetonitrile in the ratio of 20:80 (v/v) as mobile phase B in gradient elution and separation was achieved on Symmetry Shield RP-18, 150 X 4.6 mm, 3.5  $\mu$ m column as stationary phase and UV detection at 230nm. The quantitation limits of Agomelatine AGL-5D impurity, Desmethyl impurity, 5th Isomer impurity, AGL-4D impurity, and hydroxy impurities are found to be 0.05, 0.04, 0.06, 0.05, and 0.04 respectively. Recovery studies from (limit of quantification level to 150% level) 0.05  $\mu$ g/mL to 150  $\mu$ g/mL are performed for all impurities and results are in the range of 97.5-101.2%. The method can separate impurities studied and the forced degradation compounds formed and hence the method can effectively use for the analysis of impurities of Agomelatine and stress degradation compounds.

Keywords: Agomelatin; HPLC Analysis; Method Validation; Quality by Design Approach



In Science & Technology A peer reviewed international journal ISSN: 2457-0362

www.ijarst.in

Phytochemical analysis and comprehensive evaluation of pharmacological activities, isolation and characterization of bioactive compound from the bark of sterculia urens roxb. Biological activities; Flavonoids; Pharmacological activities; Preparative HPLC; Sterculia urens Roxb.; Terpenoid

DARAPUREDDY C., PRASAD K.R.S., CH P.R.S.

Department of Chemistry, Koneru Lakshmaiah Education Foundation, Vaddeswaram, 522502, India

### Abstract:

The objective of the present study is to investigate the phytochemical constituents by qualitative and quantitative analysis, pharmacological activities such as antioxidant, antidiabetic, anti-inflammatory, thrombolytic and antibacterial activities of different crude extracts from bark of Sterculia urens Roxb. Further, the preparative HPLC isolation and spectroscopic characterization of the bioactive phytochemical constituents were also carried out. Different solvents such as nhexane, ethyl acetate, methanol and water were used to prepare the crude extracts from the bark using Soxhlet extraction apparatus. DPPH free radical scavenging assay (antioxidant),  $\alpha$ -amylase inhibition assay (antidiabetic), albumin denaturation assay (anti-inflammatory), blood clot lysis method (thrombolytic) and welldiffusion method (antibacterial) were performed for the determination of pharmacological activities of the bark extracts. The preparative HPLC analysis was carried for the separation and purification of bioactive compounds and the identification of isolated compounds was carried using 1H NMR, 13C NMR and mass spectroscopy. The quantitative estimation studies confirmed that methanolic extract contains 7.75  $\pm$  0.141 GAE/ g of phenolic compounds, 10.47  $\pm$  0.033 mg of QE/g of flavonoids and  $8.70 \pm 0.047$  mg/g of terpenoids. The ethyl acetate extract contains  $2.16 \pm 0.126$  GAE/g of phenolic compounds whereas the aqueous extract contains 16.53 ± 0.055 mg/g of saponins. High DPPH radical scavenging was observed for methanolic extract with IC50 concentration of  $85.38 \pm 0.213 \ \mu\text{g/mL}$ . The  $\alpha$ -amylase inhibition activity with IC50 concentrations of 145.67  $\pm$  1.87, 98.36  $\pm$  0.47 and 194.47  $\pm$  0.55 µg/mL for ethyl acetate, methanol and aqueous extracts respectively. The albumin denaturation inhibition activity was found to be very high for methanolic extract with IC50 values of  $132.08 \pm 0.13 \,\mu\text{g/mL}$  which is near to the standard (107.13  $\pm$  0.13 µg/mL). The % clot lysis of the methanolic extract in thrombolytic activity was found to be similar to the 100 µL of streptokinase (62.36  $\pm$  0.140 %). Two terpenoids (One known terpenoid mansonone G and one new terpenoid) were isolated from the methanolic extract using preparative HPLC separation. Three known flavonoids (farrerol, apigenin and 6-hydroxyluteolin) and one new flavonoid were also isolated from the methanolic extract. The results suggested that bark extracts of Sterculia urens Roxb. having rich phytochemical constituents with high pharmacological activities.

**Keywords**: Biological activities; Flavonoids; Pharmacological activities; Preparative HPLC; Sterculia urens Roxb.; Terpenoid



# Reversible Fluorescence Switching of Donor-Acceptor Type Bipyridines by Simple Protonation-Deprotonation Equilibria bipyridine; chromophore; density functional theory; donor-acceptor; equilibrium; fluorescence; protonation; reversibility; switch

### Mubeena S., Na M., Annapareddy G., Chen Y.-S., Sarma M., Wong K.-T.

Department of Chemistry, KL Deemed to Be University (KLEF), Greenfields, Andhra

### Abstract:

This article describes the switchable fluorescence of a series of donor-acceptor type 2,2'bipyridines. The original bipyridine molecules have four protonation sites-two on the amino donor sites and two on the pyridine acceptor cores. These nitrogen-containing sites are selectively protonated by suitable acids and the protonation influences the electronic conjugation and structure of the chromophores. Consequently, the emission characteristics of the molecules are affected, and this behaviour is reversible, i.e. the neutral original species are regenerated by the addition of an equivalent amount of base. The switchable behaviour of these compounds is accompanied by a visible colour change of the relevant solutions.

**Keywords**: bipyridine; chromophore; density functional theory; donor-acceptor; equilibrium; fluorescence; protonation; reversibility; switch



# Establishment of validated stability indicating purity method based on the stress degradation behavior of gonadotropin-releasing hormone antagonist (ganirelix) in an injectable formulation using HPLC and LC-MS-QTOF degradation products; forced degradation; Ganirelix; HPLC-PDA; LC-MS-QTOF; validation

### Ummiti K., Shanmukha Kumar J.V.

Department of Chemistry, Koneru Lakshmaiah Education Foundation, Guntur, India

### Abstract:

Stress study of a drug substance or pharmaceutical drug product provides a vision into degradation pathways and degradation products of the active pharmaceutical ingredient and helps in interpretation of the chemical structure of the degradation impurities. In the current study, Ganirelix active ingredient presented in the Orgalutran® was stressed with acidic and alkali hydrolysis, photolysis, thermal and oxidation conditions as per the guidelines of International Conference on Harmonization (ICH) Q1A (R2). Ganirelix was found to be labile under thermal and alkali hydrolytic stress conditions, while it was stable to acid hydrolytic, oxidative and photolytic stress. All degradation products were separated with a resolution > 1.5on a C18 column (2.6 µm, 25 cm×4.6 mm) using a hydrophilic ion pair such as sodium perchlorate, at a concentration <0.04 M. In total, four major degradant impurities were found during stress study. These impurities were fractionated and desalted by flash chromatography for identification of chemical structures. LC-MS-OTOF analysis revealed that two degradation products are diastereomers of Ganirelix. one degradation product is a deamination compound and other degradation product result from the insertion of a new amino acid residue in the Ganirelix peptide sequence. The developed method is sensitive enough to quantify the related substances of Ganirelix at the 0.04% level with that of Ganirelix test concentration.

Keywords: degradation products; forced degradation; Ganirelix; HPLC-PDA; LC-MS-QTOF; validation



# One Pot, Four-Component, and Green Synthesis of Novel 2-(2-Amino-7,7dimethyl-5-oxo-4-phenyl-5,6,7,8-tetrahydro-4H-chromene-3-carbonyl)-2,3dihydrophthalazine-1,4-dione Derivatives 2-cyanoacetohydrazide; green synthesis; L-proline; one-pot reaction

### Prasad K.R.S., Tej M.B., Rao M.V.B.

Department of Chemistry, Koneru Lakshmaiah Education Foundation, Green Fields,

Vaddeswaram, Andhra Pradesh, Guntur, 522502, India; Department of Pharmacy, Sana

### Abstract:

Abstract: An efficient one pot, four-component and green synthesis of novel 2-(2-amino-7,7-dimethyl-5-oxo-4-phenyl-5,6,7,8-tetrahydro-4H-chromene-3-carbonyl)-2,3-

dihydrophthalazine-1,4-dione derivatives has been developed by condensing dimethyl phthalate 1 with 2-cyanoacetohydrazide, benzaldehydes and 5,5-dimethylcyclohexane-1,3-dione using L-proline as a catalyst in ethanol. Pure products are obtained in high yields without column chromatography involved. The method is environmentally friendly, simple and proceeds under mild reaction conditions.

Keywords: 2-cyanoacetohydrazide; green synthesis; L-proline; one-pot reaction



# Synthesis of thiazolidine-carbazole linked 1,2,3-triazole hybrids and their anti-cancer evaluation 1,2,3-triazole; Anticancer Activity RA; Carbazole; Thiazolidine-2,4-dione

### Ashok Kumar B., Shanmuk Kumar J.V.

Department of Chemistry, Koneru Lakshmaiah Education Foundation, Green Fields, Guntur

(Dist.), Vaddeswaram, Andhra Pradesh, 522502, India

### Abstract:

Here we described the synthesis of novel 1,2,3-triazole linked thiazolidine-2,4-dione and carbazole derivatives and screened for their anticancer activities against three human cancer cell lines, MCF-7, HeLa and SKOV3 using MTT assay. The newly synthesized triazole hybrids are characterized using1H NMR,13C NMR, IR and Mass spectral data. The results indicated that the most potent compound in this series is compound 3b against MCF-7, compound 3i against HeLa and compound 3d against SKOV3, which showed the highest activity with IC50 value of  $32.92 \mu g/ml$ ,  $12.08 \mu g/ml$  and  $29.06 \mu g/ml$  respectively.

Keywords: 1,2,3-triazole; Anticancer Activity RA; Carbazole; Thiazolidine-2,4-dione



# A selective and sensitive method development and validation of 1,1dimethyl-3-hydroxy-pyrrolidinium bromide impurity in glycopyrrolate oral solution by liquid chromatography-tandem mass spectroscopy

**Chawla R.K., Rao G.S.N.K., Kulandaivelu U., Panda S.P., Alavala R.R.** Department of Pharmaceutical Sciences, K. L. College of Pharmacy, Koneru Lakshmaiah Education Foundation, Green Fields, Vaddeswaram, Andhra Pradesh, Guntur, 522 502, India

### Abstract:

Objective: A selective and sensitive liquid chromatography-tandem mass spectrometer (LC-MS/MS) method has been developed for the quantification of 1,1-dimethyl-3-hydroxypyrrolidinium bromide impurity in glycopyrrolate oral solution. Materials and method: The LC-MS/MS analysis was done on X Bridge HILIC ( $100 \times 4.6$  mm, 5 µm) analytical column, and the mobile phase used was10 mM ammonium formate with 0.2% formic acid as mobile phase-A and acetonitrile as mobile phase-B with a gradient programme of 5.0 min. The flow rate used was 1.2 mL/min. Triple quadrupole mass detector coupled to positive electrospray ionization operated in multiple reactions monitoring mode was used for the quantification at m/z 116.10  $\pm$  0.5. Results: Retention time of impurity was found ~3.2 min. The method was validated in terms of specificity, linearity, accuracy, precision, range, limit of detection, limit of quantitation (LOQ) and robustness. Relative standard deviation (RSD) for system suitability was found 1.3%. Calibration plot was linear over the range of 0.050-2.000 µg/mL. Limit of detection and limit of quantification were found 0.017 and 0.051 µg/mL, respectively. The intra- and inter-day precision RSD was 2.3% and the obtained recovery at LOQ to 200% was in between 86.7 and 107.4%. Conclusion: The low RSD values and high recoveries of the method confirm the suitability of the method.



# Domino Multicomponent Intramolecular Cyclization Strategy for the Multi Functionalized Imidazo[1,2-a]pyrimidin-5(1H)-one Derivatives domino reaction; guanidine; imidazo[1,2-a]pyrimidin-5(1H)-one; intramolecular cyclization; propargyl bromide

Khan P.R., Alugubelli G.R., Sireesha R., Deepti K., Rao P.V., Rao M.V.B. K.L. Education Foundation (Deemed to be University), Vaddeswaram, Guntur, 522502, India; Department of Pharmacy, SANA College of Pharmacy, Kodad, Telangana 508206, India; Department of Chemistry, Acharya Nagarjuna University, NagarjunaNagarAndhra Pradesh 522510, India; Department of Biomedical Sciences and Therapeutics, Faculty of Medicine andHealth Sciences, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, 88400, Malaysia; Department of Chemistry, Krishna University, Krishna DistristAndhra Pradesh 521003, India

### Abstract:

Abstract: A microwave assisted novel domino synthetic approach to trifluoromethylsubstituted imidazo[1,2-a]pyrimidin-5(1H)-onederivatives has been developed via a multi component cascade strategy in asingle operation. The synthesized compounds can find application as structural components of biologically active compounds.

**Keywords**: domino reaction; guanidine; imidazo[1,2-a]pyrimidin-5(1H)-one; intramolecular cyclization; propargyl bromide



Prasad K.R.S., Sridhar G.

Department of Chemistry, KoneruLakshmaiah Education Foundation, Vaddeswaram, Guntur,

### Abstract:

We have synthesized a new series of chalcone based benzothizaole-imidazopyridine (10a-j) derivatives and tested for their anticancer propertiestowards human PC3 (prostate cancer), DU-145 (Prostate cancer), A549 (lung cancer) and MCF-7 (breast cancer) cancer cell lines, and compared with standard reference of etoposide. These tested compounds displayed excellent to moderate activities on four cell lines. The compounds showed IC50 values range from  $0.01\pm0.003 \mu$ M to  $19.5\pm6.31 \mu$ M, as well as standard showed values range from  $1.97\pm0.45 \mu$ M to  $3.08\pm0.135 \mu$ M, respectively. Among all, these compounds 10a, 10b, 10 h and 10i exhibited more potent activities than with etoposide. Exclusively, compound 10a displayed most promising activity to compare with 10b, 10 h and 10i

**Keywords**: Benzimidzaole; Imidazo [4,5-b]pyridine; Licochalcone A and chalcone; Veliparib



Bodige S., Ravula P., Seelam N.

Department of Chemistry, Koneru Lakshmaiah Education Foundation, Guntur, India;

### Abstract:

A novel series of imidazo[1,2-a]pyridine based 1H-1,2,3-triazole derivatives were designed, synthesized, and evaluated for their anticancer activity against two different human cancer cell lines. Most of the synthesized compounds displayed anticancer activity with IC50 values from 2.35 to 120.46  $\mu$ M. Furthermore, compounds 9b, 9c, 9d, 9f, and 9j showed potent inhibitory activity against cancer cell lines, with IC50 values close to that of standard drug. It is important to note that compound 9d was more potent than the standard drug cisplatin with IC50 values of 10.89 and 2.35  $\mu$ M against Hela cell line and MCF-7 cell line, respectively.



4-Phenoxyphenyl-boronic acid; Genotoxic impurity; Ibrutinib; SIM mode

Mullangi S., Ravindhranath K.,

Department of Chemistry, Koneru Lakshmaiah Education Foundation, Green Fields,

Vaddeswaram, Guntur Dt., A.P. 522502,

### Abstract:

An effective LC–MS/MS method was developed for the quantification of traces of 4phenoxyphenyl-boronic acid, a potential genotoxic impurity, in ibrutinib drug. AtlantisT3 Column of dimensions:  $150 \times 4.6$  mm (length x diameter) and particle size:  $5.0 \mu$ m was used. Gradient elution using ammonium formate buffer (10 mM) and acetonitrile as mobile phase A and B, respectively, was employed. Mass detection was conducted in negative mode with selected ion monitoring (SIM) at m/z 231.02 for 4-phenoxyphenyl-boronic acid. The detection and quantitation limits were established for the said impurity and were found to be  $0.134 \mu$ g/mL and  $0.45 \mu$ g/mL, respectively. The developed LC–MS/MS method was validated as per ICH guidelines. The results of validation proved that the developed method was precise, accurate, linear, specific and robust. The method can be effectively used for routine quantification of 4-phenoxyphenyl-boronic acid impurity at trace levels in ibrutinib drug substance.

Keywords: 4-Phenoxyphenyl-boronic acid; Genotoxic impurity; Ibrutinib; SIM mode



# Highly active biomorphic MgO/C supported Cu NPs direct catalytic coupling of 1,4-butanediol dehydrogenation and acetophenone hydrogenation using in-situ liberated H2 1,4-butanediol; 1-phenlethanol; Acetophenone; Biomorphic MgO/C; Direct coupling; gamma-butyrolactone

### Kumar J.V.S., Sreenivasan M., Lakkaboyana S.K.

Department of Chemistry, Koneru Lakshmaiah Education Foundation, Green Fields, Vaddeswaram, Andhra Pradesh 522502, India;

#### Abstract:

Gas-phase direct catalytic coupling of 1,4-butanediol (1,4-BDO) dehydrogenation and acetophenone (AP) hydrogenation was performed on MgO/Carbon supported Cu nanoparticles. The coupling reaction process completely avoids the practice of hydrogen supply and efficiently utilizes the liberated in-situ H2 from the 1,4-BDO dehydrogenation for the highly selective hydrogenation of AP. A series of Cu catalysts (5-20 wt%) synthesized by wet-impregnation method and well distinguished by BET, ICP-MS, p-XRD, H2-TPR, TPD, FE-SEM, XPS and HR-TEM techniques. Among synthesized catalysts, 10Cu/C-MgO catalyst exhibits outstanding catalytic performance with the maximum conversion of 1,4-BDO (98 %), and AP (95 %). Dramatically, steady  $\gamma$ -butyrolactone ( $\geq$ 99 %) and 1phenylethanol (99 %) selectivity are observed over 10 wt%Cu/MgO/Carbon catalyst. Moreover, 10 wt% Cu loading exhibited nearly stable activity up to 30 h time-on-stream without any significant deactivation. The presence of biomorphic MgO/Carbon derived from rice grains prevents the sintering of copper particles and improves the catalyst stability. The unusual enhancement in the catalytic performance can be typically attributed to the uniform dispersion of Cu nanoparticles and the presence of an intense amount of surface basic sites on the MgO/Carbon support.

**Keywords**: 1,4-butanediol; 1-phenlethanol; Acetophenone; Biomorphic MgO/C; Direct coupling; gamma-butyrolactone



In Science & Technology A peer reviewed international journal ISSN: 2457-0362

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# Synthesis and characterization of corannulene-metal-organic framework support material for palladium catalyst: An excellent anode material for accelerated methanol oxidation Corannulene; Electrocatalytic activity; Fuel cell; Metal-organic framework; Palladium nanoparticles

Bhavani K.S., Anusha T., Brahman P.K.

Electroanalytical Lab, Department of Chemistry, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh 522502, India;

#### Abstract:

This work focuses to ease the challenge in electro-oxidation of methanol for the direct methanol fuel cell (DMFC) using a well-defined efficient electrocatalyst. The proposed electrocatalyst is designed using the ZIF-67-Corannulene composite support decorated with palladium nanoparticles (PdNPs) for the first time for the methanol oxidation reaction. Structural and morphological characterization was carried out using UV-vis, FT-IR, XRD, FE-SEM, EDS, XPS, and ICP-OES analysis. The catalytic performance of the designed catalyst towards methanol oxidation was studied in an alkaline medium. The electrochemical properties, catalytic activity, and long-term stability performance of the PdNPs@ZIF-67-Corannulene catalyst were assessed by cyclic voltammetry, electrochemical impedance spectroscopy and chronoamperometry. The formation of intermediates during the electrooxidation of methanol was confirmed by in-situ FT-IR measurements and the mechanism of methanol oxidation at the catalyst was proposed. Furthermore, owing to the synergetic effect of PdNPs, unique structure of ZIF-67-Corannulene support, the assynthesized catalyst has demonstrated large electrochemical surface area (ECSA = 114.6  $m_{2g-1}$ ), notably higher electrocatalytic activity (If = 90.2 mAcm-2) and enhanced long term stability. The proposed research opens new channels for the development of highperformance stable catalysts based on new carbon material: Corannulene.

**Keywords**: Corannulene; Electrocatalytic activity; Fuel cell; Metal-organic framework; Palladium nanoparticles



In Science & Technology

A peer reviewed international journal ISSN: 2457-0362

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# Pyrrolo[2,3-b]quinoxalines in attenuating cytokine storm in COVID-19: their sonochemical synthesis and in silico / in vitro assessment Catalysis; COVID-19; In silico study; Pyrrolo[2,3-b]quinoxaline; Ultrasound

Prasad K.R.S., Reddy A.G., Kumar

Department of Chemistry, Koneru Lakshmaiah Education Foundation, Greenfields, Vaddeswaram, Guntur, Andhra Pradesh 522 502, India;

### Abstract:

In view of the recent global pandemic caused by COVID-19 intense efforts have been devoted worldwide towards the development of an effective treatment for this disease. Recently, PDE4 inhibitors have been suggested to attenuate the cytokine storm in COVID-19 especially tumour necrosis factor alpha (TNF- $\alpha$ ). In our effort we have explored the 2-substituted pyrrolo[2,3-b]quinoxalines for this purpose because of their potential inhibitory properties of PDE-4 / TNF- $\alpha$ . Moreover, several of these compounds appeared to be promising in silico when assessed for their binding affinities via docking into the N-terminal RNA-binding domain (NTD) of N-protein of SARS-CoV-2. A rapid and one-pot synthesis of this class of molecules was achieved via the Cu-catalyzed coupling-cyclization-desulfinylation of 3-alkynyl-2-chloroquinoxalines with t-butyl sulfinamide as the ammonia surrogate under ultrasound irradiation. Most of these compounds showed good to significant inhibition of TNF- $\alpha$  in vitro establishing a SAR (Structure Activity Relationship) within the series. One compound e.g. 3i was identified as a promising hit for which the desirable ADME and acceptable toxicity profile was predicted in silico.

Keywords: Catalysis; COVID-19; In silico study; Pyrrolo[2,3-b]quinoxaline; Ultrasound



# indicating method using rp-hplc technique Bronchitis; Extended-release; Guaifenesin; HPLC; Stability-indicating; Validation

### Madugula E., Erothu H.

Department of Chemistry, Koneru Lakshmaiah Education Foundation (KLEF), Andhra Pradesh, Vaddeswaram, Guntur, 522 502, India; Centre for Advanced Energy Studies (CAES), Koneru Lakshmaiah Education Foundation (KLEF), Andhra Pradesh, Vaddeswaram, Guntur, 522 502, India

#### Abstract:

A simple, cost-effective, reproducible, robust stability-indicating liquid chromatography (LC) method is developed using reverse-phase mode and validated for the quantitative estimation of guaifenesin present in complex extended-release formulation dosage. Guaifenesin and its known impurities are well separated in this method; achieved baseline resolution by using C18 stationary phase and isocratic elution method. The validation of the analytical method was performed with parameters specificity, linearity, accuracy, precision, ruggedness and robustness using ICH guidelines. Evaluated linearity of method in the concentration range 60 to 180  $\mu$ g/mL and the obtained correlation coefficient is within the limit (not less than 0.999).

**Keywords**: Bronchitis; Extended-release; Guaifenesin; HPLC; Stability-indicating; Validation



In Science & Technology

A peer reviewed international journal ISSN: 2457-0362

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# Development of Pen-type Portable Electrochemical Sensor Based on Au-W Bimetallic Nanoparticles Decorated Graphene-chitosan Nanocomposite Film for the Detection of Nitrite in Water, Milk and Fruit Juices cyclic voltammetry; Electrochemical behavior; electrochemical sensor.; nitrite; pencil graphite electrode

Lavanya A.L., Kumari K.G.B., Prasad K.R.S., Brahman P.K.

Electroanalytical Lab, Department of Chemistry, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh 522502, India; Department of Chemistry, Acharya Nagarjuna University, Nagarjuna NagarAndhra Pradesh 522502, India

#### Abstract:

The development and fabrication of a simple, portable, and sensitive detection tool to precisely monitor nitrite level is of growing importance in electrochemistry research, given the strong interest in the protection of drinking water quality, treatment of wastewater, food production, and control of remediation processes. This work describes the fabrication of a simple, cost-effective, pen-type electrochemical sensor based on bimetallic gold and tungsten nanoparticles electrochemically decorated on graphene-chitosan modified pencil graphite electrode (PGE) for the trace detection of nitrite in real samples. The prepared nanocomposite was characterized using XRD, SEM, and EDS. The electrochemical behavior of the sensor was evaluated by cyclic voltammetry (CV) and impedance electrochemical spectroscopy (EIS). Results revealed that the proposed sensor displayed excellent electrocatalytic activity towards electro-oxidation of nitrite with an irreversible redox reaction. The AuNPs-WNPs@Gr-Chi/PGE sensor exhibited excellent analytical performance with a wide linear range from 10 to 250  $\mu$ M towards nitrite. The LOD and LOQ were calculated to be 0.12  $\mu$ M and 0.44  $\mu$ M, respectively. The designed electrochemical sensor was successfully applied for the detection of nitrite in water, milk, and natural fruit juice samples.

**Keywords**: cyclic voltammetry; Electrochemical behavior; electrochemical sensor.; nitrite; pencil graphite electrode



Design, synthesis and antibacterial activity of N-(3-((4-(6-(2,2,2Trifluoroethoxy)pyridin-3-yl)-1H-imidazol-2-yl)methyl)oxetan-3yl)amide derivatives

Antibacterial activity; Imidazole amide derivatives; Pyridine-imidazole derivatives

Siva Reddy B., Prasad K.R.S.

Department of Chemistry, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, 522502, India

#### Abstract:

A new series of N-(3-((4-(6-(2,2,2-trifluoroethoxy)pyridin-3-yl)-1H-imidazol-2-yl)methyl)oxetan-3-yl)amide derivatives (10a-h) were synthesized by the 3-((4-(6-(2,2,2-trifluoroethoxy)pyridin-3-yl)-1H-imidazol-2reaction of yl)methyl)oxetan-3-amine (8) with various carboxylic acids in the presence of T3P catalyst. The reaction is usually furnished within 60 min with good isolated yields. Coupling of 6-(2,2,2-trifluoroethoxy) nicotinic acid (1) with Weinreb amine hydrochloride gave N-methoxy-N-methyl-6-(2,2,2trifluoroethoxy) nicotinamide (2). Compound 3 was synthesized by the Grignard reaction of compound 2 with methylmagnesium bromide. Bromination of compound 3 with N-bromo succinamide to obtain 2-bromo-1-(6-(2,2,2-trifluoroethoxy)pyridin-3-yl) ethan-1-one (4), which was reacted with 2-(3-(((benzyloxy) carbonyl) amino) oxetan-3-yl) acetic acid (5) gave 2oxo-2-(6-(2,2,2-trifluoroethoxy)pyridin-3-yl)ethyl 2-(3-(((benzyloxy)carbonyl)amino)oxetan-3-yl) acetate (6). Compound 7 was synthesized by the cyclization of compound 6 with ammonium acetate. Finally, debenzylation of compound 7 gave 3-((4-(6-(2,2,2trifluoroethoxy)pyridin-3-yl)-1H-imidazol-2-yl)methyl)oxetan-3-amine (8).All the synthesized amide compounds were characterized by analytical spectral techniques, like 1H & amp; 13C NMR and LCMS and also evaluated their antibacterial activity.

**Keywords**: Antibacterial activity; Imidazole amide derivatives; Pyridineimidazole derivatives



In Science & Technology A peer reviewed international journal

ISSN: 2457-0362

www.ijarst.in

# Concentration dependent neodymium doped oxy fluoroborate glasses for 1.08 µm laser applications

# Absorption spectra; Bandgap; Decay curves; Emission cross-section; Glasses; J-O intensity Parameters; Neodymium

J.V.S., Kumar

Department of Chemistry, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur (Dt.), A. P 522502, India;

### Abstract:

Different concentrations of neodymium-doped (Nd3+ ions) Oxy Fluoroborate (OFB) glasses were fabricated and systematically analyzed by employing spectroscopic techniques such as optical absorption, photoluminescence (PL) and PL decay spectral measurements to understand the NIR lasing potentialities. The information pertaining to absorption spectral features were subjected to Judd-Ofelt (J-O) analysis to understand the radiative properties such as transition probability (AR), radiative lifetime ( $\tau R$ ) and branching ratios ( $\beta R$ ) possessed by the as prepared Nd3+ ions doped OFB glasses. By correlating the radiative properties with the emission and PL decay spectral profiles, the emission cross-sections ( $\sigma$ se) and quantum efficiency values are evaluated for the prominent fluorescent levels of Nd3+ ions in the as prepared glasses. Under 808 nm diode laser excitation, all the OFB glasses under investigation showcased two prominent NIR emissions at 1085 nm (4F3/2  $\rightarrow$  4I11/2) and 1328 nm (4F3/2  $\rightarrow$  4I13/2). The intensities of both the emission peaks escalates with increases in Nd3+ ions concentration up to 1 mol% and beyond decreases showcasing concentration quenching. The experimental lifetime values estimated from the single exponential PL decay profiles of 4F3/2 level are decreasing monotonously with increase in Nd3+ ions concentration in the as prepared OFB glasses. Relatively higher branching ratios, emission cross-sections and quantum efficiency values estimated for Nd3+ ions doped OFB glasses indicates the potential usage of the as prepared glasses for 1.08 µm laser applications. © 2021 Elsevier Masson SAS

**Keywords**: Absorption spectra; Bandgap; Decay curves; Emission cross-section; Glasses; J-O intensity Parameters; Neodymium



In Science & Technology

ISSN: 2457-0362

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# Nickel and Tungsten Bimetallic Nanoparticles Modified Pencil Graphite Electrode: A High-performance Electrochemical Sensor for Detection of Endocrine Disruptor Bisphenol A

# bisphenol-A; cyclic voltammetry; Electrochemical deposition; electrochemical sensor.; pencil graphite electrode

Lavanya A.L., Kumari K.G.B., Prasad K.R.S., Kumar Brahman P.

Electroanalytical Lab, Department of Chemistry, Koneru Lakshmaiah Education Foundation, Guntur, Vaddeswaram, Andhra Pradesh 522502, India; Department of Chemistry, Acharya Nagarjuna University, Nagarjuna, Nagar, Andhra Pradesh 522510, India

### Abstract:

In this work, an economically viable, very low cost, indigenous, ubiquitously available electrochemical sensor based on bimetallic nickel and tungsten nanoparticles modified pencil graphite electrode (NiNP-WNP@PGE) was fabricated for the sensitive and selective detection of bisphenol A (BPA). The NiNP-WNP@PGE sensor was prepared by a facile electrochemical one step co-deposition method. The prepared nanocomposite was morphologically characterized by scanning electron microscopy (SEM), energy dispersive X-ray (EDX), X-ray diffraction (XRD), electrochemically by cyclic voltammetry (CV), and electrochemical impedance spectroscopy (EIS). The proposed sensor displayed high electrocatalytic activity towards electro-oxidation of BPA with one irreversible peak. The fabricated sensor displayed a wide detection window between 0.025  $\mu$ M and 250  $\mu$ M with a limit of detection of 0.012  $\mu$ M. PGE sensor was successfully engaged for the detection of BPA in bottled water, biological, and baby glass samples.

**Keywords**: bisphenol-A; cyclic voltammetry; Electrochemical deposition; electrochemical sensor.; pencil graphite electrode



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A peer reviewed international journal ISSN: 2457-0362 www.ijarst.in

### Synthesis and characterization of novel lanthanum nanoparticles-graphene quantum dots coupled with zeolitic imidazolate framework and its electrochemical sensing application towards vitamin D3 deficiency Electrochemical sensor; Graphene quantum dots; Lanthanum nanoparticles; Nanocomposite; Vitamin D3; ZIF-8 Anusha T., Bhavani K.S., Shanmukha Kumar J.V., Brahman P.K.

Electroanalytical Lab, Department of Chemistry, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh 522502, India

### Abstract:

Cholecalciferol (Vitamin D3) is an essential fat-soluble vitamin for healthy bone and muscle. Vitamin D deficiency is often not diagnosed as symptoms do not appear for a long time leading to cause osteoporosis, diabetes, and cancer. Currently, the testing of vitamin D is performed in sophisticated large-scale laboratories which are expensive and time-consuming for results. The development of a low-cost assay method could be helpful to detect vitamin D in limited-resource settings. Herein, for the first time, we report a novel electrochemical nanosensor for the analysis of vitamin D3 in biological fluids based on the lanthanum nanoparticles-graphene quantum dots (LaNPs-GQDs) coupled with zeolitic imidazolate framework (ZIF-8) on a glassy carbon electrode (GCE) surface. For the construction of the LaNPs-GQDs@ZIF-8 sensing platform we have prepared low toxic graphene quantum dots (GQDs), lanthanum nanoparticles functionalized graphene quantum dots (LaNPs-GQDs), and zeolitic imidazolate frameworks (ZIF-8). The results revealed that the combined impact of all the prepared materials enhanced the catalytic activity of the sensor by increasing the surface area of the sensor, the electron transfer rate between the electrode and vitamin D3 interface, and the facile oxidation of vitamin D3. The morphological and structural characteristics of the prepared LaNPs-GODs@ZIF-8 nanocomposite were investigated by field-emission scanning electron microscopy (FE-SEM), energy-dispersive X-ray spectroscopy (EDX), X-ray photoelectron spectroscopy (XPS), UV-vis spectroscopy (UV-vis), Fourier transform-infrared spectroscopy (FT-IR), and X-ray diffraction technique (XRD). Moreover, the electrochemical properties of the nanocomposite were examined voltammetry, electrochemical impedance by cyclic spectroscopy, chronoamperometry, and square wave voltammetry. Electrochemical studies revealed that an as-prepared sensor exhibited excellent electrochemical response towards vitamin D3 oxidation over a wide linear range from 0.00625  $\mu$ M to 1.25 µM with an acceptable detection limit of 0.00610µM respectively. Besides, the proposed sensing platform showed an excellent anti-interference nature, reproducibility, acceptable recovery, and reliable stability. Finally, the LaNPs-GQDs@ZIF-8@GCE sensor was successfully applied for the analysis of vitamin D3 in real specimens to show its clinical applicability.

**Keywords**: Electrochemical sensor; Graphene quantum dots; Lanthanum nanoparticles; Nanocomposite; Vitamin D3; ZIF-8



### Synthesis and Docking Study of Novel Pyranocoumarin Derivatives 4-hydroxycoumarin; docking studies; HCV; pyranocoumarins Karteek S.D., Reddy A.G., Tej M.B., Rao M.V.B.

Department of Chemistry, Koneru Lakshmaiah Education Foundation, Green Fields, Vaddeswaram, 522502, India;

### Abstract:

Abstract: A new series of fused tricyclic coumarin derivatives were designed, synthesized by a simple and convenient method, starting from 4-hydroxycoumarin and virtually screened by molecular docking on the target protein 3FRZ (PDB ID: 3FRZ), a HCV RNA-dependent RNA polymerase, for potency against hepatitis C virus (HCV). Efficient binding to the target protein was found for most of the synthesized compounds. © 2021, Pleiades Publishing, Ltd.

Keywords: 4-hydroxycoumarin; docking studies; HCV; pyranocoumarins



# 1-Butyl-3-methylimidazolium Tetrafluoroborate ([BMIM]BF4): An Efficient Ionic Liquid Medium for the Synthesis of Novel 2-(Oxazolo[5,4b]pyridin-2-yl)-N-phenylbenzamides dimethyl phthalate; green synthesis; one-pot reaction; [BMIM]BF4

### Satyanarayana M.V., Mehta B., Prasad K.R.S., Rao M.V.B.

Department of Chemistry, Koneru Lakshmaiah Education Foundation, Vaddeswaram, 522502, India; Department of Chemistry, National Defense Academy, Pune, 411024, India; Department of Chemistry, Krishna University, Machilipatnam, 521001, India

#### Abstract:

Abstract: A series of novel 2-(oxazolo[5,4-b]pyridin-2-yl)-N-phenylbenzamide derivatives have been prepared by one-pot three-component synthesis using 2-aminopyridin-3-ol, dimethyl phthalate, and anilines in 1-butyl-3-methylimidazolium tetrafluoroborate ([BMIM]BF4) at 80–85°C for 90–120 min. This method offers remarkable advantages of good yields, straightforward protocol, environmental friendliness, short reaction times, and mild reaction conditions. The need in catalysts and solvents is avoided by using a catalytically active ionic liquid as a medium.

Keywords: dimethyl phthalate; green synthesis; one-pot reaction; [BMIM]BF4



In Science & Technology A peer reviewed international journal ISSN: 2457-0362

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# Calcium alginate beads doped with Nano-ZrO2and activated carbon of annona reticulate plant as an effective adsorbent for water remediation of chromium(VI)

### Active carbon; Annona reticulate; Cr(VI) water remediation; Green method; Nano zirconium oxide Biftu W.K., Ravindhranath K.

Department of Chemistry, Koneru Lakshmaiah Education Foundation, Green Fields, Vaddeswaram, 522502, India;

### Abstract:

An activated carbon produced from stems of Annona reticulate plant (SACAR) by conc. H2SO4 digestion, is observed to have strong affinity for toxic Cr(VI) ions. Its adsorptivity for Cr(VI) ions was enhanced by admixing it with 'nano-ZrO2' (Zr-SACAR)-synthesized adopting green methods. For ensuring easy filtration, the 'active carbon + nanoparticle composite' was immobilized in calcium alginate beads (Zr-SACAR-Ca). Optimum extraction conditions for these three adsorbents for the removal of Cr(VI) ions from water were investigated. The adsorption capacities were found to be 92.2 mg/g for SACAR; 109.83 mg/g for Zr-SACAR and 119.34 mg/g for Zr-SACAR-Ca. The sorption nature was characterized by XRD, FTIR, FESEM and EDX studies. The sorption mechanism was investigated using various isotherm models. Thermodynamic studies revealed the endothermic and spontaneous nature of sorption. The kinetics of adsorption was well defined by the pseudo-second-order model. The spent adsorbent are regenerated and reused until six cycles with marginal decrease in Cr-adsorptivity. The adsorbents developed are effectively applied in the treatment of polluted water samples collected from Ethiopia.

**Keywords**: Active carbon; Annona reticulate; Cr(VI) water remediation; Green method; Nano zirconium oxide



# Probabilistic divergence of a template-based modelling methodology from the ideal protocol Accuracy; FM; Model; Modelling; TBM

Runthala A.

Department of Biotechnology, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh 522502, India

### Abstract:

Protein structural information is essential for the detailed mapping of a functional protein network. For a higher modelling accuracy and quicker implementation, template-based algorithms have been extensively deployed and redefined. The methods only assess the predicted structure against its native state/template and do not estimate the accuracy for each modelling step. A divergence measure is therefore postulated to estimate the modelling accuracy against its theoretical optimal benchmark. By freezing the domain boundaries, the divergence measures are predicted for the most crucial steps of a modelling algorithm. To precisely refine the score using weighting constants, big data analysis could further be deployed.

Keywords: Accuracy; FM; Model; Modelling; TBM



# Design, synthesis and biological evaluation of sulphonamide derivatives of benzofuran-imidazopyridines as anticancer agents 202; Benzofuan; CCT 129; Imidazopyridine and anticancer activity; Viniferin

Deepti K., Srinivasa Rao

India; Department of Chemistry, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh 522502, India;

### Abstract:

A novel library of sulphonamide derivatives of benzofuran-imidazopyridines (9a-j) were designed, synthesized and screened for their anticancer activity against four human cancer cell lines such as breast cancer (MCF-7), lung cancer (A549), colon cancer (Colo-205) and ovarian cancer (A2780) by employing MTT assay. The results are expressed with IC50  $\mu$ M, which indicated that all of the compounds showed good to moderate activity on tested cell lines. Among them, compound 9c showed potent anticancer activities against MCF-7, A549, Colo-205 and A2780 cell lines with IC50 values of 0.011 ± 0.0075  $\mu$ M, 0.073 ± 0.0012  $\mu$ M, 0.10 ± 0.19  $\mu$ M and 0.034 ± 0.0041  $\mu$ M respectively. © 2020

Keywords: 202; Benzofuan; CCT 129; Imidazopyridine and anticancer activity; Viniferin



In Science & Technology A peer reviewed international journal

ISSN: 2457-0362

www.ijarst.in

Fabrication of handmade paper sensor based on silver-cobalt doped copolymer-ionic liquid composite for monitoring of vitamin D3 level in real samples Copolymer; Electrochemical sensor; Paper sensor; Polyaniline; Polymerization

Anusha T., Sai Bhavani K., Shanmukha Kumar J.V., Bonanni A., Brahman P.K. Electroanalytical Lab, Department of Chemistry, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh 522502, India;

### Abstract:

This paper describes the synthesis of novel material and its application to fabricate a sensing tool for the diagnosis of vitamin D deficiency. A simple and economical route for the synthesis of novel composite material based on silver-cobalt (Co-Ag) doped polyaniline-polypyrrole (PANI-PPY) copolymer and ionic liquid (IL) has been described and used as sensing material for vitamin D3 detection. The synthesized composite was characterized using structural, morphological and electrochemical techniques. Co-Ag/PANI-PPY/IL was first used to modify the glassy carbon electrode (GCE) and applied for vitamin D3 detection. Later a conductive ink of the proposed material was prepared and a handmade paper sensor was fabricated. Co-Ag/PANI-PPY/IL@GCE and paper electrode showed excellent electrochemical behavior towards vitamin D3 oxidation within the concentration range of  $0.0125-22.5 \mu$ M and  $0.025-0.125 \mu$ M with the acceptable detection limit of  $0.0073 \mu$ M and  $0.015 \mu$ M respectively. Co-Ag/PANI-PPY/IL@GCE and paper electrode were successfully applied for the detection of vitamin D3 in serum and urine samples.

**Keywords**: Copolymer; Electrochemical sensor; Paper sensor; Polyaniline; Polymerization methylphenyl) -2-((6-(4-(2-hydroxyethyl)piperazin-1-yl)-2-methylpyrimidin-4-yl)amino)thiazole-5-carboxa



# Microwave assisted synthesis and antimicrobial and antioxidant activities of dimers of 1,2,3-triazole-benzofuran bearing alkyl spacer derivatives 1,2,3-triazole; Antimicrobial; Antioxidant; Benzofuran

### Prasad K.R.S.

Department of Chemistry, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Andhra Pradesh 522502, India; Department of Chemistry,

#### Abstract:

An efficient and convenient approach for the microwave-assisted synthesis of dimers of 1,2,3-triazole-benzofuran bearing alkyl spacer derivatives 7a-j through intermediate, bis-1,2,3-triazoles carrying alkyl spacer compounds 5a-e has been developed in excellent yields. Antimicrobial and antioxidant activities were tested for all the synthesized compounds. Among them, compoubd 7b showed potent antibacterial activity against gram positive bacteria, Where as another compound 7j exhibited potent antioxidant activity through DPPH method.

Keywords: 1,2,3-triazole; Antimicrobial; Antioxidant; Benzofuran



In Science & Technology

See reviewed international journal ISSN: 2457-0362

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Development and validation of a novel stability indicating HPLC method for the separation and determination of darolutamide and its impurities in pharmaceutical formulations

# Darolutamide; Forced degradation study; Formulation assay; HPLC method development; Impurity analysis; Impurity analysis in Nubeqa®; Method validation; Ruggedness

Kamani V.G., Sujatha M., Daddala G.B.

Department of of Chemistry, Koneru Lakshmaiah Education Foundation, Vaddeswaram, A.P., Guntur, 522502, India;

### Abstract:

This study reports for the first time about a stability indicating RP-HPLC method for analysis of darolutamide and its impurities 1, 2, and 3 in bulk and formulations. The separation was achieved on Phenomenex column with Luna C18 (250 mm  $\times$  4.6 mm, 5 µm) as stationary phase, and 50 mM ammonium acetate: Methanol solution 15:80 (v/v) at pH 5.2 as mobile phase at 1.0 mL/min flow rate. UV detection was carried at wavelength of 239 nm. In these conditions the retention time of darolutamide and its impurities 1, 2, and 3 was 7.05, 8.90, 4.63 and 5.95 min, respectively. The method was validated for system suitability, range of analysis, precision, specificity, stability, and robustness. Forced degradation study was done through exposure of the analyte to five different stress conditions and the % degradation was small in all degradation condition. The proposed method can separate and estimate the drug and its impurities in pharmaceutical formulations. Hence, the developed method was suitable for the quantification of darolutamide and can separate and analyse impurities 1, 2, and 3.

**Keywords**: Darolutamide; Forced degradation study; Formulation assay; HPLC method development; Impurity analysis; Impurity analysis in Nubeqa®; Method validation; Ruggedness



Design, Synthesis and Biological Screening of Novel 1,2,4-Thiadiazole Linked Acridine Derivatives 1,2,4-thiadiazole; Acridine; Anticancer activity; Molecular docking; Structure-activity relationship

Chaithanya B., PrabhakaraChary D., Kasiviswanath I.V.

Department of Chemistry, Koneru Lakshmaiah Education Foundation, Guntur, Andhra Pradesh, India

### Abstract:

In the present work, we have prepard a library of novel 1,2,4-thiadiazole linked acridine derivatives (9a-j) were designed and synthesized. All the structures were well characterized by various spectroscopic techniques (elemental analysis, FTIR, mass and NMR). Additionally, all the compounds were also evaluated for their in vitro anticancer activity against a panel of four human cancer cell lines such as MCF-7 (breast cancer), A549 (lung cancer), Colo-205 (colon cancer) and A2780 (ovarian cancer) by MTT reduction assay method. In particular, compounds 9 b, 9c, 9d, 9 g and 9 h showed promising activity against the tested cell lines. Further, these compounds were explored in structure-activity relationship studies. Furthermore, the molecular docking studies also support the experimental anticancer activity results.

**Keywords**: 1,2,4-thiadiazole; Acridine; Anticancer activity; Molecular docking; Structure-activity relationship



### Synthesis of Nitroethylindole Derivatives through Michael Addition Indole; michael addition; microwave irradiation; nitrostyrene Vani I., Sireesha R., Goud P.V.K., Prasad K.R., Bhuvan Tej M., Sai Praneeth M., Rao M.V.B.

Department of Chemistry, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Andhra, Pradesh, India; Department of Chemistry, Acharya Nagarjuna University, Nagarjuna Nagar, Andhra Pradesh, India; Department of Chemistry, Government Degree College, Kukatpally, Telangana, India; Department of Pharmacy, Sri Ramachandra Institute of Higher Education and Research, Sri Ramachandra Nagar, Porur, Chennai, Tamilnadu, India; Department of Pharmacy, Final MBBS Part–2, Mamata Medical College, Khammam, Telangana, India; Department of Chemistry, Krishna University, Machilipatnam, Andhra Pradesh, India

### Abstract:

A series of nitroethylindole derivatives (3a-h) have been synthesized by Michael addition reaction between Indole and substituted nitrostyrenes in good yields under both conventional as well as microwave irradiation protocols. All the newly synthesized nitroethyl indole derivatives were characterized by 1H NMR, 13C NMR, and LC-MS analysis data. © 2021 Taylor & Francis Group, LLC.

Keywords: Indole; michael addition; microwave irradiation; nitrostyrene



# Design, synthesis, anti-cancer activity and in-silico studies of some novel 4,5-dihydroisoxazole-5-carboxamide derivatives Anti-cancer activity; docking studies; isoxazoline; synthesis Endoori S., Seelam N.

Department of Chemistry, Koneru Lakshmaiah Education Foundation, Guntur, India;

### Abstract:

A novel series of 4,5-dihydroisoxazole-5-carboxamide derivatives were designed, synthesized and evaluated for their anti-cancer activity against two different human cancer cell lines. Most of the synthesized compounds showed anti-cancer activity with IC50 values ranging from 4.03 to 104.45  $\mu$ M. Further, compounds 17h, 17i, 17e, and 18e were showed potent inhibitory activity against two cancer cell lines, with IC50 values close to that of standard drug. It is important to note that compound 17h was more potent than the standard drug cisplatin with IC50 values of 4.11 and 4.03  $\mu$ M against Hela cell line and MCF-7 cell line respectively.

Keywords: Anti-cancer activity; docking studies; isoxazoline; synthesis



### Fabrication of handmade paper sensor based on silver-cobalt doped copolymer-ionic liquid composite for monitoring of vitamin D3 level in real samples Copolymer; Electrochemical sensor; Paper sensor; Polyaniline; Polymerization

Anusha T., Sai Bhavani K., Shanmukha Kumar J.V., Bonanni A., Brahman P.K. Electroanalytical Lab, Department of Chemistry, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh 522502, India;

### Abstract:

This paper describes the synthesis of novel material and its application to fabricate a sensing tool for the diagnosis of vitamin D deficiency. A simple and economical route for the synthesis of novel composite material based on silver-cobalt (Co-Ag) doped polyaniline-polypyrrole (PANI-PPY) copolymer and ionic liquid (IL) has been described and used as sensing material for vitamin D3 detection. The synthesized composite was characterized using structural, morphological and electrochemical techniques. Co-Ag/PANI-PPY/IL was first used to modify the glassy carbon electrode (GCE) and applied for vitamin D3 detection. Later a conductive ink of the proposed material was prepared and a handmade paper sensor was fabricated. Co-Ag/PANI-PPY/IL@GCE and paper electrode showed excellent electrochemical behavior towards vitamin D3 oxidation within the concentration range of 0.0125–22.5  $\mu$ M and 0.025–0.125  $\mu$ M with the acceptable detection limit of 0.0073  $\mu$ M and 0.015  $\mu$ M respectively. Co-Ag/PANI-PPY/IL@GCE and paper electrode were successfully applied for the detection of vitamin D3 in serum and urine samples.

**Keywords**: Copolymer; Electrochemical sensor; Paper sensor; Polyaniline; Polymerization methylphenyl) -2-((6-(4-(2-hydroxyethyl)piperazin-1-yl)-2-methylpyrimidin-4-yl)amino)thiazole-5-carboxa



### Synthesis of (+)-xestodecalactone A Benzannulated macrolactones; Grignard reaction; Xestodecalactones; Yamaguchi macrolactonisation

### Reddy G.N., Mura Reddy G., Sridhar G., Prasad K.R.S.

Department of Chemistry, Koneru Lakshmaiah Education Foundation, Vaddeswaram,

### Abstract:

The total synthesis of Benzannulated macrolide, (+)-Xestodecalactone A was accomplished starting from commercially available enantiomerically pure propylene oxide and 3,5-dihydroxyphenylacetic acid using Grignard reaction, alkylation of 1,3-dithiane and Yamaguchi macrolactonisation as key steps. © 2021 Informa UK Limited, trading as Taylor & Francis Group.

**Keywords**: Benzannulated macrolactones; Grignard reaction; Xestodecalactones; Yamaguchi macrolactonisation



### **Design and Evaluation of Valacyclovir Niosomes**

<sup>1</sup>A.Anka Rao, <sup>2</sup>Narender Malothu, <sup>3</sup>S.Praveen

<sup>1</sup>Associate Professor, <sup>2</sup> AssistantProfessor, <sup>3</sup> AssistantProfessor, <sup>1,2</sup>Department of pharmacy, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: ankarao@kluniversity.in,<sup>2</sup>mnarender@kluniversity.in, Praveen@kluniversity.in

### ABSTRACT

The current study aims to formulate and evaluate valacyclovir loaded niosomes for sustained release of valacyclovir. Stable Acyclovir loaded Niosomes can be prepared by hand shaking method and ether injection method with Span 80 and cholesterol in the ratio of 1:1, 2:1, and 3:1. Preformulation studies and drug excipients compatibility studies was done initially and results directed the further course of formulation. Most of the vesicles are spherical in shape, the size range of the vesicles, fall in the narrow size range of  $0.5-5\mu$  and  $0.5-2.5\mu$  by hand shaking method and ether injection method respectively. A high % of Acyclovir can be encapsulated in the vesicles (75-84%) prepared by hand shaking method. Concentration of non-ionic surfactant such as Span 80 might influences the drug release pattern of all formulation. In vitro release of Acyclovir from niosomes was very slow when compared to the release from pure Acyclovir solution. Drug release studies showed that the niosomal preparation was stable at refrigeration temperature (4<sup>0</sup> C). The vesicles prepared by hand shaking method were found to be larger in size as compared to vesicles prepared by ether injection method. Almost constant drug release was observed in all formulations indicating zero order release pattern. Osmotic shock studies on vesicles showed that no significant change in the niosomal preparation was stored at normal saline.

**KEY WORDS:** valacyclovir, Niosomes, Hand shaking method, Ether injection method, Osmotic shock.



# **Development and Characterization of Valacyclovir Liposomes**

<sup>1</sup>A.Anka Rao, <sup>2</sup>Narender Malothu, <sup>3</sup>S.Praveen

<sup>1</sup>Associate Professor, <sup>2</sup> AssistantProfessor <sup>1,2</sup>Department of pharmacy, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: <u>ankarao@kluniversity.in</u>, <sup>2</sup>mnarender@kluniversity.in

### ABSTRACT

The present investigation was concerned with the development and characterization of Val acyclovir liposome, which after administration were expected to prolong the bioavailability and reduces the toxicity associated problems. Liposomes were prepared by ether injection method and thin film hydration method by varying the concentration of lecithin & cholesterol. The prepared liposomes were evaluated for particle size, entrapment efficiency & *In-vitro* drug release studies. F1-F4 are prepared by ether injection method and F5-F8 are prepared by thin film hydration method. All the formulations were compared for the evaluation parameters. Among all the formulations F8 formulation which contain drug, lecithin and cholesterol in the ratio 5:4:1 was found to be best with entrapment efficiency 95.51% and percentage of drug release 84.21%. The entrapment efficiency was found to be increased with increase in lecithin concentration. The peppas model is used to confirm whether the release mechanism is Fickian diffusion, Non fickian diffusion or zero order. The 'n' values for all formulations were found to be more than 0.89. This indicates that the drug release follows non-fickian super case-II mechanism.

**KEY WORDS:** Characterization, entrapment efficiency, ether injection method, *In-vitro* drug release studies liposomes, thin film hydration method, Valaciclovir.


## **Development and Characterization of Zidovudine Nanosponge**

<sup>1</sup>A.Anka Rao, <sup>2</sup>Narender Malothu, <sup>3</sup>S.Praveen

<sup>1</sup>Associate Professor, <sup>2</sup> AssistantProfessor, <sup>3</sup> AssistantProfessor <sup>1,2</sup>Department of pharmacy, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: <u>ankarao@kluniversity.in</u>, <sup>2</sup>mnarender@kluniversity.in

#### ABSTRACT

The present investigation was concerned with the development and characterization of Zidivudine nanosponge, which after administration were expected to prolong the bioavailability and reduces the toxicity associated problems. Nanosponge were prepared by solvent evaporation technique method by varying the concentration of etheyl cellulose and poly vinyl alcohol. The prepared Nanosponge were evaluated for particle size, entrapment efficiency & *In-vitro* diffusion studies. F1-F6 are prepared by emulsion solvent diifusion technique. All the formulations were compared for the evaluation parameters. Among all the formulations F6 formulation which contain drug, etheyl cellulose and poly vinyl alcohol the ratio 5:4:1 was found to be best with entrapment efficiency 95.51% and percentage of drug release 84.21%. The entrapment efficiency was found to be increased with increase in lecithin concentration. The peppas model is used to confirm whether the release mechanism is Fickian diffusion, Non fickian diffusion or zero order. The 'n' values for all formulations were found to be more than 0.89. This indicates that the drug release follows non-fickian super case-II mechanism.

**KEY WORDS:** Characterization, entrapment efficiency, ether injection method, *In-vitro* drug release studies liposomes, thin film hydration method, Valaciclovir.



In Science & Technology A peer reviewed international journal ISSN: 2457-0362

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## Synthesis, Antimycobacterial Activity and Docking study of 2-Furanyl substituted thieno(3,2-e)(1,2,4)triazolo(1,5-c)pyrimidines

#### Narender Malothu, Narayana Murthy G

Department of Pharmacy Koneru Lakshmaiah Education Foundation, Vaddeswaram, AP, India \*Corresponding author: <u>narendermalothu@gmail.com</u>

#### Abstract:

The development of more powerful and secure new antitubercular agents is necessary due to the emergence of drug resistance and severe adverse effects from existing antitubercular therapies. The current study aimed to discover novel hetero-fused pyrimidines that could be used to develop antitubercular drugs. The goal of the study was to develop new 2-furnanyl substituted 1,2,4-triazole compounds with hetero-fused thienopyrimidines and evaluate their antimycobacterial activities (5a-h). Furthermore, to assess the synthesized compounds' binding patterns at the target site using *in silico* tools. The synthesis and characterisation of about eight hetero fused thienopyrimidine derivatives (5a-h). Later, they employed the broth microdilution method to examine the effectiveness of their antitubercular treatment against Mycobacterium tuberculosis H37Rv. The essential bacterial enzyme pantothenate synthetase (PS) (PDB: 3IVX) served as the target protein for the docking investigations. Few substances in our research demonstrated significant bacterial inhibition. Significant antimycobacterial action was shown by compounds 5d (MIC-8.13±0.68 µM) and 5h (MIC-12.10±0.71 µM). The outcomes of molecular docking indicated that compounds with potential for biological function might bond successfully. Significant antitubercular activity was demonstrated by compounds with an N-benzyl moiety at the core nucleus and a pyrimidine ring with methyl substitution (5d). The docking results showed efficient binding at the target location, suggesting that this protein is a legitimate target for these analogues. To determine the selectivity and effectiveness of these analogues against bacteria, the study needs to be further optimised.

Keywords: Pyrimidine, Antimycobacterial activity, Docking, Tuberculosis, Selectivity.



In Science & Technology A peer reviewed international journal ISSN: 2457-0362

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# Development of new spectrophotometric method for estimation of Entecavir monohydrate in formulation using 3-amino phenol as chromogenic reagent

### Narender Malothu, N Raghavendra Babu

Department of Pharmacy Koneru Lakshmaiah Education Foundation, Vaddeswaram, AP, India. Corresponding author: <u>narendermalothu@gmail.com</u>

#### ABSTRACT

Entecavir monohydrate has been determined using a visible spectrophotometric method using 3aminophenol as the chromogenic reagent in pure and pharmaceutical dosage form. Entecavir, also known as Baraclude on the market, is an oral antiviral medication used to treat hepatitis B infection. In the current investigation, 3-amino phenol was first diazotized, then coupled with the drug in the presence of sodium hydroxide to create an orange azo dye with a maximum absorption wavelength of 624 nm. The absorbance of the each experiments were measured on a double beam UV-Visible spectrophotometer (Labman, LMSP-UV1900S) accomplished with 10 mm Qurtz cells, monitored by UVwin-5 software tools. Methanol was employed as solvent diluent throughout the analysis. ICH  $Q_2(R_1)$  guidelines have been followed in the validation of the developed approach. With a coefficient of determination  $(r^2)$  of 0.998, the absorbance of the analyte followed Beer's law in the 5-10 µg/mL range. The accuracy studies implicated the recovery of analyte in 98.24-100.2 %  $\pm 0.745$ . The results showed that the Limit of Quantification (LOQ) and Limit of Detection (LOD) were, respectively, 1.6 µg/mL and 4.85 µg/mL. The outcomes show that the methodology is linear, precise, and accurate. The suggested approach worked well in terms of recovery and reproducibility when used to measure entecavir monohydrate in pharmaceutical dosage form (tablets).



In Science & Technology A peer reviewed international journal ISSN: 2457-0362

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# UV- Spectrophotometric method development and validation simultaneous estimation of azithromycin & cefpodoxime in bulk and pharmaceutical dosage form

#### Narender Malothu, Prasanna Kumari Tata

Department of Pharmacy Koneru Lakshmaiah Education Foundation, Vaddeswaram, AP, India. Corresponding author: <u>narendermalothu@gmail.com</u>

#### ABSTRACT

A simple, accurate, rapid, sensitive and precise UV-Spectrophotometric method has been developed for estimation of Azithromycin (AZI) and Cefpodoxime (CEF) in tablet dosage form using simultaneous equation method. Combination of methanol and water (70:30 v/v) was served as solvent diluent for analysis. The absorbance of all the samples was measured at 246 nm (Isobestic point). ICH  $Q_2$  (R<sub>1</sub>) guidelines have been followed in the validation of all the parameters. The percentage (%) recovery indicated the method was free from interference of excipients in the formulation. The data obtained in the calibration studies implied a linear relationship between concentrations and absorbance in the range of 2-12 µg/mL. The results presented that the Limit of Quantification (LOQ) and Limit of Detection (LOD) were 2.8 µg/mL and 3.45 µg/mL, respectively. The proposed method can be analysed by route analysis purposes it is always of interest to establish methods capable of analyzing an samples in a short time period with due accuracy and precision the main purpose of the study is to develop accurate precision and economic methods for the determination of AZI and CEF the proposed method was suitable quality control of combined dosage form.



In Science & Technology A peer reviewed international journal ISSN: 2457-0362

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Development of new spectrophotometric method for estimation of Entecavir monohydrate in formulation using 3-amino phenol as chromogenic reagent Narender Malothu, N Raghavendra Babu

Department of Pharmacy Koneru Lakshmaiah Education Foundation, Vaddeswaram, AP, India. Corresponding author: <u>narendermalothu@gmail.com</u>

### ABSTRACT

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# UV- Spectrophotometric method development and validation simultaneous estimation of azithromycin & cefpodoxime in bulk and pharmaceutical dosage form

#### Narender Malothu, Prasanna Kumari Tata

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#### ABSTRACT

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# Assessment and Evaluation of Prescribing Pattern of Drugs in Gynecology Department at Teritary care Hospital-Observational Study

## <sup>1</sup>Srilakshmi Nallapaty, <sup>2</sup>Narender Malothu

<sup>1</sup>Assistant Professor, <sup>2</sup>Associate Professor <sup>1,2</sup>Department of Pharmacy, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: nallapatysrilakshmi@kluniversity.in, <sup>2</sup>mnarender@kluniversity.in

#### ABSTRACT

The patient's quality of life is enhanced by the wise use of medicine. There are significant consequences when prescriptions are excessive or incorrect. To encourage sensible drug use in developing nations, research of drug usage patterns and prescription errors is required. The study's objectives were to assess prescription usage and promote effective drug use. At the Gayathri Super Specialty Hospital in Vijayawada's Krishna District, a retrospective, cross-sectional, and quantitative study was carried out. To assess prescription patterns and errors, the outpatient prescriptions kept at the pharmacy from January to March 2021 were used. We looked over all 100 prescriptions (n). It was done using stratified random sampling. In total, 100 prescriptions or patients received a total of 244 medication prescriptions. 37.9% of encounters with antibiotics fall into this category. 2.9% and 21.3%, respectively, of the pharmaceuticals administered were generic versions or items on a list of necessary medications. In the most typical prescriptions, three medications are prescribed in 32.5% of cases, and four drugs are prescribed in 24.7% of cases. In (n =100) prescriptions, a total of 154 medication interactions were discovered. The use of the Essential Drug List (EDL), low generic prescription rates, high antibiotic prescription rates, and polypharmacies were all significant issues. In prescription medications, remarkable drug interactions were not seen. The study suggested that DTC and regulatory bodies develop and execute the relevant policies and procedures to support the prudent use of medicine.

**Keywords**: Gynecology, Patterns of Drugs, Tablets, Capsules, Powders, Injections, Syrups, Suppositories.



International Journal For Advanced Research In Science & Technology

A peer reviewed international journal ISSN: 2457-0362

www.ijarst.in

# Screening of novel benzimidazole derivatives against *Candida albicans* for their potential use as antifungals: An *in silico* approach

<sup>1</sup>Lalitha Bhaskarini, <sup>2</sup>Manikanta Murahari

<sup>1</sup>PhD Scholar, <sup>2</sup>Associate Professor

# Department of Pharmacy, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302

Mail id: <sup>1</sup><u>bhaskarini.dyvapu@gmail.com</u>, <sup>2</sup><u>manikantam@kluniversity.in</u>

Abstract: Antifungal resistance represents a major challenge for treating invasive fungal infections due to misuse and limited number of drugs. Azole resistance among Candida and Aspergillus species and the spread of such species is alarming. Benzimidazoles play crucial role in the field of drug discovery. Synthetic feasibility and properties of benzimidazole moiety has attracted medicinal chemists. Benzimidazole derivatives were found to possess anti-bacterial, anti-fungal, antiinflammatory and anticancer activities. This study focuses on screening databases of benzimidazoles against essential enzymes of C. albicans using molecular docking and dynamic studies. Molecular docking studies were performed on benzimidazoles from ZINC database against N- methyl transferase and DNA gyrase of *C.albicans* using Autodock vina. 2D and 3D dock poses were visualized. Molecular dynamic study was carried out by GROMACS. Docking studies have given significant results with good docking scores and binding interactions at the active pocket. Compound 1D (2-methoxy derivative) was ranked highest among the derivatives. The ligands bound tightly with the target protein, indicated by of hydrogen bond interactions and pi-pi stacking interactions at the active site. Molecular dynamic studies were carried out for two complexes based on docking score and binding interactions in comparison with standard. Complex was found to be stable during molecular dynamic simulations with decent RMSD and RMSF values. Docking study suggests that compound 1D (2-methoxy derivative maybe prospective inhibitors of N-methyl transferase as it is specific in binding to the active site of this enzyme. Hence it may be considered as lead molecule for further experimental investigation for the design of potential inhibitors of C. albicans.

Key words: Benzimidazoles, Antifungal, Drug Resistance, Molecular Docking



International Journal For Advanced Research In Science & Technology

A peer reviewed international journal ISSN: 2457-0362

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# Design of potential P-gp inhibitors to modulate multidrug resistance in cancer chemotherapy

<sup>1</sup>P. Narendra, <sup>2</sup>Manikanta Murahari

<sup>1</sup>PhD Scholar, <sup>2</sup>Associate Professor Department of Pharmacy, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302 Mail id: <sup>1</sup>narendrapentu@gmail.com, <sup>2</sup>manikantam@kluniversity.in

Abstract: P-glycoprotein (P-gp) is a validated target for modulation of drug resistance in cancer chemotherapy. P-gp is a hydrophobic with large pocket size and unspecific to most of the drugs. Unique features of efflux pump has made most of anticancer drugs to induce resistance and decrease the retention time of drug inside the cancer cell. This has led for the development of newer drugs in quest for more efficacious inhibitors. The current research is focused on identifying potential and safe molecules as P-gp inhibitors by using structure based computational approach. In search of finding better molecules, pharmacophore model was developed using PharmaGist tool with second generation P-gp inhibitors. Obtained pharmacophore model was utilized to screen the ZINC database through ZINCPharmer webserver. The server has identified 8500 best possible ligands with better match of pharmacophoric features with RMSD value less than 0.1 Å. Then top 20 molecules with the criteria of docking score and significant interactions were subjected for prediction of ADMET properties. Based on the preliminary predictions, two molecules were identified for molecular dynamics and MM/PBSA free energy calculations to ensure and validate stability at the target site. Compounds were stabilized well with good number of binding interactions during entire simulation along with less RMSD and RMSF values. Both the compounds have demonstrated lowest binding energy values in comparison with standard drugs. Results identified from the in silico work in the present study may be supported/validated biologically in the future. Both the compounds can be evaluated for anticancer activity against both sensitive and resistant cancer cell lines and also in combination with marketed drugs to calculate the modulation potential of drug resistance.

Keywords: Efflux Pump, P-Glycoprotein, Multidrug Resistance, Pharmacophore



# Screening of novel benzoxazole derivatives against *Candida albicans* for their potential use as antifungals: An *in silico* approach

## <sup>1</sup>P. Roshan Ali, <sup>2</sup>Manikanta Murahari

<sup>1</sup>PhD Scholar, <sup>2</sup>Associate Professor

Department of Pharmacy, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302 Mail id: <sup>1</sup> <u>p.roshan.ali@gmail.com</u>, <sup>2</sup><u>manikantam@kluniversity.in</u>

Abstract: Antifungal resistance represents a major challenge for treating invasive fungal infections due to misuse and limited number of drugs. Azole resistance among Candida and Aspergillus species and the spread of such species is alarming. Benzoxazoles play crucial role in the field of drug discovery. Synthetic feasibility and properties of benzoxazole moiety has attracted medicinal chemists. Benzoxazole derivatives were found to possess anti-bacterial, anti-fungal, antiinflammatory and anticancer activities. This study focuses on screening databases of benzoxazoles against essential enzymes of C. albicans using molecular docking and dynamic studies. Molecular docking studies were performed on benzoxazoles from ZINC database against N- methyl transferase and DNA gyrase of C. albicans using Autodock vina. 2D and 3D dock poses were visualized. Molecular dynamic study was carried out by GROMACS. Docking studies have given significant results with good docking scores and binding interactions at the active pocket. Compound 4D (3,4-dimethoxy derivative) was ranked highest among the derivatives. The ligands bound tightly with the target protein, indicated by of hydrogen bond interactions and pi-pi stacking interactions at the active site. Molecular dynamic studies were carried out for two complexes based on docking score and binding interactions in comparison with standard. Complex was found to be stable during molecular dynamic simulations with decent RMSD and RMSF values. Docking study suggests that compound 4D (3,4-dimethoxy derivative maybe prospective inhibitors of N-methyl transferase as it is specific in binding to the active site of this enzyme. Hence it may be considered as lead molecule for further experimental investigation for the design of potential inhibitors of C. albicans.

Key words: Benzoxazoles, Antifungal, Drug Resistance, N-Methyl Transferase



In Science & Technology A peer reviewed international journal ISSN: 2457-0362

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# Design of potential MRP1 inhibitors to modulate multidrug resistance in cancer chemotherapy

<sup>1</sup>N. Indira Rani, <sup>2</sup>Manikanta Murahari

<sup>1</sup>PhD Scholar, <sup>2</sup>Associate Professor

## Department of Pharmacy, Koneru Lakshmaiah Education Foundation, Guntur, India- 522302

Mail id: <u>1indiraranin@gmail.com</u>, 2<u>manikantam@kluniversity.in</u>

Abstract: Multidrug Resistance Protein (MRP1, ABCC1) is a validated target for modulation of drug resistance in cancer chemotherapy. MRP1 is a hydrophobic with large pocket size and unspecific to most of the drugs. Unique features of efflux pump has made most of anticancer drugs to induce resistance and decrease the retention time of drug inside the cancer cell. This has led for the development of newer drugs in quest for more efficacious inhibitors. The current research is focused on identifying potential and safe molecules as MRP1 inhibitors by using structure based computational approach. In search of finding better molecules, pharmacophore model was developed using PharmaGist tool with second generation P-gp inhibitors. Obtained pharmacophore model was utilized to screen the ZINC database through ZINCPharmer webserver. The server has identified 6500 best possible ligands with better match of pharmacophoric features with RMSD value less than 0.2 Å. Then top 25 molecules with the criteria of docking score and significant interactions were subjected for prediction of ADMET properties. Based on the preliminary predictions, two molecules were identified for molecular dynamics and MM/PBSA free energy calculations to ensure and validate stability at the target site. Compounds were stabilized well with good number of binding interactions during entire simulation along with less RMSD and RMSF values. Both the compounds have demonstrated lowest binding energy values in comparison with standard drugs. Results identified from the in silico work in the present study may be supported/validated biologically in the future. Both the compounds can be evaluated for anticancer activity against both sensitive and resistant cancer cell lines and also in combination with marketed drugs to calculate the modulation potential of drug resistance.

Keywords: Efflux Pump, MRP1, Molecular Dynamics, Multidrug Resistance, Anticancer.



# Lepidopteron insect susceptibility to Magnesium, Cobalt and Nickel oxide nanoparticles and monitoring of alterations in their growth, development and physiology

# Ramakrishna Kakarla, Ratna Kumari Jangili, Srilekha Chintala, Naresh Dumala<sup>1</sup>\*

<sup>1</sup>Assistant Professor

## <sup>1</sup>Department of Pharmacy, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: nareshpharma2020@kluniversity.in

**Abstract:** The increased use of nanostructures in various fields of science has necessitated research into their impact on the environment in general, as well as on insects and plant life. We investigated the effect of oxide form of Magnesium (Mg), Cobalt (Co), and Nickel (Ni) metals in the nanosize on the growth and feeding responses of Asian armyworm, Spodoptera litura F., a lepidopteran pest of the castor plant (Ricinus communis L.). Larvae were fed with MgO, Co<sub>3</sub>O<sub>4</sub> and NiO NPs coated castor leaf at different concentrations and their activity was compared to that of water coated leaf diets. Larval and pupal body weight gain decreased as the concentrations of all NPs in the test insect decreased. The larval guts accumulated a small amount of NPs, but the majority of it was removed through the feces. Transmission Electron Microscopy (TEM) ultrastructural experiments of insect gut cells revealed nanoparticle accumulation in cell organelles. The antioxidative and detoxifying enzymes of the treated larva were measured. Treatment effects were observed in the activities of detoxifying enzymes, carboxylesterases (CarE), glucosidases (Glu), and glutathione S-transferases (GST) in the larval gut. The activities of superoxide dismutase, catalase, and peroxidase were also altered in the larval bodies as a result of all NPs treatments, indicating that exposure of larvae to nanoparticles caused oxidative stress, which antioxidant enzymes counteracted. The induction of these enzymes could be an effective detoxification mechanism used by the herbivorous insect to defend itself against nanoparticle treatment.

**Keywords**: Metal oxide nanoparticles, Spodoptera litura, Detoxification system, Reactive oxygen species (ROS) in insects, Antioxidant enzymes.



# Study on anti-inflammatory activity of Polyherbal Preparation

# RamyasreeP<sup>1\*</sup>, Pasupula Rajeshwari<sup>2</sup>

College of Pharmacy, Koneru Lakshmaiah Education Foundation, Green Fields, Vaddeswaram, A.P., India-522502. E-mail: <u>rajeswaripasupula@kluniversity.in</u>

#### **ABSTRACT:**

**Need of the study**: From time immemorial traditional medicinal plants are used in various disease treatment startegies.WHO organiosation recommended its Nation states to provide scientific based evidence for theie indigenous sources. Inflammation is first response to injury. Inflammatory mediators, Cytokines and immune cells trigger the inflammatory process. It occurs in two phases

**Objectives**: The present study was done to investigate anti inflammatory potential of polyherbal preparation of *Solanum lycopersicum*, *Daucus carota and Brassica Oleraceae* 

**Materials and Methods:** Swiss albino mice and Wistar strain albino rats of either sex were utilized for the present study.Invitro studies were performed by Albumin denaturation, Anti proteinase action, Membrane stabilization and haemolysis induced by heat, Anti Lipoxygenase. Carrageenan paw induced model and hot plate tests models are used for *in vivo* studies. Standards that were used are Aspirin 100 mcg, Diclofenac 100 mcg, Indomethacin 100 mcg. Statistical analysis is done by using graphpad prism software 5.0

**Results:** Low dose 100 mcg and high dose 200 mcg showed dose dependent significant inhibition of albumin denaturation, antiprotenase action, membrane stabilization and heat induced haemolysis (p<0.05). Dose dependent edema suppression is observed in a significant way by in vivo methods(p<0.05).

**Scope:** Screening for anti inflammatory activity gives cope to investigate on inflammatory disorders like rheumatoid arthriti, Gout, Peripheral vascular diseases like Raynauds syndrome.

**Conclusion:** Study revealed that polyherbal preparation is having promising anti inflammatory potential.

Key words: Poly herbal, Anti inflammatory, Edema, Haemolysis, Carrageenan.



# Formulation, Optimization and Evaluation of Itraconazole *In-Situ* Gels for Treatment of Oral Thrush

Sivadasu Praveen

Assistant Professor,

# KL College of Pharmacy, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: <u>praveen.sivadasu@kluniversity.in</u>

Abstract: One of the most prevalent clinical conditions worldwide, oral thrush is brought on by a saprophytic fungus of the candida genus. To better treat oral thrush locally, in situ gels laden with itraconazole were developed in the current study. Gels containing itraconazole were made utilising a cold method, HPMC as a rate-controlling polymer, sodium alginate, and carbopol as gelling agents. We used FTIR, visual inspection, viscosity, gelation time, gelation temperature, syringeability, drug content, and *in vitro* gelling capacity to characterise the designed itraconazoleloaded in situ gels. There were also in vitro drug release experiments, an ex vivo mucoadhesive potential study, and stability studies conducted on the created in situ gels to ensure they met ICH standards. Both the temperature and time required for sol transformation into gel were found to be polymer dependent. Drug release was shown to be fully dependent on the amounts of the polymer and gelling agent, and in vitro diffusion experiments indicated that loaded itraconazole was released from the formed *in situ* gel in a sustained way (over the course of 10 hours). A higher concentration of polymer was associated with a higher mucoadhesive potential in an ex vivo mucoadhesive potential research. Also, itraconazole-loaded in situ gels that were developed were found to be stable at temperatures between 4 and 8 degrees Celsius, as inferred by stability experiments. The foregoing results suggest that designed itraconazole-loaded in situ gels may be an alternative method for treating oral thrush, allowing for higher patient compliance and less frequent dosage.

Keywords: Itraconazole; In situ gel; Oral thrush; Fungal infection; Sustained drug delivery;

Polymers



In Science & Technology A peer reviewed international journal ISSN: 2457-0362

www.ijarst.in

# Formulation and Evaluation of Nanosponge Drug Delivery System for Oral Delivery of Suvorexant

<sup>1</sup>I Lakshmi Usha Rani\*, <sup>2</sup>Sivadasu Praveen

<sup>1</sup>Research Scholar, <sup>2</sup>Assistant Professor,

<sup>1,2</sup>KL College of Pharmacy, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: <u>ilakshmiusharani@gmail.com</u> and <u>praveen.sivadasu@kluniversity.in</u>

**Abstract:** Insomnia refers to either the experience or the perception that one is not getting enough or good quality sleep owing to a variety of circumstances. Employing the mechanism of solvent evaporation, the purpose of this work is to design and evaluate a nanosphere-based drug delivery system for suvorexant using nanospheres. Suvorexant is a BCS class II drug, and because it has a half-life of 12 hours, it was determined that it was not an option for keeping steady plasma concentrations. Because of this, Suvorexant has been designed to have an effective drug release profile by being constructed as a nanosponge. Formulation of Suvorexant Nanosponges involves the use of the solvent evaporation process, and each of the four possible drugs: polymer ratios is considered an option. An examination with FTIR spectroscopy reveals that the medication in the Nanosponge has a chemical and amorphous composition. The spherical nature of the Nanosponge was evident across all formulations, as seen by SEM photos. In conclusion, it can be stated that the F8 formulation demonstrates superior entrapment efficiency in comparison to other formulations. Drug release was determined to be 96.42% in 12 hours, and the formulation then followed zero order with the super-case II transport mechanism.

**Keywords:** Suvorexant, Ethyl cellulose, Poloxamer, β-cyclodextrin, FTIR.



# Formulation A And Evaluation of Fluconazole Loaded Microsponge Gel for Topical Delivery

Sivadasu Praveen\*

Assistant Professor,

# KL College of Pharmacy, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: <u>praveen.sivadasu@kluniversity.in</u>

Abstract: In recent years, fungal infections have emerged as a pressing health problem in many parts of the world. The purpose of this research is to create a fluconazole loaded microsponge drug delivery system in the form of a gel that is able to deliver the loaded drug in a way that is both safe and effective. The desired microsponge was created by using a technique called quasi emulsion solvent diffusion, and then it was transformed into a gel with the help of Carbopol 934P, which served as the gelling agent. FT-IR, percentage yield, drug loading, entrapment efficiency, particle size, and surface morphological examinations were used to describe the formed microsponges. In addition to that, it was analysed for studies of drug release in vitro, research of drug permeation in ex vivo, and studies of drug stability. According to the optimised microsponge F5, the resulting microsponge appeared to be spherical in shape and to have pores on the surface. The particle size was measured to be 106 micrometres. In addition, the improved microsponge F6 demonstrated entrapment effectiveness of 98.61% and a drug loading of 33.87. The optimised microsponge loaded topical gel G1 demonstrated sustained release of the loaded fluconazole, which was measured to be 66.87% over a time period of 11 hours. This resulted in better penetration, which was measured at 79.61% over 11 hours. The results that were obtained from the stability tests indicated that the microsponge loaded topical gel that had been prepared was found to be highly stable at temperatures ranging from 4-8 degrees Celsius. Therefore, it is possible to draw the following conclusion based on the findings presented above: the formulated fluconazole loaded microsponge based topical gel has the potential to be utilised as an alternate treatment for a variety of fungal infections by boosting the patient compliance.

**Keywords:** Fungal infections; Fluconazole; Microsponge; Sustained drug delivery; Topical gel; Skin permeation



# Relationship between green cob yield, total water requirement, water use efficiency and water productivity under lowcost drip tape irrigation in sweet corn

Archana, H.A.<sup>1</sup>,

<sup>1</sup>Assistant Professor, Department of Agriculture, Koneru Lakshmaiah Education Foundation, Guntur, India- 522 302.

Abstract: Sweet corn is the highly remunerative crop with high water requirement. To improve water consumption efficiency, it is important to stress the adoption of contemporary irrigation systems. Drip irrigation gives the high water use efficiency. However, due to its exorbitant price, the small farmer cannot afford it. Another cutting-edge method for sparingly watering crops is lowcost drip tape, which is also accessible to small and marginal farmers. The current study was conducted in this context to assess the link between green cob yield, total water need, water use efficiency, and water productivity in sweet corn grown with low-cost drip tape irrigation. The results of a field experiment were compared between conventional inline drip laterals (900 micron wall thickness with a size of 16 OD, Rs. 12.25/m, 7 years of life system, dripper spacing 40 cm with a discharge rate of 4 lph) and low cost drip tape laterals (250 micron wall thickness with a size of 16 OD, Rs. 2.40/m, 3 years of life system, 45 cm dripper spacing with 8 l discharge rate. Both traditional inline drip laterals and inexpensive drip laterals had an emission uniformity of 96 and 94%, respectively. Field tests were conducted using the hybrid sweet corn variety Sugar 75. It is a hybrid with a shorter duration (80–90 days) and higher yield. The aforementioned investigation led to the conclusion that, in addition to being less expensive, drip tape method delivered green cob yield on par with traditional inline drip system. Benefits of water conservation and consistency of distribution were likewise comparable to those of a conventional inline drip. Low cost drip tape irrigation, therefore both technically and financially practical to small and marginal crops.

Keywords: Sweet corn, , Irrigation, Water Use Efficiency, Low Cost Drip Tape



### Modern methods of money management through mobile application for farmers

#### <sup>1</sup>C R Bhuvana

<sup>1</sup>Assistant professor

#### <sup>1</sup>Department of Agriculture, Koneru Lakshmaiah Education Foundation, Guntur, India-522302

# Mail id - <sup>1</sup> <u>bhuvanacr1996@gmail.com</u>

Abstract - To the best of our abilities and knowledge, we all manage our incomes. For this, we have specialised mobile applications. If you ought to invest or save. We have apps that can advise us on where to invest or save money for the highest returns. Is it not fair that farmers have access to an app to assist them in doing the same when we protect and manage our money so carefully? An app that will assist the farmer in creating a budget for the crop based on his income and the resources at his disposal. Additionally, the app will give him current knowledge and details about agriculture conditions in the market, crop gluts, etc. ICT has greatly improved, and it must be employed to the highest degree possible to assist farmers in strengthening their livelihoods and improving their money management skills. Building an app to track all the tasks a farmer performs on his land every day and analysing the data to determine if the farmer is resource-efficient or not is highly helpful. Farmers will automatically switch to the most effective manner of growing crops on their farm after using the app for a while. The software will create a customised strategy just for that farmer by taking into account the specific resources that farmer has access to. The farmer can use this as a one-stop shop for all of his needs. To assist the farmer, circulate inputs between multiple activities, the analysis of the app can cover animal husbandry, sericulture, mushroom cultivation, and other commercial operations. Since this is a major undertaking, it will encourage cooperation with government agencies for the dissemination and execution of programmes and the creation of jobs for agriculture graduates to support the upkeep, updating, and operation of the app.

Keywords - Resource Efficiency, Income efficiency, Employment creation, ICT, Income management



# Effect of Nitrogen and Phosphorus levels on Growth & Yield of Linseed (LinumusitatissimumL.)

Shaik Sameer

### Assistant Professor College of Agriculture, KoneruLakshmaiah Education Foundation, Guntur, India-522302 Mail id: sameer34532@kluniversity.in,

Abstract: In the Rabi season of 2020-2021, nine treatments were used in a field experiment at the Crop Research Farm of the Naini Agriculture Institute, SHUATS, Uttar Pradesh, to examine the effects of various levels of N and P on the growth & yield of linseed (var NEELAM). oil crop with the greatest proportion of alpha-linolenic acid, an omega-3 fatty acid, is linseed. Additionally, it contains a lot of phytoestrogens, dietary fiber, and protein. On a dry weight basis, cultivated linseed cultivars have 45–50% oil. Linseed's numerous end uses as, animal feed, food & industrial materials serve as examples of its adaptability. Linseed is fed to poultry and livestock to produce omega-3enriched eggs and meat, and it is added to beverages to create enriched foods. Consuming linseed has been linked to a number of health advantages. It is a spring annual that may grow in a variety of soil types and climatic regions in the northern hemisphere. The levels of nitrogen used were 45, 60, and 75 kg/ha and 20-40-60 kg/ha, respectively. The of 75 kg Nitrogen/ha + 60 kg P/ha in treatment 9 produced higher plant height is 96.00 cm, plant dry weight is 12.84 g, number of branches per plant are 5.81, number of capsule plants are 1.20 t/ha, number of seeds capsule plants are 1.46, 1000 grain weight is 8.93 g, oil content percent(39.26%), highest gross return is 90,800.00 INR/ha, net returns is 50,327.00 INR/ha, and benefit cost ratio is 1.24 The higher growth and production characteristics of linseed were enhanced by the progressively higher nitrogen and phosphorus fertilizer levels.

Keywords: Linseed, Nitrogen, Phosphorus, Yield and Growth.



# Study of Selection Methods in Early-Segregating Populations Of Oryza Sativa L.

<sup>1</sup>Kavuri Kalpana, <sup>2</sup> N N Keshava

#### <sup>1</sup>Assistant Professor, <sup>2</sup> Scholar <sup>1</sup>Department of Agriculture, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 <sup>2</sup>Pandit Jawaharlal Nehru College of Agriculture and Research Institute, Karaikal Mail id: <sup>1</sup>kkalpana@kluniversity.in,

In rice (*Oryza sativa* L.), a study was conducted at PAJANCOA &RI, Karaikal during *rabi*, 2016-17 to assess the genetic potentialities of  $F_3$  populations of three crosses *viz.*, ADT 46 x IET 2226, CO 50 x AD 06207 and AD 07302 x AD 09399 developed through selected bulk and random bulk method of selections in  $F_2$  generation were studied along with the fine grain check variety BPT 5204.

Among the three crosses, ADT 46 x IET 2226 and AD 07302 x AD 09399 are found to be superior crosses, to provide good source populations for working out an effective selection for plants with high yielding ability, as these crosses recorded high mean and greater genetic variability for grain yield and many of its component traits. Cross AD 07302 x AD 09399 was also suitable for making selection of plants with fine grain quality, as this cross had lowest mean and high variability for grain weight. Selected bulk method of selection in early segregating population was found more efficient than random bulk selection as this method produced higher mean in desirable direction along with more variability than the other selection method for all the traits.

All the characters studied shows high heritability in  $F_3$  populations of all the three crosses. However, combination of high heritability and genetic advance was observed for the characters panicles per plant, panicle weight, grains per panicle and single plant yield, revealing the pre-dominance of additive gene action for these traits. Thus, simple phenotypic selection would be efficient for improving these traits in the  $F_3$  populations.

Key Words: Plant Height, Heritability, Genetic advance, Variability, Plant Yield, panicle length and panicle weight



International Journal For Advanced Research In Science & Technology

A peer reviewed international journal ISSN: 2457-0362

www.ijarst.in

# An Analysis of Entrepreneurial Behavior of Dry Grape Producers in Karnataka State

<sup>1</sup>Shivananda P. Yarazari

#### <sup>1</sup>Assistant Professor, Department of Agriculture, Koneru Lakshmaiah Education Foundation, Vaddeswaram, A.P. India- 522302 Mail id: <u>shivananda@kluniversity.in</u>

**Abstract:** The goal of the current study was to evaluate the entrepreneurial behaviour of dry grape producers in the Vijayapura area of Karnataka in the years 2020–21. Using the random selection approach, 200 respondents were purposefully chosen from the Vijayapura and Indi taluks. Data was gathered using the personal interview method and a scheduled timetable. The findings showed that a substantial portion (60.00%) of respondents fell into the category of medium entrepreneurial behaviour, whereas 24.00 and 16.00 per cent of respondents fell into the categories of high and low entrepreneurship behaviour. 45.00 per cent of those surveyed used the "Producers - Consumer" marketing channel. Independent variables like education, land ownership, annual income, exposure to the media, extension contact, social participation, training received, cosmopoliteness, market orientation, credit orientation, and scientific orientation were positively and significantly correlated with the entrepreneurial behaviour of dry grape producers. According to the results of the multiple linear regression analysis, each of the fifteen independent variables could account for a difference of 37.55 percent in the entrepreneurial behaviour of dry grape farmers. The main challenges that the dry grape producers faced were high input costs and a lack of an uniform package of procedures from horticulture or agricultural universities.

Keywords: Innovativeness, Investment, Leadership, Management, and Training



International Journal For Advanced Research In Science & Technology

A peer reviewed international journal ISSN: 2457-0362

www.ijarst.in

# **Agricultural Diversification and its Impact on Livelihood Security of Farmers**

<sup>1</sup>Ashok Kumar Melkeri

#### <sup>1</sup>Assistant Professor, Department of Agriculture, Koneru Lakshmaiah Education Foundation, Vaddeswaram, A.P. India-522302 Mail id: <u>drashokkumar@kluniversity.in</u>

Abstract: Since over 60 per cent of the rural population depends on agriculture and related activities for a living and over 70 per cent of the population lives in rural regions, agriculture is a major concern (Census, 2011). The farming community is in despair as a result of agriculture's poor performance. In rural areas, the trend of poverty reduction could reverse. The agricultural industry has performed so poorly for two key reasons. First, yields in the traditional crop sector have peaked and are currently trending downward. Second, the production environment has also gotten worse. On the demand side, India's consumption patterns are changing due to persistent economic growth, increasing per capita income, increased urbanisation, and the onset of globalisation (Kumar et al. 2003). In rural families, cereal consumption has decreased from 192.6 kg per person per year in 1977-1978 to 125.6 kg in 1999-2000. (CSO Report, 2001). India has achieved food grain selfsufficiency, but nutritional security is still a work in progress. Since their current consumption level is well below the advised dietary norms, we need to figure out how to achieve nutritional security (Planning commission, 2005). To reenergize agriculture, make it more profitable, and boost growth, alternative possibilities must be investigated. One of the most promising approaches to reversing the declining growth trend in agriculture is agricultural diversification toward high value commodities (HVCs) (World Bank, 2002). In terms of employment security, women's empowerment, nutritional security, and environmental security, this research examines the degree to which farmers have diversified away from conventional crops and into new niche markets.

**Keywords:** Agricultural diversification, Women empowerment, Environmental security, Employment security and Nutritional security.



# Management of Plant Parasitic Nematode using Plants extract.

#### Manoharmayum Dolpriya Devi Koneru Lakshmaiah Educational Foundation,Guntur,India-522302 <u>dolpriya.ag@gmail.com</u>

Firstly, different plant leaves are collected mixed with the sterilized soil per pot containing 5kg of soil. Different plant leaves are used for the experiment are Datura sp., Sesam, Sarifa, Mulberry, Pomegranate, Jamun, Castor, Neem, Harsinghara, Guava applied 1kg/pot of soil 5kg. One week old seedling were introduce with the newly hatched second stage juvenile Plant parasitic nematode Meliodogyne incognita (1000J2/5kg soil). The experiment was conducted with 3 Replication and a control  $(T_0)$ . As a result compared to all treatments Sesam  $(T_7)$  was found to be significantly increased root nodules in cowpea. Nematicidal effect was observed from all the plants extract by reducing the nematode problem up to 90.95% to 32.71%. Plants parameters like Plant weight, shoot length, number of nodules when compared with the control  $T_0$  Neem extract showed potential in plant health. Phytochemical analysis was been conducted to all plant extract for tannin, flavanoid, cardiac glycoside, sterol, alkaloid, tannin, saponin. It was recorded that sterols, tannins, cardiae glycoside were commonly found in all the Plant exract except Sarifa, Mulberry extract, Neem. Saponin was recorded Jamun and alkaloid was recorded to be present in Harshinghara and castor. Pomegranate and sarifa showed highest reduction in gall formation of the Meliodogyne incognita. Management of Plant parasitic nematode by the biological based plant product which contain phytochemicals are effective and ecofriendly.

Keywords: Harsinghara, Sesam, Neem, Phytochemicals.



# Weed management in Direct Seeded Rice

Dr. B. Rama Devi

Assistant Professor, Department of Agronomy,

#### KL College of Agriculture, KoneruLakshmaiah Education Foundation Guntur, India-522302 Mail Id: bonuramadevi@kluniversity.in

Direct seeded rice (DSR) due to its minimal input requirements, likely the oldest form of crop establishment, is becoming more and more common. It has some benefits, including reduced labour requirements, water requirements, and labor-intensiveness, early crop maturity, low production costs, improved soil physical conditions for succeeding crops, reduced methane emission, and greater options for being the best fit in various cropping systems. The transition from PTR to DSR is hampered by a number of factors, including excessive weed infestation, the emergence of weedy rice, a rise in soilborne diseases, nutritional disorders, poor crop establishment, lodging, the occurrence of blast, brown leaf spot, etc.By addressing these limitations, DSR may show to be a very viable, economically and technically viable substitute for PTR. Due to the simultaneous emergence of competitive weeds, the lack of water to suppress weeds at the time of seedling emergence and the appearance of hard to control weeds, weeds are the primary biological limitation in direct seeded rice (DSR). The key period for weed control, the weed flora, and the method to be used all influence weed management strategies for direct seeded rice. Integration of several weed management tactics, such as integrated weed management (IWM), is crucial for achieving the long-term and sustainable management of weeds in DSR.

Key words:Direct seeded rice, IWM, Weed flora, Critical period of weed control



## Maize Based Legume intercropping System

Pilli Manasa

Assistant Professor College of Agriculture, Department of Agronomy, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: pmanasa@kluniversity.in

Abstract: High intensity cropping systems by implementing intercropping is one of the key techniques to boost agricultural output in this scenario. In terms of revenue, soil health, and other environmental aspects, intercropping systems were found to provide higher benefits than solitary cropping. Additionally, the intercropping of grain and legumes typically has positive effects on soil health, production and resource usage. Maize is a widely spread crop that was selected as a cereal ingredient to better accept legumes in the space between maize rows. Given the advantage of combining cereal and legume crops. Maize-legume intercropping system experiment was carried out in the summer of 2018 at the M. S. Swaminathan School of Agriculture's Bagusala Farm in the Gajapati District of Odisha. Ten cropping systems made up the treatments: T1: solitary maize (Zea mays L.), T2: solitary green gram (Vigna radiata L.), T3: solitary groundnut (Arachis hypogeae L.), T4: solitary black gram (Vigna mungo L.), T5: solitary maize with green gram (2:1), T6: solitary maize with groundnut (2:1), T7: solitary maize with black gram (2:2). T8: Green gram with maize (2:2), T9: Groundnut with maize (2:2), and maize with black gram (2:2). Hybrid maize was sowed in paired rows with a spacing of 30 cm, 25 cm, and 80 cm in solitary maize. Green gram, groundnut, and black gram were sowed in a single row with a spacing of 30 cm by 10 cm. According to the procedures, intercrops in single and double rows were planted between two pairs of maize. The experiment's observations amply demonstrated that the treatments had an impact on the production and growth of the maize plant. However, legumes provided a sizable yield in an additive sequence of intercropping regimens. And the advantages of the maize-legume intercropping system in the conditions of south Odisha were amply highlighted by different competition functions.

Keywords: Maize, Intercropping, Legume, Paired row



# Analysis of genetic diversity in twelve pea cultivars based on simple sequence repeat markers

**Monoj Sutradhar** 

#### Assistant Professor, K L Deemed to be University, Vaddeswaram, Guntur, Andhra Pradesh- 522302

#### Mail id: monojsutradhar@kluniversity.in

One of the most significant legumes on the planet is the pea (Pisum sativum L.). Legumes are an important source of protein, dietary fibre, carbohydrates and dietary minerals. Characterization of the germplasms and exploitation of their genetic diversity through molecular markers (SSR) is the best way to utilize natural resources for breeding strategies and crop improvement. The current investigation was done using twelve pea cultivars for genetic diversity analysis using 28 SSR markers. An average of 2.31 bands per primer were found, yielding a total of 60 polymorphic bands. The PIC, DI and RP content were ranged from 0.50 to 0.33; 0.61 to 0.86 and 0.44 to 1.0 with an average of 0.46, 0.73 and 0.76, respectively. Jaccard's similarity coefficient was used in the UPGMA with arithmetic mean for the cluster analysis. The twelve pea genotypes were grouped into 6 clusters obtained from cluster analysis with a similarity coefficient cut-off point of 0.55. Cluster I contains two genotypes KPMR-763, KPMR-921; Cluster II contains three genotypes KPMRT-906, KPMR-902, KPMR-918; Cluster III contains two genotypes KPMR-902, KPMR-870; Cluster IV contains two genotypes KPMR-922, KPMR-400; Cluster V contains two genotypes KPMR-923, KPMR-820; Cluster VI contains genotype KPMR-525. A considerable amount of genetic divergence existed among these pea cultivars, as the cluster analysis amply demonstrated. Among all the cultivars, KPMR-525 in cluster VI represented a broader genetic diversity, which indicated its utility in future crop improvement programme.

Keywords: Pisum sativum, cultivar, genetic diversity, simple sequence repeat (SSR)



# **Effect of Sulphur application in Onion**

Reetanjali Meher

Assistant Profesor Horticulture, Department of Agriculture, KL University, Vaddeswaram, Vijaywada Mail id:reetanjalimeher@gmail.com

#### Abstract

A field experiment was carried out during 2015-16 at the Horticulture Farm of the Visva-Bharati Institute of Agriculture in Sriniketan, which is located in Red and Laterite zone of West-Bengal to investigate the impact of sulphur application on onion growth, yield, and quality. Seven doses of sulphur such as (10, 20, 30, 40, 50, and 60 kg ha-1) and no application of sulfur (control, 0 kg S ha-1) were taken as treatment. These treatments were organized in Randomized Block Design with three replication. The onion cultivar Agrifound Dark Red was selected for the experiment and it responded favorably to the sulphur application in the range of 40 to 60 kg ha-1 in terms of yield, yield attributes like single bulb weight, bulb polar and equatorial diameter, and other qualities. Maximum yield of 35.5 tonnes was obtained with a graded level of sulphur application up to 50 kg ha-1 and it was increased linearly with increasing concentration of sulphur. The pyruvic acid concentration was highest in onion bulbs at a concentration of 40 and 50 kg ha-1. However, the number of scales and TSS present in the onion bulb were unaffected by the sulphur application. Thus it was concluded that application of elemental sulphur @ 50kg/ha is beneficial for onion crop for increasing yield, yield attribute, pyruvic acid content and it can be recommended to onion growers of Red and Laterite zone of West Bengal.

Key words: Onion, pyruvic acid ,sulphur, yield, TSS



International Journal For Advanced Research In Science & Technology

A peer reviewed international journal ISSN: 2457-0362

www.ijarst.in

# NUMERICAL TRANSIENT SIMULATION AND VALIDATION OF FLUID STREAMING IN GREENHOUSE DRYER

Dr.N.Sagarika<sup>1\*</sup>

# <sup>1\*</sup>Assistant Professor, Department of Agriculture, Koneru Lakshmaiah Education Foundation, Vaddeswaram, 522302

In the present study, simulations have been done on the greenhouse dryer to identify the temperature and relative humidity distribution inside the greenhouse. Simulation of greenhouse dryer has been performed using FLOW SIMULATION tool by using k-e turbulent model. The distribution of temperature and relative humidity inside the greenhouse dryer was numerically evaluated using SOLIDWORKS software. The maximum and minimum temperatures and relative humidity observed inside the greenhouse dryer during the experiment are 57.36°C, 42.55°C and 35.82% and 10.71% respectively at an air velocity of 1.6 m/s.Whereas, the maximum and minimum temperatures and relative humidity obtained through the software are 57.31°C, 42.52°C and 35.99%, 10.75% respectively. From the study it can be observed that the temperature and relative humidity was lower at the bottom of the greenhouse dryer at a distance of 1-1.5 m above, from the bottom portion, to have faster drying rate of the commodities. Hence, from the study it can be concluded that the experimental results have been validated with simulation results keeping the same experimental boundary conditions.

Keywords: Simulation, Solar drying, Greenhouse drying, Computational Fluid Dynamics



# Crop Regulation in Guava for The Enhancement of Fruit Yield and Quality: A Review

Shiva Sai Prasad<sup>1</sup> and A R Kurubar<sup>2</sup>

<sup>1</sup>Assistant Professor, <sup>2</sup>Professor and Head <sup>1</sup>Department of Agriculture, Koneru Lakshmaiah Education Foundation, Vaddeswaram, AP, India. <sup>2</sup>Department of Horticulture, College of Agriculture, UAS Raichur, Karnataka, India <sup>1</sup>Mail id: <u>shivsaiprasad@kluniversity.in</u> <sup>2</sup>Mail id: amayogikurubar@gmail.com

In tropical and subtropical areas of the world, the guava (Psidium guajava) is a significant commercial fruit crop. The excellent nutritional content of this crop has led to a rise in demand over time. Despite the crop being accessible throughout the year, blooming only happens on the growth from the current season. In order to produce fruit of excellent quality and high economic value, crop regulation is used. In lighter soils, withholding of water serves the purpose. This practice is known as bahar treatment. About 80-90 per cent flowers of guava set fruit initially of which 35 to 60 per cent reaches maturity. The formation of fruit-set is noticed after 10-12 days of flowering. The Ambe-bahar (flowering in February and fruiting in rainy season). Mrig-bahar is (blooms in June, and harvested in november). Hasta- bahar (blooming in October and harvested in march). Due to the lower market price and lesser quality of fruits produced during the rainy season, the winter harvest is favoured over the rainy season crop. The fundamentals behind crop regulation is to coerce a tree into taking a rest and forcing it to produce an abundance of flowers and fruits during specific seasons. By practicing de-blossoming, a crop during the unwanted season can be avoided; this can be done by inducing stress or by utilizing thinning and pruning strategies. Witholding of irrigation for fortnight and fertigating the crop will induce the blooms, also application of NAA at 100 ppm will reduce the fruit set during monsoon.

Keywords: Guava, Crop regulation, Ambe bahar, Mrig bahar, Hasta bahar



## To Study The Effect of Induced Chemical Mutation That is Ethyl Methane Sulphonate In Rice Genotypes (*Oryza sativa* L.)

#### Md. Abdul Basith.<sup>1</sup> <sup>1</sup>Assistant Professor, Department of Agriculture, Koneru Lakshmaiah Education Foundation, Guntur, India- 522 302.

The present study was on induced chemical mutation in rice genotypes (*Oryza sativa* L.) were performed by exposing the healthy and dry seeds for chemical mutagen Ethyl Methane Sulphonate (EMS 0.1%, 0.2%, 0.3%, 0.4%, and 0.5%). The mutation spectrum was observed for seed germination, morphological traits (root length, shoot length and biomass), yield and qualitative traits. The data for certain yield characters such as plant height, days to 50% flowering, panicle length, flag leaf length, number of panicles, number of spikelets, test weight and days to maturity were recorded. Where as in qualitative traits kernel length, kernel breadth, per cent of protein content and micronutrients like iron and zinc content were evaluated and noted in order to determine their value and improvement in rice growing.

Key words: Rice; Induced mutagenesis; EMS



In Science & Technology A peer reviewed international journal ISSN: 2457-0362

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# Site-Specific Genome Editing by CRISPR-cas9 Technology in rice genome

#### **Ramesh Methre**

Assistant professor in KL College of agriculture, Koneru Lakshmaiah Educational Foundation,Guntur,India-522302

#### Abstract

Among all cereal crops, Rice is a staplefood for more than 3.5 billion world's population with more than 90 per cent production from Asia. Advances in the technologies and availability of high quality rice genome sequence are the resource for rice improvement. Precise genome editing tools enables the target gene knockout without disturbing their genome; it aids the specific trait improvement. The site-specific editing tool isCRISPR-Cas-9 technology enables precise genomic, interrogating gene function, rewiring the regulatory signaling networks. In this review, we have described about availability of rice genome sequences which already reported to resistance to both biotic and abiotic stress. The CRISPR-Cas9 is a hope for enhancing productivity and potential game-changer in sustainable crop production to meet the demands of a projected world population of nine billion in 2050.CRISPR/Cas9 genome editing techniques requires a single guide (sg) RNA that directs the Cas9 endonuclease will break the double stranded DNA at specific region of the genomeand then repair, it resulting repaired genome would be in an insertion or deletion, thus finally disrupting the target gene.

Keywords: CRISPR, Genome editing, Nucleases and Transgenic



# Effect of Low Iron Food on Woman During Pregnancy - Leading to Low Birth Weight of Babies in Tadepalli Mandal, Guntur Dist, Andhra Pradesh

# $Hemamalini K^{1*}, Padmavathi M^2, Lakshmaiah K^3, and Babitha B^4$

<sup>1</sup>(PI),Assistant Professor, Dept. of Hotel management, KL University, <sup>2</sup>Project Coordinator, KL University, <sup>3</sup>Project Assistant, KL University,

<sup>4</sup>Assistant Professor, Acharya Nagarjuna University, Guntur, India-522302 Mail.id: kola.hemamalini@kluniversity.in, padmavathy@kluniversity.in

#### ABSTRACT

Iron deficiency anemia is extremely common, especially in the developing world, and has reached global epidemic status. Iron deficiency during pregnancy is one of the main causes of anemia in infants. Many women go through their entire pregnancy without achieving the minimum required iron intake, which leads to their low HB% levels. This review aims to determine the impact of maternal iron deficiency and iron deficiency anemia on infants, such as low birth weight and preterm birth. And mothers cannot give milk to their children. An Anganwadi based cross-sectional study was conducted among 20 pregnant and lactating women of 10 Kunchanapalli and 50 pregnant and 35 lactating women from low income group of Kolanukonda, Tadepalli Mandal, Andhra Pradesh attending antenatal clinic for six months to determine the impact of anemia. It was found that the percentage of low birth weight and preterm births decreased, HB% levels also increased after proper awareness among pregnant and lactating women about iron rich foods and importance during pregnancy.

 $Keywords: {\it Pregnantwoman, lactating mothers, infants, iron, HB\%, low birthweight, premature birthweight, prema$ 



## Nanoparticles influence on biopesticides against tobacco caterpillar Spodoptera litura, L

Gayathri, M KL College of Agriculture gayathrimungara@gmail.com

Groundnut productivity is being affected by several abiotic and biotic factors. Among biotic factors, numerous insect pests cause significant harm, with the tobacco caterpillar *Spodoptera litura* (Fabricius) being the worst of them allparticularly in rabi groundnut crop. However, biopesticides are one of such safer alternatives to tackle insecticide resistant population of *Spodopteralitura*. Among various biopesticides *Bacillus thuringiensis, Nomuraearileyi* and *Beauveria bassiana* were proved as promising bio control agents against this pest. Agricultural point of view, nanotechnology has great potential in insect pest management involving nano capsules. Nanoparticles (NPs) have exhibited the antibacterial and antifungal properties against many pathogens at particular doses. Literature proved that the highest yield with*Bt* grown on barley flour with CaO NPs. The three biopesticides based on nanomaterials that were evaluated in the field*viz., Bt, N.rieyi* and *B.bassiana* were found effective against *S.litura* larvae in groundnut. Further studies viz., deciphering pathways of NPs, reducing the dosage of nano enriched biopesticides, Molecular characterisation of nano enriched biopesticides to develop potential isolates, development of formulations by using cost effective organic products with longer persistence are required to determine whether the enhanced effectiveness of biopesticides results from an increase in spore numbers caused by the addition of minerals at the nanoscale or from NPs themselves.



### "Bio-efficacy of bioagents and S. platensis against anthracnose (Colletotrichum capsici) disease of chilli (Capsicum annum L.) in Krishna District"

Potnuri Hema Prasanthi Lakshmi<sup>1</sup>, Dr. Sobita Simon<sup>2</sup> and Krishna Sai Thammineni<sup>3</sup>

<sup>1\*</sup>Assistant Professor, Koneru Lakshmaih Education Foundation, Guntur, phone no: +91 7259421690, potnurihema26@gmail.com;<sup>2</sup> Professor and Head, Department of Plant Pathology and <sup>3</sup>M.sc(Ag) Seed Science and Technology, Naini Agricultural Institute, Prayagraj,U.P.

#### Abstract

Anthracnose is one of the important diseases in chilli crop. Due to *Colletotrichum capsici* that causes damage to quality of Chilli fruit. A survey was conducted during *Rabi* 2020 to know the severity of Anthracnose of chilli in farmer's fields in Krishna district of Andhra Pradesh. Eight villages were selected in the district and in each village three fields were surveyed. The disease severity ranged from 13.30 to 29.65 % irrespective of location surveyed. The disease severity was least in Tadikilapudi (13.3%) and highest in Kamavarapukota (29.65%) villages during the month of December 2020. To manage the disease an investigation was carried out in farmer's field during *Rabi* 2020-2021 in Kaikaluru, Krishna district of Andhra Pradesh to evaluate the efficacy of bio-agents viz.., Seed dressing with *P. fluorescens, T. viride* and *S. platensis* .The foliar application of Neem oil is given to all the treatments. Among the Treatments The plant height (cm) was significantly increased in treatment  $T_6 - P$ . *fluorescens* + *T. viride* + *S. platensis* (62.2cm) respectively. The disease intensity (%) was significantly decreased in treatment  $T_6$  (15.96cm). The yield of chilli was significantly increased in  $T_6$  (128.33 q/ha) as compared to control  $T_0$ .

Keywords: Anthracnose of Chilli, *Colletotrichum capsici*, disease intensity, neem oil. *P. fluorescens*, *S. platensis*, *T. viride*.



# **Rediscovery of Mendel's Law**

#### Gurrala Sai Vamsi Reddy

Assistant professor Department of Agriculture, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: saivamsireddy@kluniversity.in

#### Abstract

Modern study on inheritance and genetics is considered to have changed dramatically with the "rediscovery" of Mendel's rules. His work was initially disregarded, therefore he conducted research out of curiosity. did not gain financially or professionally from the research. After 35 years, three scientists rediscover work. It was widely believed that three European botanists: Erich von Tschermak-Seysenegg, Hugo de Vries, and Carl Correns—made the "rediscovery" multiple times, independently, and in tandem throughout the 20th century's early years. But since the 1950s, there have been significant doubts raised about the timeline and the exact intellectual contribution of the involved scientists. In context of each of these researchers' separate research projects, both independence and parallelism were examined. Erich von Tschermark-Seysenegg, an Austrian botanist, was the youngest of them and was not counted among the rediscovers. This short article provides background information about the rediscovery of Mendel's law.

Key words: rediscovery, research, Mendel, heredity



# **Exploration of Artificial intelligence in Pest Management System**

Dumala Sravani

Assistant Professor, Department of Agriculture, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: dsravani@kluniversity.in

## ABSTRACT

The need for food is rapidly rising along with the world population growth. Farmers have switched from their conventional style of cultivation to mechanocentric agriculture since the old methods they utilise are unable to meet the growing demand. In recent years, agricultural automation has also emerged as a major worry for all nations. Mc Carthy (Father of Artificial intelligence, AI)in 1956 defined AI as "the science and engineering of making intelligent machines". In agriculture, AI can be used in weeding, soil mapping, micro spraying, seeding, irrigation, seasonal forecasting, better crop selection, proper harvesting and also to boost crop yield by managing pests through the use of drones, agricultural robots etc. In pest management strategies, AI is mostly used for sampling, monitoring as well as identification of insect species. Drones (dynamic remotely operated navigation equipment) also known as multirotor unmanned aerial vehicles (UAVs) are employed widely to spray liquid pesticides to manage emerging insect infestations in field crops. Drones may take detailed pictures of the affected crop. In order to improve and encourage sustainable pest control techniques by relying less on conventional insecticides, it has also been claimed that UAVs have been employed in recent years to release predatory mites and other natural enemies. Multirotor unmanned aerial vehicles (UAVs) or Drones (Dynamic remotely operated navigation equipment) can capture details of the infested crop and they are increasingly being used to spray liquid pesticides to control emerging pest infestations in field crops. It has also been reported that UAVs have been used in recent years to release predatory mites and other natural enemies to optimise and promote sustainable pest management practices by relying less on conventional insecticides. Many AI based mobile apps like Pest Predict, Plantix, Fall Armyworm Monitoring and Early Warning System (FAMEWS) and Nuru were developed by renowned institutes for providing pest forecasting, identification and management solutions, respectively. There are also reports on the use of AI technology combined with the other branches of science to produce new generation insecticides and predator mimic etc. (Drippset al., 2008 and Romano et al., 2017). Although artificial intelligence has been used to manage pests effectively, the technology's wider adoption has been hampered by its relatively high cost and high skill requirements. By working with other scientific disciplines to develop more dependable and affordable AI technology, as well as by further enhancing it for user-friendliness, we may pave the way for its widespread use in the genuine sense of the word. Keywords: Artificial intelligence, Drones, pest management


International Journal For Advanced Research In Science & Technology

A peer reviewed international journal ISSN: 2457-0362

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## Micronutrients as a hidden energy in coconut palm

\*Surendra Babu, M. and Prasanna. K and Dolpriya Devi

KL Deemed University, Vaddeswaram, Guntur (D.t), Andhra Pradesh <u>suri.si74@gmail.com</u> Mobile No. 9493328524

#### Abstract:

The coconut palm known as Kalpa Vriksha or tree of heaven is a great antiquity in India. Every part of the tree is useful to mankind and it provides livelihood for millions of people in the country. India is third largest coconut producing country in the world. Coconut major grown area occupied in state of Kerala. However, Indian soils are deficient in 40-55% in zinc, 11.2 % in iron, 25-30% in boron, 7% in copper, 5.1% in manganese, 70-80% of micronutrient disorders in horticultural crops occur as hidden hunger. In tropical acid soils, iron, manganese, copper and zinc are easily soluble and readily available under acidic conditions. Whereas majority of Indian soils nutrient imbalance like iron and manganese high in laterite and red soils. Moderate in alluvial and clay soils, low in costal sandy soils, copper and zinc recorded high in alluvial soils whereas copper and zinc were low in in black and coral soils. Boron deficiency was noticed most of coconut growing areas like acid laterite, red soils, alluvial soils. With the diminishing supply of micronutrients, many abnormalities are noticed in coconut palm like hook leaf disease, crown choking, frizzle top, necrosis of inflorescence, cracking of husk and shell, poor quality copra, reduced growth, pencil point disease, button shedding, delayed flowering, hollow nuts, chlorosis, coppery bluish leaf crinkling, whipping, bulging in the base of the nut, discolouration of the mesocarp, decaying of the kernel resulting in poor quality copra formation of branched inflorescence, inflorescence with blackish colour.



**International Journal For Advanced Research** 

In Science & Technology A peer reviewed international journal ISSN: 2457-0362

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## ASSOCIATION OF MICROBIAL COMMUNITY FOR COMMERCIALIZATION OF PGPR TECHNOLOGY

<sup>1</sup>Senthilmurugan Palanisamy

<sup>1</sup>Associate Professor <sup>1</sup>College of Agriculture, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: <sup>1</sup>agilanagri2008@kluniversity.in

#### Abstract:

Microbes of the phytomicrobiome are associated with every plant tissue and, in combination with the plant form the holobiont. Plants regulate the composition and activity of their associated bacterial community carefully. These microbes provide a wide range of services and benefits to the plant; in return, the plant provides the microbial community with reduced carbon and other metabolites. Soils are generally a moist environment, rich in reduced carbon which supports extensive soil microbial communities. The rhizomicrobiome is of great importance to agriculture owing to the rich diversity of root exudates and plant cell debris that attract diverse and unique patterns of microbial colonization. Microbes of the rhizomicrobiome play key roles in nutrient acquisition and assimilation, improved soil texture, secreting, and modulating extracellular molecules such as hormones, secondary metabolites, antibiotics, and various signal compounds, all leading to enhancement of plant growth. The microbes and compounds they secrete constitute valuable biostimulants and play pivotal roles in modulating plant stress responses. Research has demonstrated that inoculating plants with plant-growth promoting rhizobacteria (PGPR) or treating plants with microbe-to-plant signal compounds can be an effective strategy to stimulate crop growth. Furthermore, these strategies can improve crop tolerance for the abiotic stresses (e.g., drought, heat, and salinity) likely to become more frequent as climate change conditions continue to develop. This discovery has resulted in multifunctional PGPR-based formulations for commercial agriculture, to minimize the use of synthetic fertilizers and agrochemicals. This review is an update about the role of PGPR in agriculture, from their collection to commercialization as low-cost commercial agricultural inputs. First, we introduce the concept and role of the phytomicrobiome and the agricultural context underlying food security in the 21st century. Next, mechanisms of plant growth promotion by PGPR are discussed, including signal exchange between plant roots and PGPR and how these relationships modulate plant abiotic stress responses via induced systemic resistance. On the application side, strategies are discussed to improve rhizosphere colonization by PGPR inoculants. The final sections of the paper describe the applications of PGPR in 21st century agriculture and the roadmap to commercialization of a PGPR-based technology.



**International Journal For Advanced Research** 

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<sup>1</sup>Senthilmurugan Palanisamy

<sup>1</sup>Associate Professor

<sup>1</sup>College of Agriculture, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: <sup>1</sup>agilanagri2008@kluniversity.in

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Microbes of the phytomicrobiome are associated with every plant tissue and, in combination with the plant form the holobiont. Plants regulate the composition and activity of their associated bacterial community carefully. These microbes provide a wide range of services and benefits to the plant; in return, the plant provides the microbial community with reduced carbon and other metabolites. Soils are generally a moist environment, rich in reduced carbon which supports extensive soil microbial communities. The rhizomicrobiome is of great importance to agriculture owing to the rich diversity of root exudates and plant cell debris that attract diverse and unique patterns of microbial colonization. Microbes of the rhizomicrobiome play key roles in nutrient acquisition and assimilation, improved soil texture, secreting, and modulating extracellular molecules such as hormones, secondary metabolites, antibiotics, and various signal compounds, all leading to enhancement of plant growth. The microbes and compounds they secrete constitute valuable biostimulants and play pivotal roles in modulating plant stress responses. Research has demonstrated that inoculating plants with plant-growth promoting rhizobacteria (PGPR) or treating plants with microbe-to-plant signal compounds can be an effective strategy to stimulate crop growth. Furthermore, these strategies can improve crop tolerance for the abiotic stresses (e.g., drought, heat, and salinity) likely to become more frequent as climate change conditions continue to develop. This discovery has resulted in multifunctional PGPR-based formulations for commercial agriculture, to minimize the use of synthetic fertilizers and agrochemicals. This review is an update about the role of PGPR in agriculture, from their collection to commercialization as low-cost commercial agricultural inputs. First, we introduce the concept and role of the phytomicrobiome and the agricultural context underlying food security in the 21st century. Next, mechanisms of plant growth promotion by PGPR are discussed, including signal exchange between plant roots and PGPR and how these relationships modulate plant abiotic stress responses via induced systemic resistance. On the application side, strategies are discussed to improve rhizosphere colonization by PGPR inoculants. The final sections of the paper describe the applications of PGPR in 21st century agriculture and the roadmap to commercialization of a PGPR-based technology.



# GEO-SPATIAL TECHNOLOGY FOR AGRICULTURE

M.Yamini<sup>1</sup>, S. Tejaswini<sup>2</sup>

<sup>1,2</sup>Assistant professor

<sup>1,2</sup>Department of Agriculture, KoneruLakshmaiah Education Foundation, Vaddeswaram-522302

### ABSTRACT

Depending on their belief and ability to pay, all the relevant stakeholders in agriculture and food security have utilised cutting-edge technologies to varying degrees. From the standpoint of sustainable agriculture, natural resource management and catastrophe resilience, especially that to climate change, lay the groundwork for wise decision-making. Geospatial technology, which specifically makes use of remote sensing, GIS, GIPS, mobile and wireless communications, etc., has grown significantly in significance in this context for producing information objectively in a precise, timely, and trustworthy manner. The global positioning system (GPS) can be used to determine a precise location in terms of latitude, longitude, and elevation. This technology is particularly important in site-specific or precision farming. Due to its multi-spectral, extensive, and repeating coverage, remote sensing technology has been employed for agricultural inventorying at several spatial levels. Making better decisions about determining the surplus/deficit condition of key agricultural products and strategically planning for export/import, public distribution, and market intervention activities is made possible by pre-harvest estimation of crop acerage and production. Indian remote sensing (IRS) satellites with various multi-spectral sensors that vary in their spatial resolution, swath, and revisit have been effectively used in this endeavour for the past roughly three decades.

Key words : Geo-spatial technology, GPS, remote sensing



## Identification of Resistance Genes for Plant Disease Resistance Through Allele Mining

### <sup>1</sup>Pamala Prince Jayasimha, <sup>2</sup>Dumala Sravani, and <sup>3</sup>P. Hema Prasanthi

<sup>1,2,3</sup>Assistant Professor

<sup>1,2,3</sup>Department of Agriculture, Koneru Lakshmaiah Education Foundation, Guntur, India -522302 Mail id: <sup>1</sup>jayasimha@kluniversity.in, <sup>2</sup>dsravani@kluniversity.in, <sup>3</sup>potnurihema@kluniversity.in

#### Abstract:

The production of crops is threatened by a constantly changing population of plant pathogens due to changing in climatic conditions. And also, the capability of many pathogens to overcome genetic resistance, the identification and implementation of new sources of resistance is essential. Landraces and wild relatives of crops have played an important role as genetic resources for the improvement of disease resistance. Utilizing this genomic data is crucial for the discovery and isolation of novel and superior resistance gene alleles from crop gene pools. Allele mining is the process of detecting the new superior alleles for various traits like disease resistance, drought tolerance, quality etc. These alleles can be used in breeding programmes to develop resistant crop varieties in order to address the newly emerging strains of plant pathogens. There are two major approaches such as Eco-tilling and sequencing based allele mining are available for the identification of sequence polymorphism for a resistance gene in the naturally occurring population. Allele mining access to the crucial alleles conferring resistance to biotic stresses directly. It also helps in the tracing of the evolution of resistance alleles, identification of new haplotypes with the development of allele-specific markers for use in marker assisted selection of resistant traits. It can be visualised as a vital link between effective utilisation of genetic and genomic resources in modern plant breeding for plant disease resistance. Discovery and utilization of resistant genes from plant genetic resources through allele mining for disease resistance varieties may contribute significantly to secure the future food basket.

Key words: Allele mining, disease resistance, Eco-tilling, Plant Pathogens



## Termites as soil ecosystem engineers

<sup>1</sup>Tejaswini Sadineni, <sup>2</sup>M. Yamini, <sup>3</sup>Dumala Sravani <sup>123</sup>Assistant Professor

Department of Agriculture, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: <sup>1</sup>anjusadineni@gmail.com, <sup>2</sup>yaminisaraswathi9@gmail.com <sup>3</sup>dsravani@kluniversity.in</sup>

#### ABSTRACT

Long-term chemical use depletes soils' ability to hold water and increases salt content, which causes an imbalance in the distribution of nutrients, ultimately harming the soil's structure and fertility. To maintain environmental sustainability, soil quality must be maintained. Small-scale agricultural groups are finding it increasingly difficult to finance its input costs, though. The ability of termites to modify the availability of nutrients to other species by producing physical state changes in biotic or abiotic materials has earned them the moniker "soil ecosystem engineers" (Jones et al., 1994). Termites have an impact on the physical, chemical, and biological characteristics of the soil, the flow of water, and the decomposition of organic materials. They also speed up recycling by encouraging microbial activity. Consequently, termites are thought to have a larger role in the majority of tropical and subtropical ecosystems due to their abundance and influence on numerous ecological functions.

Faunal pedoturbation is the physical process that mostly involves modifications to soil structure. Due to variations in the mounds' design and functionality, various termite species may have drastically different effects on the amount of nutrients in the soil and the flora growing there (Jouquet et al., 2016). The high concentration of nutrients that have built up in the soils of termite mounds have made them a "gold mine" for bacterial concentrations. For the production of biofuel, bioremediation, and biofiltration, the termite mound soil bacteria aided in speeding up the decomposition of lignocellulose. In order to ensure environmental sustainability, termite mound soil material and its microbes should be used effectively (Enagbonma and Babalola, 2019). On the African continent, using termite mound materials as readily available fertiliser sources is a popular practise. Rahman et al. (2007) reported that the mound soil of Odontotermes assamensis had higher soil moisture content (36.63 to 58.23%), water-holding capacity (73.00 to 98.93%), soil porosity (49.60 to 60.06%), and lower bulk density (0.76 to 1.24 g cm3) than the adjacent soil of the mound, which had soil moisture content, water-holding capacity, soil porosity, and bulk density fraction According to Tilahun et al. (2012), the accessible P and exchangeable Mg concentrations of termite mound soil were 90% and 36% greater, respectively, than those of nearby soils.

**KEYWORDS**: Soil ecosystem engineers, Termites, Faunal pedoturbation, Soil physical properties.



## Analysis of Factors Contributing to the Continuance of Fodder Technologies by the Farmers in Dharwad and Belagavi Districts of Karnataka

Partha Banerjee Assistant Professor, Department of Agriculture Koneru Lakshmaiah Education Foundation, Guntur, 522302, India Mail ID: pbanerjee@kluniversity.in

#### Abstract

The demand of fodder for feeding and fattening of livestock has increased. A study was conducted in 7 villages of Belagavi and Dharwad districts of Karnataka. The objectives were- to study the socio-economic profile of respondents, ascertain the different perennial fodder crops cultivated. analyze the favorable factors for continuance of these crops and to identify the constraints faced in cultivation of these crops. Data was collected from 195 respondents with the help of pre-tested interview schedule through personal interview technique. More than one-third of respondents (34.74%) continued cultivation of perennial fodder crops for 9-14 years. Majority of the respondents (64.21%) belonged to high income group (above Rs. 1,20,000). Less than half of the respondents (45.26 %) possessed medium herd size. Majority of the respondents (88.42%) participated in Krishi Melas and 82.10 per cent of respondents were members of Karnataka Milk Federations. Bajra napier hybrid and rhodes grass were cultivated by 37.89 per cent of respondents. Majority of respondents (89.47%) obtained seed materials from other growers. Four predictors viz., herd size, extension participation, innovative proneness and perceived attributes of innovation have been retained at the last step of screening contributing 56.4 percent of variance embedded with continuance of perennial fodder crop cultivation. Herd size, extension participation and training received were the first three factors to exert total effect on the dependent variable. Difficulty to get seeds/ planting materials (garret score 54.62, rank-1) was perceived as the major constraint, followed by poor germination of seeds (garret scores 46.74, rank-2). Innovative farmers with high annual income and big land holdings should be targeted to involve in participatory approach for the production of fodder planting materials.

Keywords : Fodder, Krishi Melas, Bajra napier hybrid, Innovative proneness, Extension participation



**International Journal For Advanced Research** 

In Science & Technology A peer reviewed international journal ISSN: 2457-0362

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## Effect of Nitrogen and Phosphorus levels on Growth & Yield of Linseed (Linum

### usitatissimum L.)

### Shaik Sameer

Assistant Professor

College of Agriculture, Koneru Lakshmaiah Education Foundation, Guntur, India-522302 Mail id: sameer34532@kluniversity.in,

Abstract: In India, there is a rising need for sugarcane. Therefore, it is essential to increase cane output in a sustainable manner with minimal input utilization using certain alternative approaches based on the maxim "more with less." A research study was conducted at ICRISAT in 2009, and a methodology containing six key elements was developed under the umbrella of the "Sustainable Sugarcane Initiative (SSI)" concept. The cane production (100-130t/ha) was greatly increased by the use of an unique set of agronomic approaches that included utilizing fewer seeds, growing seedling in a nursery, novel planting techniques, with broader plant spacing, & better water and fertilizer management. The study's findings revealed that the subsurface drip irrigation (SSDI) treatment with 100% pan evaporation (PE) + 100% recommended dose (RD) of Nitrogen and Potassium through fertigation (T1) produced a significantly higher yield of 156.31 t/ha for the main crop, 141.6 t/ha for the I ratoon crop, and 144.78 t/ha for the II ratoon crop. In INM practices (table 2), the application of 75% of the recommended NPK, Azophos, in-situ incorporation of sun hemp, and foliar spraying of sugarcane booster (N4) together led to higher establishment percentages of 87.89, plant heights of 246.35 cms and 92.21 t/ha of dry matter production. There is definitely room to reduce cultivation costs by Rs. 13890 with SSI planting as opposed to traditional methods. (Table 3). This was mostly because planting materials (Rs. 425.00), intercultural operations (Rs. 4000.00), weed control (Rs. 2940.00), and irrigation were less expensive (Rs 2700.00). Farmers might receive an additional income of Rs. 119330.00 with an average cane production of 118.14 t/ha and 64.74 t/ha with SSI planting and regular planting, respectively. Therefore, increasing sugarcane productivity is a good technical development (inferring more outputs with fewer inputs).

Keywords: , Sugarcane, SSI, Sustainable Sugarcane Initiative, Output, Yield.



International Journal For Advanced Research In Science & Technology

A peer reviewed international journal ISSN: 2457-0362

www.ijarst.in

# **Seed Viability Testing**

Sushma Raj Chellem

Assistant Professor in Genetics & Plant Breeding Department of Agriculture, KL University, Vaddeswaram-522302 Corresponding Email ID: <u>sushmarajchellem@gmail.com</u>

### Abstract

The process of reproduction in seed plants is finished with the development of the seed. The seeds do not continue to be viable indefinitely after maturity. They have a limited lifespan, and if they don't germinate during that time, they will no longer be viable. The percentage of seeds that are still alive after storage is known as seed viability. It can also refer to a plant's ability to exhibit living characteristics like germination and growth. A crucial step in agricultural production and commercialization is the determination of seed viability. Numerous things, including physical injury, overheating, and ageing naturally, might have an impact on it. Agricultural commercialization requires assurances of excellent seed viability in order to secure the business optimization of seed firms. It is crucial that the seeds or plant material kept in the gene bank can grow into plants when planted in the ground. In a different meaning, viability refers to how much a seed is metabolically active, alive, and endowed with enzymes that can catalyse the metabolic processes required for germination and seedling growth. In this situation, a specific seed could have both living and dead tissues, and it might or might not be able to germinate. This definition addresses both tissue viability and seed viability. In either situation, the moment of physiological maturity is likely when seed viability is highest. After reaching physiological maturity, seeds viability gradually deteriorates. There are many methods for testing a seeds viability; they are covered in the pages that follow. However, it takes several days, weeks, or even months to finish.

Keywords: seed, physiological maturity, viable, germination.