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INTERNATIONAL CONFERENCE

On

Advancing Knowledge from Multi-Disciplinary Perspectives in Agricultural, Life Sciences, Engineering & Technology - 2025

(ICAKMPALET – 2025)

ONLINE MODE

Editors

Dr. Dickson Adom

Dr. Aruna Kumari Nakkella

Dr. Alok Raj

Dr. B. Gayathri

A Conference Proceedings of

3rd International Confrence on Advancing Knowledge from Multi-Disciplinary Prespectives in Agricultural, Life Sciences, Engineering & Technology - 2025

[ICAKMPALET – 2025]

and

International Award Ceremony

PRATISHA - 2025

Date: 26th & 27th Janurary, 2025

Edited By

Dr. Dickson Adom | Dr. Aruna Kumari Nakkella

Dr. Alok Raj | Dr. B. Gayathri

SIDVI FOUNDATION

Hyderabad - 500084, Telangana

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Title: A Conference Proceedings of 3rd International Confrence on Advancing Knowledge from Multi-Disciplinary Prespectives in Agricultural, Life Sciences, Engineering & Technology - 2025

Editors: Dr. Dickson Adom, Dr. Aruna Kumari Nakkella, Dr. Alok Raj, Dr. B. Gayathri

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Dr. B Gayathri

Message

I am deeply honored to have been invited as a distinguished speaker and guest by the esteemed Sidvi Foundation, Visakhapatnam. The foundation's commitment to fostering innovation and knowledge sharing is truly commendable.

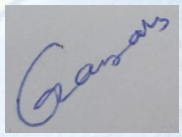
On 26.01.2025, I had the privilege of delivering a keynote address on "Data Analytics for Smart Cities" at the Conference organized by Sidvi Foundation. The conference brought together thought leaders, experts, and enthusiasts from various fields, providing a platform for meaningful discussions and knowledge exchange.

My talk focused on the transformative power of data analytics in creating smart, sustainable, and resilient cities. I emphasized the importance of leveraging data-driven insights to optimize urban planning, transportation systems, energy management, and public services. The audience engaged actively, sharing their perspectives and experiences in implementing data analytics solutions.

I would like to extend my sincere gratitude to the Sidvi Foundation for providing me with this opportunity to share my expertise and connect with like-minded individuals. The foundation's dedication to promoting innovation and excellence is truly inspiring.

Thank you once again, Sidvi Foundation, for this enriching experience!

Sincerely,



Dr. B Gayathri

DR. S. A Hussain

Principal Scientist,
Sr. Prof. Agri & JT Agricultural University
Rajender Nagar, Hyderabad

Message

Climate-smart agricultural (CSA) practices aim to increase agricultural productivity and resilience while reducing greenhouse gas emissions. Here are some examples of CSA practices:

Farming Practices

1. Conservation Agriculture: Minimizes soil disturbance, maintains soil cover, and promotes crop rotations.
2. Agroforestry: Integrates trees into farming systems to enhance biodiversity and ecosystem services.
3. Crop Diversification: Grows multiple crops on the same land to reduce dependence on a single crop.
4. Soil Conservation: Uses techniques like contour farming, terracing, and mulching to reduce soil erosion.
5. Integrated Pest Management (IPM): Uses a combination of techniques to manage pests and reduce chemical use.

Water Management

1. Drip Irrigation: Delivers water directly to the roots, reducing evaporation and runoff.
2. Rainwater Harvesting: Collects and stores rainwater for irrigation and other uses.
3. Mulching: Helps retain soil moisture and reduce evaporation.

Livestock Management

1. Rotational Grazing: Moves livestock to different areas to avoid overgrazing and promote soil health.
2. Manure Management: Uses manure as fertilizer, reducing waste and pollution.
3. Improved Breeds: Uses climate-resilient breeds to improve livestock productivity.

Climate Information and Insurance

1. Climate Information Services: Provides farmers with climate data and forecasts to inform decision-making.

2. Agricultural Insurance: Offers financial protection to farmers against climate-related crop failures.

Other Practices

1. Organic Farming: Avoids synthetic fertilizers and pesticides, promoting soil health and biodiversity.
2. Cover Cropping: Plants crops between cash crops to reduce soil erosion and improve soil health.
3. Precision Agriculture: Uses technology, such as drones and satellite imaging, to optimize crop management.

These CSA practices can help farmers adapt to climate change, improve productivity, and reduce greenhouse gas emissions.

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Lecture Note

Enhancement of Crop Insurance Scheme for Higher Income of Farmers

Vikas Kumar

ICAR- National Institute of Agricultural Economics and Policy Research, Pusa, New Delhi

A L Yadav

ICAR- Indian Agricultural Research Institute, New Delhi

Introduction:

To cover the risk which may occur in future, there is need to some provision and crop insurance is only mechanism available to safeguard against production risk in agriculture. For fulfilling this need, Government of India has introducing various schemes of crop insurance. In kharif 2016, government of India has started, a very ambitious scheme to share the agriculture production risk of farmers that is Pradhan Mantri Fasal Bima Yojna (PMFBY). Here, we have a discussion on progress of PMFBY scheme over the years.

Spread of benefits to farmers through PMFBY scheme:

Registration of number of farmers: Since the inception of PMFBY scheme in Kharif 2016, the number of total registrations are continuously improving. The total registrations were 562.71 lakhs in 2016-17. In that the number of Loanee farmers registrations was 427.68 lakhs and for non loanee farmers was 135.02 lakhs. In 2020-21, the total registration were 590.17 lakhs and in that loanee farmers were 380.06 lakhs and non loanee farmers were 210.12 lakhs. In percentage term, in starting the share of loanee farmers was higher that was 76.01 percent and for non loanee farmers was 23.99 percent in 2016-17 and in 2020-21, the share of non-loanee farmers has improved to 35.60 percent and for loanee farmers reduced to 64.40 percent.

Total Area insured and area insured per farmer: The total area insured has reduced from 550.08 lakh hectares in 2016-17 to 424.61 lakh hectares in 2020-21. While during this period, the number of registrations have increased. This indicate that small holding farmers numbers have increased in PMFBY scheme. The average area insured per farmer was 0.98 hectare in 2016-17 and it reduced to 0.72 hectare in 2020-21. It is good that, small holding farmers have taken the interest in the scheme whose risk is higher in agriculture production.

Sum insured per farmer and per hectare: The total sum insured in scheme was Rs 193058.89 crore in 2016-17 and it increased to Rs 217636.79 crore in 2018-19 and reduced further in 2020-21, it reached to Rs 184752.28 crore. The sum insured per farmer has increased from Rs 35096.79 in 2016-17 to Rs 43510.92 in 2020-21. This is due to higher valuation of insured crops. The sum insured per hectare was Rs 34309.06 in 2016-17 and reached to Rs 31304.66 in 2020-21. It is marginally reduced due to increase in number of farmers while insured land area is reduced.

Farmers premium and gross premium : The total premium shared by the farmers for registration in the scheme was Rs 3637.77 crore in 2016-17 and it reached to Rs 4322.82 crore in 2018-19 and then reached to Rs 3607.14 crore in 2020-21. The reduction in sum insured has also reduced the total farmers premium.

The premium paid by individual farmer was Rs 646.48 in 2016-17 and increased to Rs 778.40 in 2018-19 and further reduced to Rs 611.20. Thus, in this scheme the premium paid by individual farmer is very low. Thus, scheme is very attractive to farmers. The gross premium is the total premium that is paid by farmers, state government and central government contribution. The gross premium per farmer has continuously increased over the period. The gross premium per farmer was Rs 3543.85 in 2016-17 and reached to Rs 4967.49 in 2020-21. This shows that the subsidy contribution by State and Central government has continuously increased for spread of scheme. While, it is seen the premium contribution by individual farmer is reduced.

Claim ratio and claims payment: The total claim ratio is paid claims as a part of total premium (contribution of farmers, central and state government) collected. It is found that total claim ratio is 0.76 in 2016-17. It shows that out of total premium collected, 76 percent goes as claim disbursement to farmers and remaining 24 percent of collected premium goes as management expenditure. This claim ratio was increased to 0.95 in 2018-19 and reached to 0.82 in 2020-21. It means a big portion of total premium collected used as claim disbursement to farmers and just 18% is left for caring management expenditures. In farmers based claim ratio is calculated by dividing the total claims disbursed to farmers to total premium paid by farmers only. The farmers based claim ratio is found as 4.15 in 2016-17. It means that if the farmer pays the premium as Rs 1, the total claims disbursed are Rs 4.15. In other words, farmer get 4.15 times more as claim than the premium, he pays. The farmers based claim ratio is continuously increased since 2016-17. In 2020-21, the claim ratio has reached to 5.84. This shows that the scheme is highly beneficial for the farmers as at very low premium, farmers getting high support as claims. The claims for losses received by the farmers are also increasing over the years. The average claim received per hectare for year 2016-17 was Rs 2744.82 and in 2019-20, this was Rs 4704.02. The claims received per farmer is also increased. In 2016-17, the claims received per farmer was Rs 2683.21 and in 2019-20, these were Rs 3810.46.

Benefitted farmers: The scheme is mitigating the risks of number of farmers who registered for it. The percentage of benefitting farmers has also improved over the period. In 2016-17, 24.73 percent of registered farmers got benefitted and this figure increased to 36.25 percent in 2018-19. In 2019-20, the percentage of benefitted farmers were 34.27. Because of the higher percent of benefits, the beneficiary farmers always attempt to register for it.

Challenges: Along with number of good features of scheme, number of constraints are also suggested for improvement in scheme. The important constraints are delay in payments for claims, lesser promotion and timely estimation of losses. These challenges are regularly taken care of by government in bringing changes and making the scheme more farmers friendly.

Summary and Conclusion:

It is visible from the performance of PMFBY in terms of farmers insured, Sum insured, area covered, claims reported, claims paid and benefitted farmers that PMFBY takes care of systemic or covariate risks associated with widespread vagaries of weather as well as idiosyncratic losses. No scheme previously has offered such a comprehensive protection. By creating the awareness and timely payment of claims, the coverage of PMFBY can be improved further.

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3rd INTERNATIONAL CONFERENCE
ON
ADVANCING KNOWLEDGE FROM MULTI - DISCIPLINARY PERSPECTIVES IN AGRICULTURAL, LIFE SCIENCES, ENGINEERING & TECHNOLOGY - 2025
(ICAKMPALET - 2025)
INTERNATIONAL AWARD CEREMONY PRATISHTA - 2025

MEETING LINK https://us02web.zoom.us/j/4600836867			
Session Name with Date **26/01/2025**	**Time**	**Resource Person**	**Topic**
INAUGURATION	**09.00 AM**	**Lightening the lamp**	**By Honorable Guests**
		Prayer Song	**Mrs A Madhavi Latha**
		Welcoming the Guests	**Organizing Team**
		Chief Guests	**Prof A Srinivasa Rao, Senior S&T Scientist at AYR Studios, Bethesda, MD 20817 USA** **Sahiti Sri Prakash Rao Kollaram, Richmond, USA** **Dr Dickson Adom Educational Innovations in Science and Technology Kwame Nkrumah University of Science and Technology, Ghana** **Dr Bir Abhimanyu Kumar Associate Professor (Environmental Education) DEE, National Institute of Education, NCERT, New Delhi** **Dr. S A Hussain Principal Scientist, Sr.Prof.Agrl PJT Agricultural University, Rajendra Nagar, Hyderabad** **Mr Nagababu Abbaraju Director, VECO Labs Pvt. Ltd., Hyd., President, SSRD, SIDVI Foundation**

		Special Invitees and Distinguished Guests, Speakers	**Dr. Vikas Kumar** **Senior Scientist, ICAR- National Institute of Agricultural Economics and Policy Research, Pusa, DPS marg,** **New Delhi** **Dr. Kaustubh Kumar Shukla** **Associate Professor,** **Dept of Electronics & Communication Engineering,** **Dronacharya Group of Institutions, Greater Noida, Uttar Pradesh, Indiia**
		Guests of Honor	**Dr. D. Jayarajan** **Head, Dept. of Medical Lab Technology, Divine Mother College, Korkadu, Puducherry, TN** **Dr B Gayathri** **Associate Professor, Dept of Computer Science,** **Bishop Heber College(A), Trichy** **Mr. Alok Raj** **Assistant Professor, Department of Chemical Engineering,** **Rastrakavi Ramdhari Singh Dinkar College of Engineering (RRSDCE), Begusarai, Bihar Engineering University, Patna, Bihar** **Dr. Sirajuddin M Horaginamani** **Environmentalist & Director,** **Hi Learn Edutech Institute,** **Bijapur/Vijayapur, Karnataka** **Dr. N. Baratha Jyoti** **Assistant Professor, Dept of Zoology, Maris Stella College (A), Vijayawada**
		Publishing Partner	**SIDVI PUBLICATION HOUSE & IJSEAM**
	Announcement of SIDVI's Special Awards **EXCELLENCE IN INNOVATIVE TEACHING PRACTICES AWARD** **Sahiti Sri Prakash Rao Kollaram** Richmond, USA **Dr Dickson Adom** Educational Innovations in Science and Technology Kwame Nkrumah University of Science and Technology, Ghana		

	RESEARCH EXCELLENCE AWARD **Dr. S A Hussain** Principal Scientist, Sr.Prof.Agrl PJT Agricultural University, Rajendra Nagar, Hyderabad		
	09.30AM – 10.00AM	**Addressing the gathering With Distinguished Speech**	**Sahiti Sri Prakash Rao Kollaram, Richmond, USA**
	10.00AM – 10.15AM	**Special Talk**	**Dr Dickson Adom** Educational Innovations in Science and Technology Kwame Nkrumah University of Science and Technology, Ghana
	TECHNICAL SESSION - 1		
	10.15 AM- 11.00 AM	**Chairperson** **Co-Chairperson**	**Dr B Gayathri** Associate Professor, Dept of Computer Science, Bishop Heber College(A), Trichy **Mr. Alok Raj** Assistant Professor, Department of Chemical Engineering, Rastrakavi Ramdhari Singh Dinkar College of Engineering (RRSDCE), Begusarai, Bihar Engineering University, Patna, Bihar
	10.20AM – 10.30AM	**ICAKMPALET2025001** A Review on Glycopyranosyl Isothiocyanates and Their Derivatives: Applications in Carbohydrate Chemistry	**Dr. Prashant R. Mahalle*** Assistant Professor and Head, Department of Chemistry, Late B. S. Arts, Prof. N. G. Science and A. G. Commerce College, Sakharkherda, Dist. Buldhana, Maharashtra (India)
	10.30AM – 10.40AM	**ICAKMPALET2025002** Synthesis, DFT Investigations and Antibacterial Study of Chlorinated Pyrazoline Derivative	**Sandip S. Pathade*1, Bapu S. Jagdale2** 1, 2 Department of Chemistry, Mahatma Gandhi Vidyamandir's Maharaja Sayajirao Gaikwad Arts, Science and Commerce College, Malegaon, (Affiliated to Savitribai Phule Pune University, Pune), Nashik, Maharashtra, 423 105, India
	10.40AM – 10.50AM	**ICAKMPALET2025003** Genomic and Molecular Docking Insights into Mycobacterium tuberculosis Sensor Histidine Kinase	**Amar Prakash Shukla, Ruchi Yadav, Jyoti Prakash**

	10.50AM – 11.00AM	**ICAKMPALET2025004** ADSORPTION OF REACTIVE BLUE 222 DYE USING WHEAT BRAN: A SUSTAINABLE APPROACH	**Aantra Rao** MSc Biotechnology, Christ University, Bengaluru
	11.00AM – 11.10AM	**ICAKMPALET2025005** Synthesis and characterization of Zinc ferrite for magnetic hyperthermia	**Chubasangla Longchar**. Physics department, St. Joseph University, Virgin town, Ikishe Model Village Chumoukedima Nagaland, India-797115

AWARD CEREMONY 11.10AM – 11.20AM

ACADEMIC RESEARCHER AWARD

Dr. Kumar Gaurav Jain
Assistant professor (level -11)
Dept. Of Chemistry
Government Professional College, Banas Paithani Pauri Garhwal, Uttarakhand

RESEARCH EXCELLENCE AWARD

Mr Anil N. Khade
Assistant Professor Department of Zoology Shri Vitthal Rukhmini College Sawana Dist. Yavatmal, Maharashtra

Dr. Sandeep Mishra
Associate Professor, Department of CSE, Dronacharya Group of Institutions, Greater Noida, Uttar Pradesh, India.

BEST EDUCATOR AWARD

Mrs Dimple Juneja
Research Scholar (Education), Mohanlal Sukhadia University, Udaipur

INNOVATIVE EDUCATIONIST AWARD

Dr Praveen Kumar T D
Assistant Professor, Department of Education, Dr Harisingh Gour Vishwavidyalaya (A Central University), Sagar, MP

TECHNCAL SESSION - 2

	11.20 AM – 11.50 AM	**Key Note address By Dr. Vikas Kumar Senior Scientist, ICAR- National Institute of Agricultural Economics and Policy Research, Pusa, DPS Marg, New Delhi**	
	12.00 PM – 1.20 PM	**Chairperson**	**Dr. Vikas Kumar** Senior Scientist, ICAR- National Institute of Agricultural Economics and Policy Research, Pusa, DPS Marg,

		Co-Chairperson	New Delhi **Dr. Kaustubh Kumar Shukla** Associate Professor, Dept of Electronics & Communication Engineering, Dronacharya Group of Institutions, Greater Noida, Uttar Pradesh, Indiia
	12.00PM – 12.10PM	**ICAKMPALET2025006** IN SILICO ASSESSMENT OF THE EFFECT OF DOXORUBICIN ON THE MITOPHAGY PATHWAY	**Nitika Basnet[1], Sankarganesh arunachalam[2]** Christ University, Hosur main road, Bhavani Nagar, post, Bengaluru, Karnataka
	12.10PM – 12.20PM	**ICAKMPALET2025007** Saraca asoca MEDICATED GREEN SYNTHESIS OF MgO NANOPARTICLES AS ANTI-BACTERIAL AND ANTI-BIOFILM AGENT AGAINST FOOD SPOILING MICRO-ORGANISMS	**Akshara RV** CHRIST [DEEMED TO BE] UNIVERSITY, BENGALURU
	12.20PM-12.30PM	**ICAKMPALET2025008** A brief review on Agriculture and Sustainable Development	**K.Grace Evangeline** II B.A Special English Maris Stella college, Vijayawada
	12.30PM-12.50PM	**Key Note address** **By** **Dr B Gayathri** **Associate Professor, Dept of Computer Science,** **Bishop Heber College(A), Trichy**	
	12.50PM-1.00PM	**ICAKMPALET2025009** BARRIERS IN INCLUSIVE EDUCATION: A PERSPECTIVE OF SUSTAINABLE DEVELOPMENT	**MANITA GIRISA*/SUNNY JOSEPH**** *RESEARCH SCHOLAR, **Professor And Research Guide, DEPARTMENT OF EDUCATION, ST JOSEPH UNIVERSITY, NAGALAND
	1.00PM-1.10PM	**ICAKMPALET2025010** Hardware Implementation of GSM Integrated Remote Notice Board	**Mr. Ravi Ranjan Kumar Dubey, Mr. Nand Raj, Mr. Hariom Kumar** Assistant Professors, Department of Electrical Engineering Government Engineering College, West Champaran

	1.10PM – 1.20PM	**Key Note address** **By** **Dr. S A Hussain** **Principal Scientist, Sr.Prof.Agrl PJT Agricultural University, Rajendra Nagar, Hyderabad**	
	TECHNICAL SESSION - 3		
	1.20PM – 2.00PM	**Chairperson** **Co-Chairperson**	**Dr. S A Hussain** Principal Scientist, Sr.Prof.Agrl PJT Agricultural University, Rajendra Nagar, Hyderabad **Dr. N. Baratha Jyoti** Assistant Professor, Dept of Zoology, Maris Stella College (A), Vijayawada
	1.20PM- 1.30PM	**ICAKMPALET2025011** Metagenomic Profiling of Soil Microbiomes	**Aditi Kumari and Ruchi Yadav** Amity Institute of Biotechnology, Amity University Uttar Pradesh Lucknow, India
	1.30PM- 1.40PM	**ICAKMPALET2025012** A Survey on Esophageal Cancer Awareness and Prevalence among the Tribes of Nagaland	**Pazhuni Pfote and Jeyaparvathi Somasundaram** Department of Zoology, St. Joseph University, Nagaland
	1.40PM- 1.50PM	**ICAKMPALET2025013** A survey of entomophagy practices in Rengma Tribe of Tseminyu District, Nagaland, India	***Regina Magh and Naorem Chanu Sumedha1.*,1** Department of Biotechnology, St. Joseph University
	1.50PM – 2.00PM	**ICAKMPALET2025014** Revolutionizing Highway Navigation: Exploring the Potential of LIFI Technology	**Prof. Uday Kumar Rajak** HOD of ETC, Columbia Institute of Engineering and Technology, Raipur **Prof. Sushree Mahapatra** HOD of EEE, Columbia Institute of Engineering and Technology, Raipur **Dr.Sandeep Mishra** Associate Professor, Department of CSE, Dronacharya Group of Institutions, Greater Noida

		Department of ECE Vignan institute of technology and science, Hyderabad	
	2.00PM – 2.10PM	**ICAKMPALET2025015** Developing Effective Study Habits	**Dimple Juneja** Research Scholar, Mohanlal Sukhadia University, Udaipur
	2.10PM – 2.20PM	**ICAKMPALET2025016** Automated Video Transformation for PIB Press Release: A Literature Survey	**Dr.Vijayalakshmi Chintamaneni** Associate Professor Dept of ECE, Vignan Institute of Technology and Science, Hyderabad **Swapna Revuri** Assistant professor Dept of ECE, Vignan Institute of Technology and Science, Hyderabad
	2.20PM – 2.30PM	**ICAKMPALET2025017** Social Media Analysis in Public Opinion	**Mr. Aditya Kumar Gupta** B.Tech.-CSIT Dronacharya Group of Institutions, Greater Noida **Ms. Anuradha Yadav** Assistant Professor, Department of ECE Dronacharya Group of Institutions, Greater Noida

Announcement of SIDVI's Special Awards

EXCELLENCE IN INNOVATIVE TEACHING PRACTICES AWARD

Dr Bir Abhimanyu Kumar
Associate Professor (Environmental Education) DEE, National Institute of Education, NCERT, New Delhi

Dr. Vikas Kumar
Senior Scientist, ICAR- National Institute of Agricultural Economics and Policy Research, Pusa, DPS marg, New Delhi

Dr. Kaustubh Kumar Shukla
Associate Professor,
Dept of Electronics & Communication Engineering,
Dronacharya Group of Institutions, Greater Noida, Uttar Pradesh, Indiia

Dr B Gayathri
Associate Professor, Dept of Computer Science,
Bishop Heber College(A), Trichy

		Mr. Alok Raj **Assistant Professor, Department of Chemical Engineering,** **Rastrakavi Ramdhari Singh Dinkar College of Engineering (RRSDCE), Begusarai,** **Bihar Engineering University, Patna, Bihar** **Dr. N. Baratha Jyoti** **Assistant Professor, Dept of Zoology, Maris Stella College (A), Vijayawada**
	2.20PM-2.40PM	**VOTE OF THANKS** **by** **Dr. N. Baratha Jyoti** Assistant Professor, Department of Zoology, Maris Stella College (A), Vijayawada, A.P
		NATIONAL ANTHEM

ICAKMPALET2025001

A REVIEW ON GLYCOPYRANOSYL ISOTHIOCYANATES AND THEIR DERIVATIVES: APPLICATIONS IN CARBOHYDRATE CHEMISTRY

Dr. Prashant R. Mahalle

Assistant Professor and Head, Department of Chemistry,
Late B. S. Arts, Prof. N. G. Science and A. G. Commerce College, Sakharkherda,
Dist. Buldhana, Maharashtra

Abstract

Glycopyranosyl isothiocyanates, versatile intermediates in carbohydrate chemistry, have garnered significant attention due to their utility in synthesizing bioactive compounds, functional materials, and conjugates. These compounds are derivatives of carbohydrates wherein an isothiocyanate (-N=C=S) group is linked to the sugar unit, which imparts a range of biological and chemical activities. This review comprehensively explores their synthesis, derivatives, and applications, highlighting key reaction mechanisms, examples, and potential research avenues. Applications include glycosylation reactions, thiourea formation, and biomedical applications like drug delivery and diagnostics. The review will also explore various synthetic methodologies, reaction pathways, and future directions in the field of carbohydrate chemistry.

Keywords: .Glycopyranosyl isothiocyanates, carbohydrate chemistry, glycosylation, bioactive derivatives, isothiocyanates reactions, thiourea synthesis

ICAKMPALET2025002

SYNTHESIS, DFT INVESTIGATIONS AND ANTIBACTERIAL STUDY OF CHLORINATED PYRAZOLINE DERIVATIVE

Sandip S. Pathade

Department of Chemistry, Mahatma Gandhi Vidyamandir's Maharaja Sayajirao Gaikwad Arts, Science and Commerce College, Malegaon, (Affiliated to Savitribai Phule Pune University, Pune), Nashik, Maharashtra

Bapu S. Jagdale

Department of Chemistry, Mahatma Gandhi Vidyamandir's Loknete Vyankatrao Hiray Arts, Science and Commerce College Panchavati, Nashik (Affiliated to Savitribai Phule Pune University, Pune) Maharashtra

Abstract

The chlorinated pyrazoline derivative, i.e. 5-(2,4-dichlorophenyl)-3-(4-fluorophenyl)-1-phenyl-4,5-dihydro-1H-pyrazole was synthesized by the condensation of intermediate chalcone with phenyl hydrazine in alkaline medium. The synthesized compound was characterized by using FT-IR, 1H NMR, 13C NMR and mass spectroscopic techniques. The molecular structure, optimized geometrical parameters, and vibrational spectra of the synthesized pyrazoline derivative have been investigated by density functional theory (DFT) using the B3LYP method at the 6-311++G(d,p) basis set with Gaussian-03(W) package. The molecular electrostatic potential (MEP) and frontier molecular orbital (FMO) analyses were carried out to explore the reactivity of the synthesized compound. The various thermochemical and global reactivity parameters were also evaluated at the same level of theory. The UV-visible spectrum and vibrational frequencies of the synthesized compound were analysed and compared with the corresponding experimental data. The results revealed a good correlation between experimental and the computed data. In addition, the antibacterial activity of the synthesized pyrazoline derivative was also evaluated against two Gram-positive bacteria, which shows that the compound exhibits significant activity.

Keywords: Pyrazoline, DFT, Gaussian, B3LYP, antibacterial

ICAKMPALET2025003

GENOMIC AND MOLECULAR DOCKING INSIGHTS INTO MYCOBACTERIUM TUBERCULOSIS SENSOR HISTIDINE KINASE

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Abstract

The effective management of infectious diseases relies significantly on genomic surveillance techniques for airborne pathogens. These advanced methods employ cutting-edge sequencing technologies and sophisticated algorithms to meticulously track genetic variations in pathogens such as bacteria and viruses. By analyzing genomic data systematically, researchers can monitor pathogen evolution, track the emergence of new strains, decipher transmission patterns, and understand evolutionary pathways. Genomic surveillance is a cornerstone in comprehending the dynamics of airborne pathogens and developing targeted intervention strategies. This study investigates Mycobacterium tuberculosis, a major airborne pathogen causing tuberculosis, using a computational docking approach to explore interactions between the sensor histidine kinase—a critical bacterial signal transduction protein—and five ligands: mycolic acid, diacyl trehalose, lipoprotein, biofilm ligand, and mycobactin. The sensor histidine kinase sequence was retrieved from the UniProt database, and ligand structures were obtained from PubChem. Docking simulations, conducted using CB-Dock2, predicted binding affinities and identified potential inhibitors. The docking scores for the ligands were as follows: mycolic acid (-6.7), diacyl trehalose (-5.6), lipoprotein (-6.7), biofilm ligand (-6.7), and mycobactin (-7.2), with mycobactin exhibiting the highest binding affinity. This indicates its potential as a strong candidate for disrupting histidine kinase functionality. The findings offer insights into molecular mechanisms underlying pathogen survival and adaptation, paving the way for future drug discovery and therapeutic development. This study highlights the value of integrating genomic surveillance with molecular docking to understand pathogen behavior and develop targeted interventions for airborne diseases.

Keywords: Pathogens, Transmission, Surveillance, Technology, Genomic, Airborne, Docking.

ICAKMPALET2025004

ADSORPTION OF REACTIVE BLUE 222 DYE USING WHEAT BRAN: A SUSTAINABLE APPROACH

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Abstract

ISynthetic dyes are responsible for more than 20% of industrial effluent, making the textile dyeing sector a major source of water pollution worldwide. Reactive Blue 222 (RB222) is one of the widely used synthetic dye that poses significant environmental problems due to its poor stability and biodegradability. The study examines the potential of wheat bran, an agro-waste product, as a sustainable biosorbent for the extracting RB222 from aqueous solutions. The goal of the study is to optimise factors such as pH, temperature, contact time, and initial dye concentration, among other factors that influence the adsorption process.

In order to prepare the wheat bran for the adsorption procedure, it was collected from local sources in Bengaluru and then processed. The characterisation of the wheat bran before and after adsorption was done using methods like X-ray diffraction, Fourier-transform infrared spectroscopy (FTIR), and scanning electron microscopy (SEM) to analyse the changes in the adsorbent due to the adsorption of RB222. To evaluate the efficacy of removal of RB222 from the aqueous solution, a controlled batch adsorption study was conducted. The findings demonstrate that the adsorption capacity of wheat bran is significantly impacted by changing pH, with pH 3 exhibiting the best dye uptake because at a lower pH value, the wheat bran surface has a positive charge that encourages electrostatic interactions with negatively charged dye anions. The initial dye concentration and the effect of concentration of adsorbent also was considered an important factor and it was found that lower concentration of dye produced higher removal efficiencies whereas the efficieny of adsorption was observed to be increasing with increasing amount of adsorbent due to the saturation effects on binding sites.

Similarly, the effect of concentration of adsorbent also was considered an important factor depicting increase in adsorption efficiency with increase in amount of adsorbent. Chemisorption was most likely the dominating process, as the analysis showed that the adsorption kinetics followed a pseudo-second-order model.

Significant morphological and structural changes were found when wheat bran was characterised before and after dye adsorption. FTIR spectra revealed changes in functional groups linked to enhanced dye interaction, whereas SEM examination revealed changes in surface roughness and porosity following adsorption. Changes in crystallinity were verified by XRD analysis, indicating possible chemical interactions between RB222 and the components of wheat bran. Zeta potential determined a decrease in surface charge on wheat bran which confirmed the adsorption of the negatively charged dye on the surface of wheat bran. This study demonstrates the effectiveness of using agricultural waste, such as wheat bran to make wastewater free from RB222, providing a cost-effective and ecologically acceptable alternative to traditional treatment methods. The study also provided the information for optimising biosorption processes for reactive dyes, hence improving sustainable practices in the textile industry. The work not only illustrates the potential of wheat bran as an effective biosorbent for RB222, but also emphasises the need for creative wastewater treatment methods that harness natural materials to solve environmental concerns posed by synthetic dyes in textile effluents.

ICAKMPALET2025005

SYNTHESIS AND CHARACTERIZATION OF ZINC FERRITE FOR MAGNETIC HYPERTHERMIA

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Abstract

Nanoparticles have come to the limelight of nanotechnology in recent time owing to their applications in the medical and industries. Magnetic nanoparticles (MNPs) in their ferrite nature among NPs with general spinel formula MFe_2O_4 (Where M= Zn , Mn, Ni, Cu, Mg , Co and Ca) have been so distinct and widely explored for various applications. Among these ferrites , Zinc ferrite nanoparticles (ZFNPs) has attracted so much interest in the last few years due to its special magnetic properties. The paper describes how to arrive at the required characteristics suitable for the study of magnetic hyperthermia in a Nano ferrite. Magnetic nanoparticles have turned out to offer great potential in biomedical applications. This paper describes the required characteristics suitable for the study of magnetic hyperthermia. Zinc ferrite was synthesized by auto- combustion process using citric acid. Nanoparticles which mean particle sizes in the range were obtained by annealing the as-prepared powdered at 700˚ C for 2 hours. Their structural properties are characterized using X-ray diffraction (XRD). This simple process could be adopted for synthesis of different magnetic nanomaterials for use in biomedical.

Keywords: Ferrite nanoparticles, Magnetic hyperthermia, Citric and coating.

ICAKMPALET2025006

IN SILICO ASSESSMENT OF THE EFFECT OF DOXORUBICIN ON THE MITOPHAGY PATHWAY

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Abstract

Doxorubicin is a very popular chemotherapeutic drug belonging to the class of anthracycline. It is used to treat various types of haematological and solid tumours. A significant side effect of this drug is cardiotoxicity. Doxorubicin-induced cardiotoxicity is not yet clearly understood due to many conflicting experimental results. The role of mitophagy in doxorubicin-induced toxicity also lacks proper understanding due to contradictory reports; hence, the exact pathway for the action of mitophagy proteins is still unclear. This study was performed to develop a possible mitophagy pathway involved in doxorubicin-induced cytotoxicity using computer simulations. AutoDock Tools, AutoDock Vina and Discovery Studio were used to study and analyse the interaction between doxorubicin and mitophagy proteins. Docking with doxorubicin showed interaction with active sites of Parkin, p62/SQSTM1 and OPTN-LC3B complex with a binding affinity of -8.8kcal/mol, -7.3kcal/mol and -7.3kcal/mol, indicating that doxorubicin is involved in inhibiting these proteins. The binding of doxorubicin with these proteins prevents mitophagy as parkin is unable to ubiquitinate MFN1, MFN2, etc., p62/SQSTM1 is unable to interact with ATG 8, and OPTN-LC3 complex is unable to form a phagophore. The outcome demonstrates that doxorubicin plays a role in preventing mitophagy by blocking the proteins involved in autophagosome formation. To initiate the ubiquitination of proteins in the outer membrane of damaged mitochondria and the ensuing mitophagic destruction of mitochondria, Parkin, an E3 ligase, is attracted to the damaged mitochondria. Doxorubicin's interaction with parkin's active sites may interfere with the recruitment of p62/SQSTM1 and LC3, two downstream mitophagy components. Sequestosome1 (SQSTM/P62) binds the ubiquitinated mitochondria to the microtubule-associated protein Light Chain 3 (LC3), attracting the autophagy machinery to the damaged mitochondrion and directing it toward autophagic degradation. Docking analysis revealed that DOX interacted with the p62 active site, potentially impairing mitophagy. Once OPTN binds to ubiquitin-decorated cargo and connects it to autophagosomal membranes by binding to LC3, the optineurin (OPTN)-LC3 complex forms a phagophore that closes to form an autophagosome. DOX showed strong binding to this complex, which may interfere with mitochondrial autophagy and thus prevent the formation of phagophores. Molecular docking of Atg 12, c-Src, ATG5, TBK1, CK2β, MIRO and PGAM5-S with doxorubicin revealed that none of the interacting residues lie in the active site; therefore, the interaction between these proteins and doxorubicin is unlikely to affect the activities of these proteins.

Since these proteins lie upstream of the mitophagy, the docking result indicates that there is no autophagosome recruitment, suggesting that doxorubicin-induced cardiotoxicity may be due to the inhibition of the upstream mitophagy signalling pathway rather than the autophagosome elongation process. However, it may not directly disrupt the essential autophagy machinery in autophagosome formation and elongation. This selective binding indicates disruption of mitophagy-specific pathways

rather than total autophagy. The inability to form autophagosomes, thus no mitophagy, leads to the accumulation of defective mitochondria, which generates ROS and causes cardiotoxicity. These findings may help deepen our understanding of the mechanism of doxorubicin toxicity, and it could simultaneously help create focused therapies to maximise the medication's effectiveness and reduce its unfavourable consequences.

Keywords: doxorubicin, cardiotoxicity, mitophagy, parkin, SQSTM/p62, LC3-OPT.

ICAKMPALET2025007

Saraca asoca MEDIATED GREEN SYNTHESIS OF MgO NANOPARTICLES AS ANTI-BACTERIAL AND ANTI-BIOFILM AGENT AGAINST FOOD SPOILING MICRO-ORGANISMS

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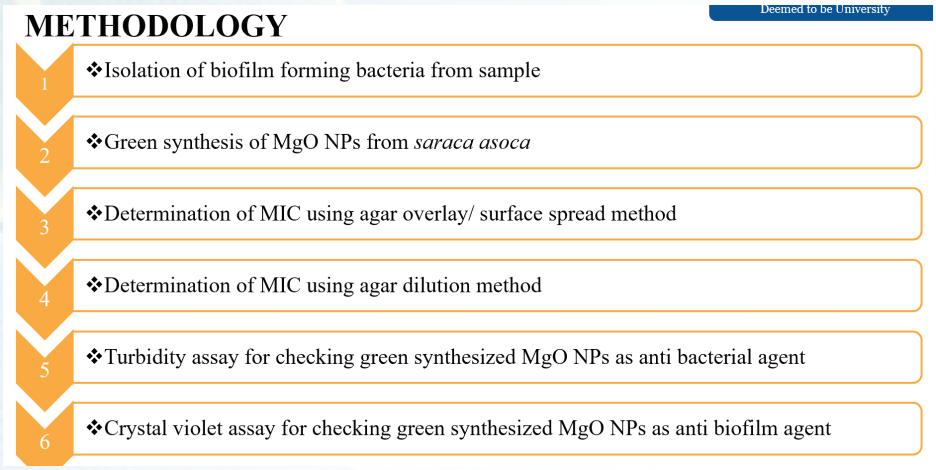
Abstract

Humans have specific basic needs that supports for their survival. Food is one of the major human needs. in recent times, the global population has raised high leading to increase in food consumption. When comparing all the highly consumed foods worldwide, meat possesses a greater nutrient density, which ultimately leads to a higher rate of spoilage. To extend shelf life period of meat products and we end up using indiscriminate application of antimicrobial and antibiotics such as mupirocin, penicillin etc has led to various multidrug-resistant (MDR) bacteria, which act as a serious public health threat and have emerged as a major challenge for food safety systems.

Meanwhile, nanotechnology has metamorphosed numerous sectors which includes medicine, agriculture, and food safety. Magnesium oxide nanoparticles (MgO NPs) have unique physicochemical traits demonstrated the capability to disrupt bacterial cell walls, infiltrate the cytoplasm, and ultimately induce programmed cell death, uncontrolled cell death. This property gives them potentiality to reduce and eradicate foodborne pathogens and preserving food products. This has prompted scientists to consider methods for tackling bacterial medicine resistance. Recently, investigations have begun in addressing this issue of multi drug resistant bacteria.

This project primarily concentrates on microbes that spoil red meat, along with the characterization and resistance mechanisms exhibited by those bacteria against green synthesized MgO NPs from Saraca asoca leaves extract.



Why Saraca asoca?

- antibiotic-resistant pathogens could emerge as the foremost cause of human fatalities by 2050
- Saraca asoca, known as the Ashoka tree, is a medicinal flora indigenous to South and Southeast Asia.
- Traditional medicine because of its numerous healing properties
- Anti-inflammatory, antimicrobial, and antidiabetic qualities
- Address a range of health issues, including uterine conditions, menstrual irregularities, and even as a solution for gastrointestinal problems
- Contain bioactive compounds that exhibit antimicrobial activity against a range of pathogens, including those responsible for meat spoilage
- Rich phytochemical profile, which includes compounds such as flavonoids, tannins, and alkaloids,
- The green synthesis process, which involves using plant extracts to reduce metal salts and form nanoparticles, offers an environmentally friendly alternative to chemical synthesis methods
- Are packed with vitamins, minerals, and antioxidants that support immune function, promote skin health, and improve digestive health

Conclusion:

- red meat, which contains vital nutrients such as protein, vitamins, and minerals

Some of the characteristics observed in each of the species are:

- Proteus mirabilis- emission of black color on the agar plate due to its ability to produce H2S, causing food spoilage in protein rich foods.
- Klebsiella pneumonia- commonly found all over the environment, spoils food by fermenting sugars and producing gas and slime.
- Klebsiella aerogenes- commonly found in poorly sanitized environments, contaminates foods as it produces gas and off- flavors.
- Enterobacter hormaechei- organism highly capable of forming biofilm, associated with spoiling freshly produced food products.
- Pseudomonas aeruginosa- typically an opportunistic pathogen, showing bluish-green color in nutrient broth under light due to its production of pyocyanin.

Keywords: food preservation, food spoiling bacteria, multi- drug resistance, green synthesis of MgO NPs, anti-bacterial activity, anti-biofilm agent.

ICAKMPALET2025008

A BRIEF REVIEW ON AGRICULTURE AND SUSTAINABLE DEVELOPMENT

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Abstract

Introduction:Agriculture serves as the backbone of global food security, livelihoods, and economic development. However, conventional agricultural practices have often led to environmental degradation, loss of biodiversity, soil erosion, and increased greenhouse gas emissions. To address these challenges, sustainable agriculture has emerged as a transformative approach that integrates environmental health, economic profitability, and social equity.

Sustainable development in agriculture focuses on using natural resources efficiently while preserving them for future generations. Practices such as organic farming, crop rotation, agroforestry, conservation tillage, and the adoption of renewable energy sources aim to reduce the ecological footprint of farming. Additionally, technological innovations like precision agriculture, climate-resilient crop varieties, and water management systems are playing a pivotal role in enhancing productivity while minimizing environmental harm.

Abstract:The objective of this topic is to highlight the need of sustainable agriculture, issue and challenges ofSustainable Agriculture Development in India. The balanced equilibrium between demand and supply of agricultural produce can be stated as "sustainability". Due to the Green revolution, productivity of agricultural products increases remarkably. The cumulative performance of various resources, the strategies and methods adopted, signifies the ultimate performance of agriculture. Agriculture is the back bone of Indian economy. As it is a multi-disciplinary approach, which connects link from all the sectors like production, processing and marketing; so it continuously dominate to bring the change in India. India is the country of villages, where a large proportion of rural people strictly depend on agriculture as it is their main occupation. Sustainable development in the agriculture not only aims to increase the productivity, efficiency and level of employment, but also conserve the natural resource base.

Keywords: Sustainable agriculture,Agriculture development, Demand and supply equilibrium, Green Revolution,Agricultural productivity,Innovative strategies, Natural calamities,Indian economy, Multidisciplinary approach,Agriculture sector.

ICAKMPALET2025009

BARRIERS IN INCLUSIVE EDUCATION: A PERSPECTIVE OF SUSTAINABLE DEVELOPMENT

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Abstract

Sustainable development is inclusive. Education is an agency for creating an inclusive society. The importance of inclusive education cannot be neglected. In order to have the society benefit from the educational enterprises there is a need to analyse the barriers to inclusive education. Sustainable development in its comprehensive approach has the basic dimensions of education and poverty eradication. They are achievable with decisive planning and definite implementation. The task of the educator is to identify the barriers and to assess the strategies for the solutions to the same. It is a descriptive study basing on the secondary sources. The primary objective is to explore the barriers to inclusive education with the perspective of sustainable development. It also has the focus on the strategies to be adopted for the removal of barriers for inclusive education. The outcome of the study is expected to contribute to the decision-making process and to the facilitators of inclusive education.

Keywords: Inclusive education, Barriers, Comprehensive education, Sustainable development.

ICAKMPALET2025010

HARDWARE IMPLEMENTATION OF GSM INTEGRATED REMOTE NOTICE BOARD

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Abstract

The goal of the "GSM-Integrated Remote Notice Board" project is to develop a cutting-edge communication system that uses GSM technology to enable remote alerts and announcements. It is frequently difficult for traditional notice boards to reach a larger audience or to update information quickly. Creating a wireless e-notice board that shows messages submitted from the user's mobile device is the primary goal of this project. A SIM card placed in a GSM modem at the receiving unit receives messages sent by users. The shift register IC on the microcontroller was interfaced with by the GSM modem. The microcontroller receives the message and forwards it to an electronic notice board that has a display unit interfaced with a microcontroller. One of the main advantages of the suggested system is that it may function in regions with GSM coverage, guaranteeing connectivity even in isolated or difficult-to-reach places. Because of the system's user-friendly architecture, administrators may simply change and manage the presented data by sending short text messages. The initiative also intends to optimize the system for dependability and reduce power usage. The remote notice board system may find use in a number of settings, including public transit, community centers, educational institutions, and businesses.

Keywords: GSM, Remote Announcement, e- Notice board, Microcontroller, User friendly, Power consumption, Reliability.

ICAKMPALET2025011

METAGENOMIC PROFILING OF SOIL MICROBIOMES

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Abstract

Metagenomics provides a reliable approach for analyzing microbial diversity by enabling the direct examination of genetic material from environmental samples. Soil, a complex and dynamic ecosystem, harbors diverse microbial communities that play critical roles in ecological balance, bioremediation, and nutrient cycling. This study investigated soil microbiomes in urban districts of Tokyo, Japan, using metagenomic data from the MGnify database (Study ID: MGYS00002702). The dataset, comprising 16S rDNA sequences amplified through Illumina technology, facilitated high-throughput sequencing of bacterial communities. A comprehensive bioinformatics workflow was employed for data analysis. Initial quality assessment of raw sequences was conducted using FastQC, followed by trimming of low-quality bases and adapter sequences with Trim Galore. Taxonomic classification was performed using Kraken2, with results visualized through Krona pie charts. Key bacterial taxa identified included Gammaproteobacteria (6–9%), Streptosporangium longisporum (6–9%), and Sporomusa (15%). These genera are crucial for bioremediation, nitrogen cycling, and soil health; for example, Streptosporangium longisporum supports soil aggregation and antibiotic production, while Sporomusa contributes to heavy metal interactions and organic matter decomposition. This study underscores the significance of bioinformatics in elucidating taxonomic compositions and highlights the ecological importance of soil bacteria. The findings provide a foundation for future functional metagenomics research on microbial interactions and their environmental impacts, emphasizing the need for understanding soil microbiomes to promote sustainable ecosystem management and address global challenges like soil contamination and degradation.

Keywords: Metagenomics, Soil metagenome, NGS, Bioinformatics, Galaxy.

ICAKMPALET2025012

A SURVEY ON ESOPHAGEAL CANCER AWARENESS AND PREVALENCE AMONG THE TRIBES OF NAGALAND

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Abstract

Background: Cancer of the esophagus has great diversity in geographical distribution and incidence. The rate of esophageal cancer has been increasing in some areas and the reasons for this are not clear. Esophagus Cancer is found to be a rising threat among non-communicable disease in India and with recent studies in Nagaland also. It has become a threat to the wellbeing of the people with ranking the topmost death rate cases in India according to WHO. This is mostly attributed to the consumption of tobacco. Usage of tobacco is a common practice among the Nagas since the Olden time. Using of smoked form or smokeless form depends according to the tribes. Chewing of tobacco is slowing growing trends with the younger generation. With this, they have higher risk of developing Esophagus Cancer in later stage of life.

Objective: The main motive of the study is to analyze the current scenario of Esophagus Cancer among the Naga tribes of Nagaland. To identify key risk factors contributing to the development of esophageal cancer in Nagaland: This includes examining lifestyle habits (such as tobacco and alcohol consumption), dietary patterns, and genetic factors that may be linked to the higher incidence of esophageal cancer in the region. To evaluate the awareness and knowledge of esophageal cancer among the local population: This aims to understand how well the residents of Nagaland are informed about esophageal cancer, its symptoms, early detection, and preventive measures.

Method: The data were all question-based research along with hospital records. Records from the 4 approved hospital were conducted. The records were filtered with only Esophagus related data from 2021-2024. Blood Groups data and previous cancer history were also included. 30 consented subjects from major Naga tribes were picked at random from Kohima and Dimapur. The consented respondents are handed with questionnaire.

Result: According to the hospital records, the number of patients diagnosed with Esophagus cancer was found to be the highest 2024 with 30% of the cancer patients were diagnosed with Esophagus cancer. Male are found to have more at risk as compared to female. Records shows that 41% of the patients were B positive blood group. Among the random respondents 50% were male and 50% were female, 73% in 30 of them chews tobacco, 70% of them smokes, only 15% among them don't consume any tobacco, 100% (M=15,F=15) knows about the danger of this cancer. 73% have knowledge on pre and post cancer treatment care, and 13% have gone to hospitals for checkup for Cancer.

Conclusion: Cases of Esophagus Cancer is increasing at a alarming pace among the Naga tribes in Nagaland. This type of Cancer is mostly developed at later state and thus it is important that we are informed about the initial stage symptoms. If diagnosis is done at the earliest stage than it can be treated. Proper dietary is also recommended in order not to increase the risk of the disease. With proper information regarding early-stage diagnosis as well as proper dietary plan and post treatment care the risk level of Cancer patients can effectively improve.

Keywords: Naga tribes, Esophagus Cancer, Risk factors, Smoking-Smokeless tobacco, Prevalence, Awareness.

ICAKMPALET2025013

A SURVEY OF ENTOMOPHAGY PRACTICES IN RENGMA TRIBE OF TSEMINYU DISTRICT, NAGALAND, INDIA

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Abstract

Entomophagy, the practice of consuming insects as food, is a common and integral part of the diet among the Rengma tribe in the Tseminyu district of Nagaland, India. This cultural practice is not only a traditional dietary habit but also an important aspect of the tribe's way of life. The Rengma people have a deep knowledge of the local fauna, particularly insects, which are often regarded as both a source of nutrition and a means of maintaining health. To understand the scope of entomophagy in this region, a detailed survey was conducted in the villages of Tseminyu district. Data were gathered through a combination of questionnaires and personal interviews with the village elders, who possess extensive knowledge of the local insects and their uses. These interviews provided valuable insights into the diverse species of insects consumed, as well as the cultural significance and practical applications of entomophagy among the Rengma.

The findings of the study reveal that the Rengma tribe is familiar with a wide variety of edible insects, with a total of 16 species identified as part of their diet. These species belong to 13 different families and six distinct insect orders, reflecting the tribe's extensive knowledge of local entomological diversity. Among the most commonly consumed insects are those from the orders Hemiptera, Orthoptera, Coleoptera, Lepidoptera, Sphaerotheriida, and Odonata. Specifically, four species belong to the order Hemiptera, while another four species are classified under the order Orthoptera. Additionally, three species are from the Coleoptera order, and three more are from the Lepidoptera order. One species from the order Sphaerotheriida and one from the order Odonata were also reported as part of the diet.

The study also delved into the seasonal availability of these insects, an important factor in their consumption. The Rengma people rely on a deep understanding of seasonal cycles to determine the optimal times for harvesting these insects. Insects are typically more abundant during certain seasons, such as the rainy season, when many species are more active or abundant. The edible stage of these insects also varies, with some being consumed in their larval or pupal stages, while others are eaten in their adult forms. The Rengma people demonstrate great adaptability and resourcefulness in utilizing these seasonal insects, ensuring they have a reliable food source throughout the year.

The mode of consumption of these insects is varied and creative. Insects are often prepared in traditional ways, which may involve roasting, frying, or boiling them. In some cases, they may be used as ingredients in soups or stews, providing both flavor and nutritional value. Insects are not only valued for their protein content but also for their therapeutic properties. Many Rengma people believe that certain insects possess medicinal qualities, with some species being used to treat ailments such as fevers, digestive issues, or skin

conditions. This therapeutic use of insects reflects the tribe's holistic approach to health and well-being, where food, medicine, and culture are intertwined.

Overall, this study provides valuable insight into the practice of entomophagy among the Rengma tribe, shedding light on the complex relationship between the tribe, their environment, and the insects they consume. The knowledge and practices surrounding edible insects contribute to the tribe's resilience and sustainability, showcasing the importance of traditional ecological knowledge in maintaining a balanced and healthy lifestyle.

Keyword: Entomophagy, Rengma, Insects, Seasonal, Food, Nutrition.

ICAKMPALET2025014

REVOLUTIONIZING HIGHWAY NAVIGATION: EXPLORING THE POTENTIAL OF LIFI TECHNOLOGY

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Abstract

This research work tackles the challenge of reliable navigation in congested urban environments by proposing a novel system that combines LiFi and LoRa technologies. In existing methods of the navigation there are complications with interference with the infrastructure and limited bandwidth so these can be overcome by the presented prototype. The LiFi transmitter which is placed in the streetlights, uses visible light for the transmission of the information of location at particular co-ordinates, which is received by the LiFi receivers equipped in the vehicles, that transmitted information will be directly given to the navigation system, which provide with continuous seamless navigation even in the places where there no service available, moreover this advanced navigation system is also capable of broadcasting the present location of the vehicle through the LoRa module to the outer world, by which the present location of the vehicle can be monitored, thereafter in the prototype, transmitted LoRa signal is received by the LoRa module and displayed in the LCD, this LoRa module has very long range and uses very low power when compare to the cellular network. In the non-serviceable locations like terrines, valleys, tunnels this idea can be a major contribution in the field of navigation.

Keywords: Li-Fi, LoRa, streetlights, navigation, non- serviceable areas, less power consumption.

ICAKMPALET2025015

DEVELOPING EFFECTIVE STUDY HABITS

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Abstract

Developing effective study habits is essential for educational progress. They enable students to retain and recall the learning. They help students to cover the study material, resulting in better scores and enhancing beliefs. They enable students in proper utilisation of time, lowering tensions and concerns. They help students in learning analytical reasoning and brainstorming traits which are critical for educational progress. Students face common issues in developing effective study habits. Procrastinating important tasks impact negatively study habits of the students. Misuse of social and digital media can be extremely detrimental to studies. If students don't have clear focus or predefined objectives, it may not possible for students to have disciplined study culture. Poor time management can lead to bad study habits resulting into lower academic scores. Students can deploy multiple strategies to develop effective study habits. If students decide their goals and preferences in advance, these enable them to focus on academics. The motivation to achieve their goals makes them study diligently. Developing a time table can enable students to manage their time effectively and stay focussed on their goals. Participatory learning methods such as summarizing and introspection, make students more attentive and enable long lasting learning. Identifying and minimizing distractions like social media enable students to concentrate on their studies.

Periodic analysis and revision enable students to improve their learning and long-lasting retention of the information. Illustrations like diagrams and flowcharts can enable students to arrange and summarize information more effectively. Mind maps can enable students to analyse relations among multiple concepts and ideas. Memory aids like abbreviations and iterations can enable students to memorize key terms and concepts. They should raise queries for clearing doubts. They can take support from educators, fellow students or parents. In Conclusion, effective study habits are key to success. Students need to understand thesignificance of effective study habits. They need to find out barriers of effective study habits. They should employ best suited-strategies to develop effective study habits. Effective study habits can enhance students' academic scores and beliefs. They can be instrumental in achievement of the student's goals.

Keywords: Study, Habits, Benefits, Barriers, Strategies, Students.

ICAKMPALET2025016

AUTOMATED VIDEO TRANSFORMATION FOR PIB PRESS RELEASE: A LITERATURE SURVEY

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Abstract

This paper investigates new trends in press release distribution, with a special emphasis on the shift from text-to-video formats. Modern audiences' short attention spans demand a more captivating method of disseminating information. We suggest a software program that does this job automatically by turning press releases into interesting videos. This program creates visually appealing material by using a collection of photos and videos that are not protected by copyright. Furthermore, our software integrates cutting-edge technologies like Natural Language Processing (NLP) for keyword extraction and Long Short-Term Memory (LSTM) algorithms for language translation. By improving accessibility and relevance, these features enable a wider range of users to consume the information. This study demonstrates how technology has the power to change conventional communication techniques, making them more interesting and available to modern audiences.

Keywords: Automated video, LSTM algorithm, NLP, language translation, keyword extraction, text-to-video generation, Machine Learning, copyright free.

ICAKMPALET2025017

SOCIAL MEDIA ANALYSIS IN PUBLIC OPINION

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Abstract

Social media analysis is a powerful tool for understanding and influencing public opinion. It allows researchers and organizations to track and identify emerging issues, measure public opinion on specific topics, manage crises, understand consumer preferences, and engage with the public. However, challenges include data quality and bias, ethical considerations, and technical challenges. Despite these, social media analysis remains a valuable tool for understanding and influencing public opinion, allowing organizations to proactively address concerns, develop targeted marketing campaigns, and encourage public participation in decision-making processes.

This abstract examines the complex relationship between p ublic opinion dynamics and social media platforms in an e ra where digital speech is prevalent. By employing advanced analytical techniques, we dissect the echo chambers that shape collective feelings, uncovering the nuanced pathways through which information proliferates and ideologies evolve. Through this lens, we illuminate the mechanisms driving polarization, the influence of algorithmic curation, and the role of user engagement in shaping the social fabric. By offering new insights into the intricate relationship between online conversation and societal opinions, this study hopes to advance our knowledge of the dynamics of public opinion in the modern era.

Keywords: Public Opinion, Social Media Networks, Social Network Analysis, social business, uses on social media, public opinion, Influence, Communication, Technology.

ICAKMPALET2025018

ARBUSCULAR MYCORRHIZAL FUNGI (AMF) AND PHYTOREMEDIATION

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Abstract

Arbuscular Mycorrhizal Fungi (AMF) play a crucial role in enhancing plant-fungal relationships, facilitating nutrient uptake, and pollutant removal from contaminated soils. By forming symbiotic relationships with plant roots, AMF's extensive mycelium network connects plants, soil, and microorganisms, making them a valuable tool for phytoremediation. Optimizing environmental conditions for AMF-mediated phytoremediation can improve pollutant removal, and selecting suitable plant and fungal symbionts is essential, with three-component phytoremediation systems (plant-AMF-microorganisms) showing promise in dissipating organic pollutants from soil.

Keywords: Arbuscular Mycorrhizal Fungi, Phytoremediation, Symbionts, Organic Pollutants.

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FAKE ACCOUNT DETECTION ON SOCIAL MEDIA USING MACHINE LEARNING: A COMPREHENSIVE APPROACH

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Abstract

The proliferation of fake accounts on social media platforms poses significant challenges, including the dissemination of misinformation, manipulation of public opinion and cybersecurity threats. The fraudulent accounts evolve to mimic legitimate users, traditional detection methods struggle to keep pace. Leveraging various behavioural, content-based and network-specific features, we explore a range of supervised and unsupervised learning algorithms to identify anomalies indicative of fake profiles. The present research compares the models such as Random Forest, Support Vector Machines (SVM), and deep learning architectures. This examined their effectiveness in identifying fake accounts with high accuracy and low false- positive rates. Feature engineering plays a critical role in the success of these models, with key metrics consisting of account age, post frequency, linguistic patterns and network connectivity. Extensive experiments on data sets from popular platforms, comprising Twitter and Facebook, demonstrate the proposed system's potential in real-world applications. The findings suggest that machine learning techniques can significantly improve the speed and accuracy of fake account detection, offering social media companies a robust tool to combleelaat online fraud and safeguard user interactions. Finally, the present study presents a machine learning-based approach to enhance the detection of fake accounts on social media.

Keywords: Fake Account Detection, Machine Learning, Social Media, Classification, Feature Engineering, Supervised, Unsupervised Learning).

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