DSU PHARMACON 2024

19th & 20th December

EMERGING TOOLS AND TECHNIQUES

ABSTRACTS

Venue: Campus 1, Kumaraswamy Layout,
Bengaluru-560111
Karnataka

Organised by
School of Health Sciences
College of Pharmaceutical Sciences

In association with KSPC, IBioM and SPSR

www.dsu.edu.in https://www.dsu.edu.in/pharmacy-dsu/pharmacon-2024

DSU
PHARMACON-2024
19th & 20th December
COPS,DSU, Bengaluru, Karnataka, India
EMERGING TOOLS AND TECHNIQUES

DSU-PHARMACON-2024

About the Conference

DSU PHARMACON 2024, themed "EMERGING TOOLS AND TECHNIQUES" is an international conference dedicated to exploring the transformative advancements reshaping the pharmaceutical and healthcare industries. Scheduled for 19th December 2024 at the state-of-the-art PC Sagar Auditorium, Dayananda Sagar University, this event brings together thought leaders, researchers, academicians, and industry experts from around the globe to foster collaboration and share groundbreaking ideas.

The conference will spotlight innovative tools and methodologies in drug discovery, regulatory science, precision medicine, artificial intelligence, and healthcare delivery. Through keynote lectures, panel discussions, and scientific sessions led by renowned experts, DSU PHARMACON 2024 aims to bridge the gap between research and practical applications, addressing global healthcare challenges and improving patient outcomes.

This prestigious platform not only encourages knowledge exchange but also serves as a launchpad for future collaborations, fostering interdisciplinary research and innovation. Join us at DSU PHARMACON 2024 to be part of the conversation shaping the future of Pharmaceutical Sciences and Healthcare.

PREFACE

Advancements in pharmaceutical sciences and healthcare technologies are pivotal in addressing the dynamic challenges of modern-day medicine. As the industry evolves, it is crucial to create platforms that facilitate the exchange of ideas, inspire innovation, and foster collaboration among academia, research, and industry.

DSU PHARMACON-2024 embodies this vision by bringing together leading minds to discuss "EMERGING TOOLS AND TECHNIQUES". This conference is a celebration of interdisciplinary research and collaborative efforts aimed at improving patient care and addressing global healthcare challenges.

This abstract book serves as a comprehensive guide to the remarkable work presented at DSU PHARMACON 2024. It highlights the scientific rigor, creativity, and dedication of researchers contributing to the conference.

We are deeply grateful to our esteemed speakers, participants, and sponsors for their support in making this event a success. It is our hope that DSU PHARMACON 2024 inspires transformative ideas and ignites meaningful collaborations that will shape the future of pharmaceutical sciences and healthcare.

Messages From The Leadership Desk

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Dr. D. Hemachandra Sagar,
Chancellor, Dayananda Sagar University

It is with great pride and enthusiasm, I welcome all the distinguished delegates, eminent researchers, and esteemed professionals to DSU PHARMACON 2024. This conference embodies our collective dedication to embrace the advancements in the field of drug discovery and healthcare by focusing on the integration of innovative tools and cutting-edge technologies.

At Dayananda Sagar University, we remain committed to cultivating excellence and fostering innovation. I am confident that DSU Pharmacon 2024 will serve as a platform to ignite thought-provoking discussions, build meaningful connections, and spark new ideas that will shape the future of healthcare.

I wish all participants an enriching and inspiring experience and extend my heartfelt gratitude to the organizing committee for their tireless efforts in making this conference a grand success.

Dr. D. Hemachandra Sagar, Chancellor, DSU

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Dr. D. Premachandra Sagar
Pro Chancellor, Dayananda Sagar University

It is an honor to welcome you all to DSU PHARMACON 2024, a landmark event that brings together the finest minds in academia, industry, and research to explore advancements in Drug Development and Healthcare.

The conference theme, ""EMERGING TOOLS AND TECHNIQUES" highlights the pivotal role of innovation, including cutting-edge AI tools and Precision Medicine, in shaping the future of Healthcare and Pharmaceutical Sciences. These advancements align seamlessly with the vision of "**Viksit Bharat**", fostering a healthier, self-reliant, and globally competitive nation driven by technology and transformative healthcare solutions.

As we address the complexities of modern healthcare, platforms like DSU PHARMACON provides a unique opportunity to bridge the gap between scientific research and translational approaches in improving patient outcomes.

DSU PHARMACON represents not only a celebration of innovation but also an invitation for collaboration and knowledge exchange. I wish the conference, a great success and commend the organizing team for their exceptional efforts.

Dr. D. Premachandra Sagar, Pro Chancellor, DSU

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Dr. Amit R Bhatt
Vice-Chancellor, Dayananda Sagar University

With immense pride and pleasure, I welcome all participants to DSU PHARMACON 2024, a conference dedicated to address the challenges and opportunities of Pharmaceutical Sciences and Healthcare Innovations.

The theme of this year's conference, ""EMERGING TOOLS AND TECHNIQUES" highlights the critical importance of interdisciplinary collaboration and technological advancements in handling the healthcare challenges of the 21st century. At Dayananda Sagar University, we have always believed in the power of synergy between academia, research and industry to foster groundbreaking innovations that redefine healthcare delivery.

This conference brings together globally recognized experts and leaders who will share their insights into emerging technologies and regulatory advancements, along with the integration of AI and machine learning into drug discovery.

I congratulate the organizing team for curating an exceptional program and extend my best wishes to all participants for a meaningful and impactful experience. Together, let us create a new cascade for excellence in Healthcare and Pharmaceutical Sciences.

Dr. Amit R Bhatt, Vice-Chancellor, DSU

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Dr. Puttamadappa C
Registrar, Dayananda Sagar University

It is a great privilege to welcome all participants to DSU PHARMACON 2024, a conference that exemplifies the integration of innovation, research, and collaboration in the field of Pharmaceutical Sciences.

The pharmaceutical industry is undergoing a paradigm shift, with advancements in pharmacological and toxicological screening, nanotechnology, and digital health solutions reshaping the landscape of drug discovery and patient care.

I am confident that the meticulously designed program, featuring insightful keynote speeches, engaging panel discussions and cutting-edge scientific presentations will provide an excellent platform for participants to expand their knowledge, network with peers, and explore new avenues for collaboration.

My heartfelt congratulations to the Organizing Committee for their dedication and hard work in organizing this prestigious event. I wish all delegates a productive and enriching experience and look forward to witness the impactful outcomes of this conference.

Dr. Puttamadappa C, Registrar, DSU

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EMERGING TOOLS AND TECHNIQUES

Dr. Pushpa Sarkar
Dean, School of Health Sciences
Dayananda Sagar University

It gives me immense pleasure to welcome you all to DSU PHARMACON 2024, a conference designed to bridge the gap between innovative research and its application in healthcare.

As we gather under the theme, ""EMERGING TOOLS AND TECHNIQUES" we are reminded of the transformative power of technology and collaboration in addressing the multifaceted challenges of modern healthcare. From leveraging the emerging tools and technologies in drug development to exploring novel therapeutic modalities, this conference highlights the forefront of pharmaceutical revolutions.

I encourage all participants to actively engage in the expert talks, panel discussion, interactive oral and poster sessions that have been meticulously sketched to inspire critical thinking and encourage collaboration. Together, let us explore groundbreaking ideas and solutions that will redefine healthcare and improve global well-being.

I extend my heartfelt gratitude to the speakers, dignitaries, and organizing team for their invaluable contributions and wish all delegates a fruitful and energizing experience.

Dr. Pushpa Sarkar, SHS, DSU

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EMERGING TOOLS AND TECHNIQUES

Dr. Kalpana Divekar
Organizing Chairman,
Professor,
College of Pharmaceutical Sciences,
Dayananda Sagar University

It is my honor and privilege to welcome all delegates, speakers, and participants to DSU PHARMACON 2024, a distinguished conference centered on "EMERGING TOOLS AND TECHNIQUES".

This conference aims to provide a platform for encouraging collaborations and exchanging ideas that align research and innovation with the dynamic needs of the global healthcare ecosystem.

As the Organizing Chairman, I am immensely proud of the dedicated efforts of our Organizing Committee in structuring a program that reflects the latest developments in Pharmaceutical Sciences. The conference promises to feature thought-provoking keynote sessions, cutting-edge research presentations, and interactive discussions that will pave the way for new solutions in drug discovery and healthcare.

I encourage all participants to engage themselves in the sessions, explore opportunities for collaboration, and actively contribute to the enriching discussions. I express my heartfelt gratitude to all our esteemed speakers, sponsors, and participants for their invaluable support and wish everyone a successful and impactful conference.

Dr. Kalpana Divekar
Organizing Chairman

Organizing Committee
DSU PHARMACON 2024

It is with great enthusiasm and anticipation that we extend our warmest welcome to all participants of DSU PHARMACON 2024. This prestigious event, themed "EMERGING TOOLS AND TECHNIQUES" is a culmination of our collective efforts to provide a platform for exchanging knowledge and fostering innovation in pharmaceutical sciences.

Our objective is to bridge the gap between academia, research, and industry, ensuring that the latest advancements in Drug Discovery and Healthcare are explored, debated, and disseminated. With a robust program featuring distinguished speakers, engaging panel discussions, and insightful scientific sessions, we aim to inspire collaboration and spark new ideas that contribute to solving global healthcare challenges.

The organizing committee takes immense pride in hosting this conference, which brings together a diverse community of researchers, healthcare professionals, and industry experts. We are committed to ensuring that every participant finds this experience intellectually rewarding and professionally enriching.

We extend our gratitude to all our sponsors, collaborators, and supporters for making this event possible. We also thank the distinguished speakers and delegates for their contributions and active participation. Together, let us make DSU PHARMACON 2024 a resounding success.

ORGANIZING COMMITTEE

Organizing Team

Advisors:

- Dr. Amit R Bhatt, Vice-Chancellor, Dayananda Sagar University
- Dr. Puttamadappa C, Registrar, Dayananda Sagar University
- Dr. Pushpa Sarkar, Dean, SHS, Dayananda Sagar University
- Dr. Jagadish Mittur, President, IBioM
- Dr. Sirse Kranti Kumar, Registrar, Karnataka State Pharmacy Council
- Dr. Jayakara Shetty M, Vice Chancellor, Bangalore University
- Dr. Kalpana Divekar, Principal, College of Pharmaceutical Sciences, DSU

Committee	Name	Committee	Name
Convener	**Dr Sonal Dubey**	Hospitality	**Co-ordinator:** **Dr. Shanaz Banu** Dr. Prema Kumari K.B Dr. Lita Susan Thomas Dr. M. Gnana Ruba Priya Dr Sunil Kumar Kadri Mr. Sanath D
Co-Convener	**Dr. Prashant Tiwari**		
Venue	**Co-ordinators:** **Dr Kalpana D** **Dr Geetha KM** Mrs. Rekha.S Mrs. Jincy Thomas Mrs. Anita A Dr. Anju Jose Mrs. Shweta B R		
Scientific	**Co-ordinator:** **Dr. Vanaja K** Dr. Sivakami Sundari Dr. Mahadevamma L Dr Anindita Behera Dr. Kumari Preeti Dr. Arfa Nasrine Mrs. Vaishali Bambal Mrs. Pravalika S Mr. Azhar Mohammed	Logistics & Transportation, Expo pavilion	**Co-ordinator:** **Dr. Prashant Tiwari** Dr. K Kranthi Kumar Mrs. Pruthvi N Dr Ashwini P Kumar Dr M Vijay Kumar Mr. Sunny Rathee
Registration	**Co-ordinator:** **Dr. B Wilson** Dr. Josephine L. Jenita Dr. Manjula D Dr Rahul R Ms. Sampriti	Sponsorship	**Co-ordinator:** **Dr Sunil K. Kadari** Dr Rahul G
Print, Publicity & Marketing	**Co-ordinator:** **Dr. M Vijay Kumar** Dr Karuna Nagula Ms. Seema S Rathore Mrs. Dhanashree N Mr. Nandakumar Ms. Nivedita Barnwal	Memento & Kits	**Co-ordinator:** **Dr Sajeev Kumar B** Mr. Sagar G Ms. Keerthna
		Cultural	**Co-ordinator:** **Ms. Seema S Rathore** Dr. Anju Jose

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PROGRAMME SCHEDULE

DAY 1: 19th December 2024

Venue: PC Auditorium, Campus 1, Kumaraswamy Layout, Bengaluru 560111

Organized by: College of Pharmaceutical Sciences, School of Health Sciences

Schedule	Programme	Off-Stage (Lobby)
8.00 am-9.15 am	Registration	
9.30 -10.30 am	Inauguration	
10.30-11.00 am	Scientific session by **Dr. Ruckmani Kandasamy** - "Translational Research: Mind to Market - Lessons for Researchers"	
11.00-11.10 am	Poster Pitch	
11.10-11.20 am	SOTAX	
11.20-11.30 am	Poster Pitch	
11.30-11.40 am	Tea Break	
11.40-12.15 pm	Scientific session by **Dr. Nirnith Devireddy** - "Unlocking the Potential of AI & Computational Modelling & Simulation (CM&S) in Pharmaceutical Development"	Poster Session – 1 (11.40-12.50 pm)
12.15-12.50 pm	Scientific session by **Dr. Subrahmanyam Vangala** – "Advances in Safety and Efficacy Assessment Using Translational Humanized 3D Models: Applications in Novel Drug Discovery"	
12.50-1.00 pm	Poster Pitch	
1.00-2.00 pm	Lunch Break	
2.00-2.40 pm	Scientific session by **Dr. Suresh Poorsala**	Poster Session – 2 (2.15-3.20 pm)
2.40-2.50 pm	Session By **Mr. Surojit**, Advent Informatics	
2.50-3.00 pm	Tea Break	
3.00-3.40 pm	Scientific session by **Dr. Vijayakanth**	
3.40-4.15 pm	Oral Presentation Session – 1	Poster Session – 3 (3.40-4.50 pm)
4.15-5 pm	Scientific session by **Dr. Nagasuma Chandra** – **"Precision Session"**	

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PROGRAMME SCHEDULE

DAY 2: 20th December 2024

Venue: CD Sagar Auditorium , Campus 1, Kumaraswamy Layout, Bengaluru 560 111

Organized by: College of Pharmaceutical Sciences, School of Health Sciences

Schedule	Programme	Off-Stage (Lobby)
9.00-9.40 am	Online Scientific session by **Dr. Thadeu Costa** – "Cellular and Molecular Approaches on Drug Discovery"	Poster Session – 4 E-Poster Session at CIL, 4th floor
9.40-11.15 am	Oral Presentation Session - 2	
11.15-11.30 am	Tea Break	
11.30-12.15 pm	Online Scientific session by **Dr. Taruna Madan Gupta** – "Recent initiatives by ICMR to strengthen the MedTech Innovation ecosystem"	Poster Session - 5
12.15-1.00 pm	Scientific Session by **Dr. Prashanth G N**	
1.00-2.00 pm	Lunch Break	
2.00-2.45 pm	Scientific Session by **Dr. Deepak M**	
2.45-3.30 pm	Panel Discussion	`
3.30-4.30 pm	Valedictory and Certificate Distribution	
4.30-4.45 pm	High Tea	

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List of Chief Guest and Guest of Honours

CHEIF GUEST

Dr. Jayakara Shetty M
Vice-Chancellor, Bangalore University

Guest of Honours

Dr. Sirse Kranti Kumar
Registrar,
Karnataka State Pharmacy Council

Dr. Jagadish Mittur
President, IBioM,
Bengaluru
(Keynote Speaker)

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Title of the talk:
"Translational Research : Mind to Market - Lessons for Researchers"

Dr. K. Ruckmani
Director,
Centre of Excellence in Nanobio Translational Research,
Anna University,
Tiruchirappalli, Tamilnadu

Translational research is pivotal in bridging the gap between foundational scientific discoveries and market-ready healthcare solutions. This invited talk focuses on the theme of "Mind to Market," providing insights into the critical role of formulation development in the drug discovery and development pipeline.

The discussion will center on the challenges and opportunities in formulation development, emphasizing innovative approaches to enhancing drug solubility, stability, and bioavailability. Key points include strategies for addressing formulation challenges during scale-up, aligning product design with patient-centric needs, and navigating the regulatory frameworks critical to bringing novel formulations to market.

Real-world case studies will demonstrate how formulation science transforms active pharmaceutical ingredients into safe, effective, and commercially viable drug products. Participants will gain actionable knowledge on integrating advanced techniques such as nanotechnology, controlled-release systems, and predictive modeling into formulation processes.

This talk aims to inspire researchers and academicians to adopt a translational approach, ensuring that their work not only advances scientific understanding but also meets the practical needs of healthcare and industry. Attendees will leave with valuable lessons on transforming innovative ideas into impactful therapeutic solutions that improve patient outcomes.

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Title of the talk:
“Unlocking the Potential of AI and Computational Modeling & Simulation in Pharmaceutical Development”

Dr. Nirnith Devireddy
CEO & Founder
In Silico Minds
Hyderabad

The pharmaceutical industry is experiencing a swift digital transformation, fueled by the integration of advanced computational techniques such as Artificial Intelligence (AI) and Computational Modeling & Simulation (CM&S) in drug development. This presentation will delve into the synergy between AI and CM&S within the pharmaceutical and life sciences sectors, highlighting their impact on enhancing patient outcomes and streamlining pharmaceutical development

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Title of the talk:
"Advances in Safety and Efficacy Assessment Using Translational Humanized 3D Models : Applications in Novel Drug Discovery"

Dr. Subrahmanyam Vangala
Co-Founder & Director
Reagene Innovations Pvt. Ltd
Bengaluru

In the last three decades, it has become apparent that safety and efficacy assessment of novel drug candidates using animal models does not translate for successful clinical outcomes. The primary reason is that drug absorption, distribution, metabolism and excretion properties vary widely between animal models and humans. Recent advances in in vitro models such as human derived sub cellular fractions, 2D cell models, organ on chip models such as microfluidics and 3D bioprinting -methods using human primary cells/differentiated stem cells have become useful tools as Alternatives to Animal models. The speaker will present on how these humanized in vitro models transformed the early drug discovery process of predicting human ADME, Safety and Efficacy properties of novel drug candidates, ahead of designing clinical trials in humans. The evolution of such models including successful translation of clinical outcomes and regulatory acceptance, gaps in India, will be discussed in this presentation.

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Title of the talk:
"Formulation and Development: Nanomedicine & Advanced Drug Delivery Systems"

Dr. Vijayakanth
Senior Vice President & Head R&D
Steriscience
Bengaluru

Nanomedicine is currently one of the most captivating fields of research. By utilizing different types of nanoparticles to deliver precise amounts of drugs directly to targeted cells, such as cancer or tumor cells, without affecting normal cells, the use of nanomedicine and nano-drug delivery systems is poised to be a dominant area of research and development for many years to come.

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Title of the talk:
“Precision Medicine”

Dr. Nagasuma Chandra
Professor
Department of Biochemistry
IISc
Bengaluru

Mathematical and computational models of biological systems are being studied to understand control structures in biochemical pathways, metabolic and regulatory networks, insights from which are being used to understand key perturbations in disease and for biomarker and drug discovery as well as precision medicine. Several algorithms have been developed to probe protein structures and genome-wide molecular interaction networks.

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Title of the talk:
“Cellular and Molecular Approaches on Drug Discovery”

Dr. Thadeu Costa
Public Health Technologist
Fiocruz, Rio de Janeiro
Brazil

Old and new in vitro preclinical models used in drug discovery on cellular and molecular based analysis such as cytotoxicity, flow cytometry, cell imaging ELISA, Western Blot, single cell sequencing and multiomics will be presented and discussed during the talk

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Title of the talk:
"Recent Initiatives by ICMR to Strengthen the MedTech Innovation Ecosystem"

Dr. Taruna Madan Gupta
Head, ICMR-Division of Development Research
Govt. of India
New Delhi

Indian Council of Medical Research, a part of the Department of Health Research, Ministry of Health and Family Welfare, Government of India is the premier national organisation for pursuing and financially supporting Medical Research. Council has taken several recent initiatives to accelerate medical research and innovation from bench to bedside for larger public health good.

To advance biomedical innovations in the country ICMR is rendering IP and Technology Transfer Facilitation Support for innovators of ICMR Institutes, non-ICMR institutes funded by ICMR & third parties involved in biomedical research and facilitating technology transfer for translation of bio-medical research into practical healthcare solutions.

ICMR-Indian Clinical Trial Education and Network (INTENT) and Phase I network of 75 and 4 centres across the country respectively is facilitating regulation compliant safety and efficacy/performance evaluation of drugs, devices and diagnostics in the real-world settings.

MedTech Mitra, an initiative of NITI Aayog, Indian Council of Medical Research (ICMR) in partnership with Central Drug Standard Control Organization (CDSCO), is facilitating the handholding support to MedTech Innovators including Academic investigation, NGOs, Start-ups & established companies/industry by addressing these hurdles and fostering an enabling environment for innovation through which India can unlock the full potential of its medical device and diagnostic sector, contributing to the nation's goals of self-reliance, improved healthcare access, and economic growth.

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Title of the talk:
“Analysis and RA”

Dr. Prashanth G. N
Senior Vice President
Corporate Quality
Granules India Limited
Hyderabad

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Title of the talk:
"Global Research Trends in the Field of Botanicals - Challenges and Opportunities"

Dr. Deepak M
Head R&D
Natural Remedies
Bengaluru

We are witnessing a worldwide consumer preference for natural products to deal with health and wellness. Accordingly, regulators are tightening controls over how the botanical based products can be released to the market. Requirements to substantiate efficacy, safety, quality, consistency and sustainability are becoming more stringent. Hence there is a strong need to align our research directions and efforts towards meeting these requirements. Academic research can play a significant role in contributing to solve some of the problems pertaining to botanicals. By critically understanding these requirements academic research in India can stay relevant to the fast-changing global contexts. This presentation aims to highlight these areas for igniting thoughts and actions.

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SCIENTIFIC ABSTRACT

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ORAL PRESENTATION

DAYANANDA SAGAR UNIVERSITY

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ORAL PRESENTATION

LIST OF ORAL PRESENTATIONS

SESSION	CODE	TITLE
PHARMACEUTICAL CHEMISTRY AND CADD		
ORAL	**PC01**	UNVEILING THE POTENTIALS OF SOME PHENACYL THIOCARBAMATES AS ANTIFUNGALS: *IN-VITRO* AND *IN-SILICO* APPROACH
ORAL	**PC02**	COMPUTATIONAL EXPLORATION AND SYNTHESIS OF NOVEL GLITAZONES FOR TARGETING PGC-1A PATHWAY VIA PPAR-Γ AGONISM-A PROMISING THERAPEUTIC STRATEGY FOR PARKINSON'S DISEASE
ORAL	**PC04**	COMPUTATIONAL ANALYSIS OF PHYTOCONSTITUENTS FROM *HEMIDESMUS INDICUS* AGAINST ANTI-DIABETIC RECEPTORS INCLUDING DPP4, SGLT-2, PPAR-GAMMA.
ORAL	**PC07**	DESIGN, SYNTHESIS AND EVALUATION OF COUMARIN BASED COMPOUNDS AS KEAP1 INHIBITORS FOR ALZHEIMER'S DISEASE.
ORAL	**PC09**	PYRAZOLE-4-CARBOXAMIDE DERIVATIVES AS AURORA KINASE INHIBITORS
PHYTOPHARMACEUTICAL RESEARCH		
ORAL	**PH01**	COMPARISON OF POLYSACCHARIDES FROM VARIOUS EXTRACTION METHODS OF *HERICIUM ERINACEUS*
PHARMACOLOGY AND TOXICOLOGY		
ORAL	**PL02**	EVALUATION OF IN VIVO ANTIDEPRESSANT ACTIVITY OF SOLID-LIPID NANOPARTICLES OF *ALBIZZIA LEBBECK*[L]
ORAL	**PL03**	UNWINDING THE COMPLEXITIES OF DIABETIC ALZHEIMER USING NARINGENIN IN STREPTOZOTOCIN-NICOTINAMIDE- INDUCED RAT MODEL
ORAL	**PL05**	UNVEILING THE WOUND-HEALING AND ANTI-INFLAMMATORY POTENTIAL OF AERIAL PARTS OF METHANOL EXTRACT OF *BARLERIA CRISTATA* L.
ORAL	**PL18**	TO UNDERSTAND THE EFFICACY AND SAFETY OF REMDESIVIR AND FAVIPIRAVIR IN COVID-19 PATIENTS THROUGH A-SYSTEMATIC REVIEW AND META-ANALYSIS
CLINICAL PHARMACY PRACTICE		
ORAL	**PP02**	DETERMINING CLINDAMYCIN AND LINEZOLID SENSITIVITY IN WOUND CARE – THE CURRENT STATUS

ORAL PRESENTATION

ORAL	**PP12**	EXPLORING RISK FACTORS, CLINICAL OUTCOMES, AND MOLECULAR INSIGHTS INTO CARBAPENEM-RESISTANT ENTEROBACTERIACEAE IN ICU SETTINGS
ORAL	**PP15**	THE EFFECT OF PREOPERATIVE GABAPENTIN ON POST- AND PERI-OPERATIVE SURGICAL PAIN IN PATIENTS UNDER LOCAL ANESTHESIA IN MINOR SURGERY: A RANDOMIZED, TRIPLE-BLIND, PLACEBO-CONTROLLED STUDY.
PHARMACEUTICAL TECHNOLOGY AND ADVANCES IN DRUG DELIVERY SYSTEMS		
ORAL	**PT01**	DEVELOPMENT AND CHARACTERIZATION OF SURFACE-MODIFIED CO-LOADED LIPOSOMES FOR EFFECTIVE MANAGEMENT OF ALZHEIMER'S DISEASE
ORAL	**PT28**	PREPARATION AND EVALUATION OF SAFINAMIDE MESYLATE - CHITOSAN NANOPARTICLES FOR THE MANAGEMENT OF PARKINSON'S DISEASE
QUALITY CONTROL AND QUALITY ASSURANCE		
ORAL	**QA02**	RP-HPLC METHOD FOR SIMULTANEOUS DETERMINATION OF OFLOXACIN AND ORNIDAZOLE IN TABLET DOSAGE FORM

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ORAL PRESENTATION

PC01

Unveiling the potentials of some phenacyl thiocarbamates as antifungals: *In-vitro* and *in-silico* approach

[1*]**SE Maida Engels**
[1]PSG College of Pharmacy, Coimbatore, Tamil Nadu, India.

Introduction:

Thiocarbamates are an important class of compounds that have numerous biological effects ranging from pesticidal, fungicidal, bactericidal, anaesthetic, anticancer and antiviral activity. The Riemschneider thiocarbamate synthesis is one of the synthetic tools that help to synthesize thiocarbamates conveniently. *Fungi are* opportunistic pathogens, infect especially immune-compromised patients and cause mild to severe systemic reactions. Despite the availability of numerous anti-fungal agents, evolution of a drug-resistant fungal pathogen is a major concern. So, present study aims to synthesize and evaluate *in-vitro* and *in-silico* anti-fungal activity of N-Alkyl substituted thiocarbamates.

Methods:

N-Alkyl substituted thiocarbamates were synthesized using Riemschneider thiocarbamate synthesis. This reaction converts alkyl or aryl thiocyanates to thiocarbamates under acidic conditions, followed by hydrolysis with ice water. All the synthesized compounds were characterized using NMR and Mass spectroscopy. The synthesized compounds were evaluated for anti fungal activity against *Candida albicans and Aspergilus niger*. The binding modes of all the compounds were evaluated by molecular docking studies against anti-fungal drug targets such as 14α lanosterol demethylase and squalene epoxidase.

Results:

Totally 30 compounds of N-Alkyl substituted thiocarbamates were synthesized from different substituted phenacyl bromides and characterized using NMR and Mass spectroscopy. *In-vitro* and *in-silico* studies revealed that most of the compounds showed moderate anti fungal activity against different fungi strains and have good binding affinity with anti fungal drug targets.

Conclusion:

In this study, thiocarbamates were synthesized by simple method and evaluated for anti fungal activity. This study provides a valid insight in employing N-Alkyl substituted thiocarbamates as anti fungal agents.

Keywords: Thiocarbamates, Anti fungals, Candida albicans, *In-silico*.

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EMERGING TOOLS AND TECHNIQUES

ORAL PRESENTATION

PC02

Computational exploration and synthesis of novel glitazones for targeting PGC-1α pathway via PPAR-γ agonism-A promising therapeutic strategy for Parkinson's disease

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Introduction-

Glitazones, also known as thiazolidinediones (TZD) have received a lot of attention recently by the researchers globally due to their various biological activities and effect on the regulation of various pathways. In the present study, fifteen novel glitazones were designed, synthesized and analysed all the compounds using *in silico* computational approaches for their binding affinity to activate PGC-1α via PPAR-γ binding. The synthesized novel glitazones were evaluated for their neuroprotective and anti-inflammatory potential on TR-FRET PPAR-γ competitive binding assay.

Method-

The proposed fifteen novel glitazones were synthesized by Knoevenagel condensation reaction and analysed for their structural integrity. The synthesized compounds were screened for TR-FRET PPAR-γ competitive binding assay to arrive at a selective PPAR- γ ligand and PPAR-γ transcriptional activity in SHSY5Y cells was measured with an ELISA- based PPARγ transcription factor assay kit. To evaluate the effect of these compounds on the mitochondrial membrane potential of cells, JC-1 staining studies were performed.

Results-

Three compounds were selected which had the best binding affinity based on the lowest CDOCKER interaction energy. Interestingly, three compounds KK001, KK002, and KK010 from the novel synthesized series were found to have significant neuroprotective and anti-inflammatory activity than the standard drug pioglitazone based on the reduced levels of IL-6, TNF-α and NF-kB expression in SHSY5Y cell lines. This study showed the potential neuroprotective effect of novel glitazones, KK001, KK002, and KK010 under neuroinflammatory circumstances which could be via. activation of central PGC-1α signalling via the PPAR- γ receptor.

Keywords: Glitazones, PPAR-γ, PGC-1α, TZDs, Neuroprotective, Anti-inflammatory, Docking, Molecular Docking, Parkinson's Disease.

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ORAL PRESENTATION

PC04

Computational Analysis of Phytoconstituents from *Hemidesmus indicus* against Anti-diabetic receptors including DPP4, SGLT-2, PPAR-gamma

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Introduction:

Hemidesmus indicus is well known for its medicinal properties and reported to possess many biological activities. So far, many phytoconstituents are reported in the plant Hemidesmus indicus with well-known medicinal properties.

Methods:

The entire H. indicus plant material was extracted using ethanol as solvent. The extract was analysed by GC-MS. The 3D structure of phytochemicals, were downloaded from PubChem database in SDF format and Filtering of Ligands (Phytoconstituents) was performed by Lipinski's rule. Suitable Receptors were retrieved from Protein Data Bank and Docking studies was performed. Molecular Dynamic simulation studies were carried out for 100ns to forecast the stability of protein–ligand complexes. Further DFT studies were done using Gaussian16 at the B3LYP/6–31 + + G(d,p) level.

Results:

GC-MS Analysis of ethanol extract showed presence of five phytoconstituents-Thymol, Myrtenol, Lupeol, Rutin & Alpha-Terpineol. Among four out of five phytoconstituent followed the Lipinski's rule. Lupeol was known to show highest glide score with different receptors including DPP4(-8.06) SGLT-2(-7.23) & PPAR-gamma (-5.12). In Molecular dynamic studies the lupeol had shown stable & consistent in dynamic environment throughout 100ns. DFT studies revealed HOMO and LUMO characteristics of the ligand.

Conclusion:

Among all the five phytoconstituents, Compound Lupeol showed good docking score for all the three receptors and further Molecular dynamic simulation studies were performed where it showed good binding affinity, stability and consistent throughout the simulation period for all three receptors. The Conceptual DFT study performed through the analysis of the chemical reactivity descriptors revealed the favorable characteristics of this compound for its consideration as a good therapeutic drug.

Key words: Phytoconstituents, Molecular docking, MD simulation, Anti-diabetic, DFT.

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ORAL PRESENTATION

PC07

Design, Synthesis and Evaluation of Coumarin based compounds as Keap1 Inhibitors for Alzheimer's Disease

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Introduction-

No new novel moiety is approved as Keap1 inhibitors for Alzheimer's Disease. Therefore, the aim of this study is to Design, Synthesis and Evaluation of Coumarin based compounds as Keap1 Inhibitors for Alzheimer's Disease.75 derivatives of coumarins were selected and studied for their keap1 inhibitory activity by using *in silico* methods. Designed 10 coumarin derivatives was synthesized. Synthesized compounds were investigated for their Invitro antioxidant activity.

Method:

10 derivatives of coumarin were designed. The crystal structure of Keap1 protein with PDBID: 4XMB was obtained from the protein database bank. The structure of protein was of high quality. Its integrity was evaluated using Ramachandran plots. Autodock 4.2.6 was explored for docking study in this research. Biovia Discovery Visualizer 2021 was used for visualization of docking results. Designed compounds were synthesized. Characterization of synthesized compounds were carried out by TLC, MP, NMR and Mass. Compounds were analysed for their *Invitro* antioxidant activity.

Result:

Compound D29, D39, and D52 showed highest binding energy -7.52, -7.44 and -6.04 respectively. Other compounds showed binding energy below -6. All compounds followed Lipinski rule of five. All compounds were BBB permeable excluding compound D29. Compound D39 has significant binding energy and it was nontoxic. It showed LD50 of 103 mg/Kg. All compounds have shown significant antioxidant and amyloid beta aggregation inhibition activity.

Conclusion:

In conclusion, compound D29 has highest binding energy -7.52 but it didn't cross the BBB membrane. Compound D39 and D52 have significant binding energy. All compounds were found to possess drug likeliness properties. All synthesized compounds showed significant *Invitro* activity. Thus, coumarin derivatives could pass for further investigation to develop potential therapeutic agents for the treatment of Alzheimer's disease.

Keywords: KEAP1, *Insilico,* coumarin, Alzheimer's Disease, ARE-Nrf2 signalling pathway, Pharmacokinetic, ADME

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ORAL PRESENTATION

PC09

Pyrazole-4-carboxamide derivatives as aurora kinase inhibitors

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Abstract
A series of pyrazole-4-carboxamide derivatives were synthesized, characterized, and evaluated for their kinase inhibitory property. Among them, molecule 6k exhibited highest cytotoxicity against HeLa (IC_{50}: 0.43 µM) and HepG2 cells IC_{50}: 0.67 µM). In comparison to other kinases, the molecules were more selective and effective against Aurora kinases A (IC_{50}: 16.3 nM) and B (IC_{50}: 20.2 nM). Further, 6k inhibited Thr288 in Aurora kinase A and Histone H3 in Aurora kinase B. Also, the cell cycle arrest was observed at G2/M phase by modulating cyclinB1 and cdc2 protein levels and increasing the Sub-G1 cell population and boosted apoptosis. Tozasertib was used as reference standard during the study.

Keywords: Pyrazole, Aurora kinase, HeLa, HepG2, Cell cycle arrest, Apoptosis.

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ORAL PRESENTATION

PH01

Comparison of Polysaccharides from Various Extraction Methods of *Hericium erinaceus*

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Introduction:

Hericium erinaceus, or lion's mane mushroom, is valued in traditional medicine for its neuroprotective, immunomodulatory, and antioxidant properties. These benefits stem from its bioactive compounds, particularly polysaccharides, which exhibit antitumor, hypoglycemic, and anti-inflammatory effects. The extraction method can greatly influence the yield and composition of these compounds, making optimization crucial for enhancing the use of *H. erinaceus* in nutraceuticals and functional foods. In this study, we compared various extraction methods to select optimum conditions for polysaccharide extraction from this mushroom.

Method:

The dry mushroom powder was extracted using various methods like hot water extraction (HWE), enzyme-assisted extraction (EAE), and sequential cold and hot alkali extraction. All methods utilized a 1:10 ratio of solid to liquid ratio. Enzymes like cellulase, pectinase, and trypsin or papain in 2:1:1 ratios for enzyme-assisted extraction. In both cold and hot alkali extraction process, sodium hydroxide (NaOH) concentrations of 1%, 2%, and 5% were employed. For hot water extraction, mushroom powder was boiled for 3 hrs. Post extraction, crude polysaccharide was isolated by alcohol precipitation. Metabolite profiling of different extracts was conducted using GC-MS after sample derivatization. Data analysis was performed with MetaboAnalyst 6.0 to compare metabolites across different extraction methods.

Results:

A total of 14 sugars and their derivatives were identified through GC-MS analysis. The 2% Alkali extract exhibited the highest sugar peak area, accounting for 52% of the maximum detected, followed by 1% Alkali and 5% Alkali. EAE and HWE samples also demonstrated substantial sugar representation, contributing >50% of their peak areas to sugars and derivatives. 1% Alkali and 2% Alkali showed a notable abundance of galactitol, adonitol, and xylitol, along with other polyols, suggesting that alkaline conditions enhance the extraction of sugar alcohols. In contrast, EAE and HWE displayed lower levels of sugar alcohols but were rich in monosaccharides, such as D-glucose and D-mannose. Based on the abundance of sugars and their derivatives, cold and hot alkali-based extractions were identified as optimal for maximizing the polysaccharide recovery from the mushrooms.

Keywords: *Hericium erinaceus*, polysaccharide, extraction, GC-MS

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ORAL PRESENTATION

PL02

Evaluation of *in vivo* antidepressant activity of solid-lipid nanoparticles of *Albizzia lebbeck*[*L*]

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Introduction:

The *Albizzia lebbeck extraction* was done ethanol by using Soxhlet methods & revealed the presence of bioactive compounds such as alkaloids, carbohydrates, proteins, tannins, flavonoids and amino acids. Solid lipid nanoparticles (SLNs) of this extract were synthesized using the co-precipitation method to enhance delivery and efficacy. Various In-vivo antidepressant Behavioural activity of the prepared nanoparticles it is shows that Significant reduction in the depressive behaviour of Swiss albino mice were observed with decreased immobility in tail suspension model, increasing climbing & swimming in forced swimming model, increasing number of line crossing in open field model and increasing count in locomotion model compared to control ,after behavioural parameter the Rats were sacrificed for Favourable histopathological discoveries— showed moderate inflammation and degeneration, indicating neuroprotective effects of the SLNs compared with standard drug of Imipramine (15mg/ kg B.W).As depression is associated with various biochemical parameters, hence the study was continued for the estimation of oxidative stress, glutathione content, catalase, highly significant results in oxidative stress among all the treatment groups. preclinical animal models. commonly used to evaluate antidepressant properties, researchers assess behaviour related to mood, stress response.

Methods:

The ethanolic extract was find out phytochemical investigation studies, The SLNs Albizzia lebbeck were by [Coprecipitated] observed behavioral parameter, animal will sacrifice for Brain part is used for histopathology study. Biochemical estimation studies.

Results:

The results were comparable to the standard antidepressant drug, imipramine (15 mg/kg body weight), confirming the potential of *Albizzia lebbeck* SLNs as a therapeutic option for depression.

Conclusions:

Significantly it is observed upon increasing behavioral parameter compare with std and control groups.

Keywords: FST, TST, OFT, *etc*

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ORAL PRESENTATION

PL03

UNWINDING THE COMPLEXITIES OF DIABETIC ALZHEIMER'S USING NARINGENIN IN STREPTOZOCIN-NICOTINAMIDE-- INDUCED RAT MODEL

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Introduction:

Type II diabetes results in a sequence of neurophysiological, neurochemical, and structural abnormalities in the nervous system. Insulin resistance in brain normally resulted in declining cognitive functions lead to the Alzheimer's disease. Hence, the present study focused to investigate the neuroprotective role of naringenin in streptozotocin and nicotinamide-induced type-2 diabetes in rats.

Methods:

The *in silico* studies were carried out for 40 flavonoids using AutoDock 4.2. The *in vitro* cholinestrerase, α-amylase enzyme inhibitory assays were performed using standard procedures. For *in vivo* neuroprotective studies, male *Wistar* rats were separated into six groups and each group comprised of six animals. The control group received normal saline and negative control group received only inducing agent. Treatment groups received low-dose and high-dose of Naringenin 100 and 200 mg/kg respectively and the standard groups received rivastigmine 2 mg/kg, *p.o.* and Metformin 100 mg/kg, *p.o.* for 45 consecutive days. Administration of streptozotocin (45 mg/kg, *i.p.*) and nicotinamide (110 mg/kg, *i.p.*) act as an inducing agent for all the groups except control group. The behavioural assessments and biochemical parameters were estimated.

Results:

From the selected flavonoids, Naringenin showed excellent binding energy value of -8.65 kcal/mol against acetylcholinesterase enzyme and -8.84 kcal/mol against α-amylase enzyme. The *in vitro* IC_{50} value of the Naringenin was found to be 4.10±0.49 µg/ml against AChE and 3.80±0.30 µg/ml for α-amylase enzyme. Treatment of diabetic rats with Naringenin was lowered blood glucose level, improved spatial recognition memory in behavioural assessments in a concentration dependent manner. Furthermore, Naringenin at 200 mg/kg reduced hippocampal cholinesterase level, and increased the concentration of both enzymatic and non-enzymatic antioxidants. In the histopathology, Naringenin resulted in the appearance of normal glial cells.

Conclusions:

It can be concluded that Naringenin could act as a potential drug candidate in the management of diabetic Alzheimer's disease.

Keywords: Acetylcholinesterase, Ellman's method, Inhibition constant, Alzheimer's disease.

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ORAL PRESENTATION

PL05

Unveiling the Wound-Healing and Anti-Inflammatory Potential of Aerial Parts of Methanol Extract of *Barleria cristata* L.

Diptirani Rath, Aryabratta Keshari Nayak, Jyoti Ranjan Mahapatra, Subhasish Sahoo, Om Archita Panda

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Introduction:

Barleria cristata L. (Acanthaceae) is one of the potential traditional medicinal herbs which has been long used for the treatments of wounds, swelling of wounds, snakebite wounds, skin infections, toothache, boils, pimples, rheumatism, bronchitis and cough. The aim of the present study is to investigate the wound healing and anti-inflammatory potential of aerial parts of methanol extract of *B. cristata* L. using some experimental methods.

Methods:

The methanol extract of *B. cristata* (MEBC) was analysed using UPLC-QToF-MS to identify its active phytoconstituents. The active phytoconstituents were screened for ADME and Lipinski's rule of 5, the relevant phytoconstituents were subjected for molecular docking study. *In-vitro* MTT assay was carried out to study the cell viability of *B. Cristata* and anti-inflammatory activity was studied using LPS-induced Raw 264.7 cell lines. The *in vitro* cellular cytokines expression was quantified. Furthermore, *in-vivo* wound healing activity was conducted in Wistar albino rats using excision and incision methods.

Results:

In-vitro MTT assay revealed that more than 90 % of Raw 264.7 cells were viable following MEBC treatment which confirms the non-toxic nature of MEBC. The results of anti-inflammatory study were performed by measuring the expression levels of pro-inflammatory cytokines like IL-1β and TNF-α in LPS induced alone and combination of LPS followed by subsequent doses of MEBC. In LPS alone group, IL-1β and TNF- α cytokines were effectively expressed and gradually inhibited in MEBC in a dose-dependent manner respectively. Topical application of MEBC hydrogel portrayed significant wound closure on the 21st day as compared to the control group in excision model. In the incision model, MEBC-hydrogel group showed greater tensile strength at the end of the study, compared to the control group.

Conclusion:

The present study scientifically demonstrated the wound healing and anti-inflammatory efficacy of *B. cristata* by experimental validation which justifies the traditional usage of the plant.

Keywords: *Barleria cristata,* wound healing, anti-inflammatory, molecular docking, Raw 264.7, MTT.

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ORAL PRESENTATION

PL18

To understand the efficacy and safety of remdesivir and favipiravir in covid-19 patients through a-systematic review and meta-analysis

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Background:

Coronavirus 2019 (COVID-19) has led to a severe medical, social and economic crisis globally. The use of antivirals has given inconsistent results; thus, systematic summaries of available evidence may help us to understand its effectiveness. The current investigation was planned to conduct a systematic review and meta-analysis on the use of antivirals for Covid-19.

Methods:

The databases we searched were-Google Scholar, PubMed, Web of Science, Cochrane Library, and Limits-English Language only. Title/abstract screening, full- text screening and data abstraction were carried out in duplicate by us. Pooled effect sizes and 95% confidence intervals (CI) were calculated using the Mantel-Haenszel method of random effects for meta-analysis.

Results:

Ten studies were found eligible for inclusion: randomized controlled trials Moderate-quality evidence suggests a likely clinical benefit from the use of remdesivir in improving the number of recoveries (OR 1.46; 95% CI 1.23–1.74; I^2=0%). A possibility of a higher mortality rate is also suggested by high-quality evidence with remdesivir (OR 0.78; 95% CI 0.57–1.05, I^2=14%). Favipiravir also shown patient's higher mortality outcome (OR 0.69;95% CI 0.24-2.01, I^2 = 0%). Although need for oxygen therapy (OR 0.70 95% CI 0.40-1.23; I^2= 72%), Worsening of comorbidities (OR 0.94; 95% CI 0.81-1.08; I^2= 0%), Ferritin level measured (OR-19.80 95% CI -56.51-16.92; I^2 = 0 %) and Transferred to ICU/ Mechanical Ventilation (OR 0.85 95% CI 0.25 -2.91; I^2 = 52 %) were observed in both the anti-virals.

Conclusion:

Based on the outcomes, the antivirals tested for efficacy and safety have failed to show significant positive outcomes in our meta-analysis. Although the need for oxygen therapy, mechanical ventilation/ICU, reduction in worsening of comorbidities, Male gender in all studies and ferritin level measured were observed with both the antivirals but safety concern is a major issue, thus new alternatives need to be explored.

Keywords- COVID-19, Safety, Efficacy, Anti-viral.

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ORAL PRESENTATION

PP02

Determining Clindamycin and Linezolid Sensitivity in Wound Care – The Current Status

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Introduction:

Diabetic foot infections are extremely common in clinical practice. The two drugs that is frequently used for gram positive infections in wounds are Clindamycin and linezolid. Infact even the IDSA guidelines recommend clindamycin to be one of the potential antibiotic agents from mild to moderate as a choice. However, research study shows a raise in resistance to clindamycin. Further, it is also noticed in clinical practice that there is a blind usage of linezolid.

Aim:

To determine sensitivity pattern of clindamycin and linezolid in wounds of both diabetics and nondiabetics.

Methods and materials:

A descriptive retrospective analysis was done at Amit Jain's Institute of Diabetic Foot and Wound Care, Brindhavvan Areion Hospital, Bengaluru. The study period was from Jan 2024 to Sep 2024. The culture reports that had clindamycin and linezolid sensitivity patterns were studied. The OPD records and Discharge summaries were also studied.

Results*:*

A total of 51 patients were included in the study. 37 patients (72.5%) were males, 88 % of these patients were diabetics, and 28 patients (54.9%) had other comorbidities like Hypertension. 96% of the cases had Diabetic foot infections. The commonest isolated organism was Staphylococcus organism followed by coagulase negative staphylococcus (29.4%). The common pathological lesion from which the specimen was obtained was an ulcer (70.5%) followed by an abscess (15.6%). The commonest specimen that was sent for culture and sensitivity was pus (88.2%) followed by tissue culture (7.8%). It was noticed that in 70.5% of the cases the organism was resistant to clindamycin. However, it was also observed that 90% of the cases the organism was sensitive to linezolid.

Conclusion*:*

Clindamycin shows a huge resistance in clinical practice especially in diabetic foot infections. Though recommended by IDSA guidelines for it to be a potential choice for diabetic foot infections one should avoid it to be an empirical drug of choice in diabetic foot and other wounds. Linezolid showed 10% resistance in organisms obtained from wounds.

Keywords: Clindamycin, Linezolid, Wounds, Diabetes.

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ORAL PRESENTATION

PP12

Exploring risk factors, clinical outcomes, and molecular insights into carbapenem-resistant Enterobacteriaceae in ICU settings

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Introduction:

Carbapenem-resistant Enterobacteriaceae (CRE) have emerged as a critical threat in intensive care units (ICUs), with significant implications for patient outcomes and healthcare systems. This study aims to investigate the risk factors for CRE acquisition, clinical outcomes of affected patients, antibiotic susceptibility patterns, and molecular characteristics of CRE isolates in ICU settings.

Methods:

A total of 82 clinical samples were collected from ICU patients with suspected CRE infections. Comprehensive risk factor analysis was performed, including patient demographics, comorbidities, prior antibiotic use, and invasive procedures. Clinical outcomes were evaluated in terms of therapeutic response, adverse effects, length of hospital stay, complications, and mortality. Antibiotic susceptibility testing was conducted using phenotypic methods, including mCIM and eCIM, and molecular characterization was performed to identify resistance genes and mechanisms. Correlations between risk factors, molecular profiles, and clinical outcomes were analysed.

Results:

Among the 82 isolates, 65% were confirmed as metallo-beta-lactamase (MBL) producers. Key risk factors for CRE acquisition included prior carbapenem exposure, prolonged ICU stays, mechanical ventilation, and invasive device usage. Clinical outcomes indicated a high mortality rate of 32%, with prolonged hospital stays and increased complications in MBL producers compared to non-MBL CRE. Phenotypic testing revealed multidrug resistance in most isolates, while genotypic evaluation identified predominant carbapenemase genes, including *blaNDM* and *blaOXA*. A strong correlation was observed between specific resistance genes, adverse clinical outcomes, and significant risk factors.

Conclusions:

This study highlights the high level of carbapenem resistance exhibited by Enterobacteriaceae in ICU patients indicating critical role of early identification of risk factors and molecular characterization in managing CRE infections in ICUs. The integration of phenotypic and genotypic diagnostic methods provides a comprehensive understanding of resistance mechanisms, enabling targeted interventions. Future research will focus on implementing these findings into clinical practice to improve patient outcomes and optimize infection control strategies.

Keywords: Carbapenem-resistant Enterobacteriaceae, ICU, risk factors, clinical outcomes, molecular characterization, MBL, antibiotic resistance.

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ORAL PRESENTATION

PP15

The Effect of Preoperative Gabapentin on Post- and Peri-operative Surgical Pain in Patients Under Local Anesthesia in Minor Surgery: A Randomized, Triple-Blind, Placebo-Controlled Study.

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Introduction:

Postoperative pain management is essential for improving recovery outcomes, patient satisfaction, and minimizing healthcare costs. Gabapentin, an anticonvulsant, has been shown to reduce postoperative pain and opioid use when given preoperatively. However, limited studies have assessed its effect on the need for analgesics peri- and postoperatively in patients undergoing minor surgery with local anesthesia. Our study aims to evaluate its impact on reducing analgesics requirements and managing surgical pain.

Methods:

A randomized, triple-blind, placebo-controlled trial was conducted with 200 participants. The interventional group received 600 mg of oral gabapentin one hour before surgery, while the control received a placebo. Primary outcomes were pain scores using VAS and NRS lower scores in the gabapentin group at the 2nd, 4th, 6th, and 12th hours postoperatively. Secondary outcomes included the assessment of safety and peri- and postoperative analgesic consumption.

Results:

Statistical analyses using independent T-tests demonstrated significant reductions in pain scores for the gabapentin group compared to the placebo group at all measured time intervals. VAS scores showed p-values of 0.026, 0.037, 0.013, and 0.006 at the 2nd, 4th, 6th, and 12th hours post-surgery, respectively. NRS scores had p-values of 0.028, 0.040, 0.017, and 0.010 at corresponding intervals, indicating statistically significant differences ($p < 0.05$). Additionally, the gabapentin group demonstrated lower perioperative analgesic requirements with mild adverse effects like dizziness and sedation (40%).

Conclusion:

Preoperative gabapentin administration effectively reduces postoperative pain and analgesic consumption in minor surgeries under local anesthesia, demonstrating its use as a safe and effective analgesic adjunct in pain management.

Keywords: Gabapentin, Local Anesthesia, Postoperative Pain.

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ORAL PRESENTATION

PT01

Development and characterization of surface-modified co-loaded liposomes for effective management of Alzheimer's disease

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Introduction:

Alzheimer's disease is a debilitating and pervasive neurodegenerative disorder that affects millions of individuals worldwide. Currently, its treatment relies heavily on drug therapy, which often faces challenges related to drug encapsulation efficiency, targeted delivery, and overall efficacy. Addressing these challenges is critical to improving the quality of life for affected individuals and slowing the progression of the disease. Liposomes have emerged as a promising solution in the realm of drug delivery. Their unique properties make them an attractive choice for encapsulating both hydrophilic and hydrophobic drugs, allowing for versatile drug loading.

Methods:

Liposomes were prepared with varying sizes, characterized for particle size, zeta potential, and evaluated for entrapment efficiency and drug loading.

Results:

The particle size for rivastigmine tartrate loaded liposomes was found to be 182.02 ± 7.2 nm and for donepezil loaded liposomes 168.02 ± 9.4 nm. Notably, high encapsulation efficiencies of 63.27 ± 3.2% and 71.48 ± 2.4% were achieved for rivastigmine tartrate and donepezil, respectively. Additionally, drug loading capacities of rivastigmine tartrate loaded liposomes and donepezil loaded liposomes were found to be 35.69 ± 1.3% and 42.97 ± 2.5%, respectively, highlighting the potential of liposomes for efficient drug encapsulation. Moreover, cellular uptake studies on the SH-SY5Y cell line revealed significantly enhanced internalization of liposomes loaded with the drugs, underscoring the pivotal role of liposome size in enhancing drug delivery efficiency.

Conclusion:

This study underscores the promise of liposomal drug delivery systems for Alzheimer's treatment. Diverse liposome characteristics, efficient drug encapsulation, enhance the targeting potential. Cellular uptake studies on SH-SY5Y cells further support the potential of these liposomes for improved drug delivery in Alzheimer's disease.

Keywords: Alzheimer's disease; SH-SY-5Y Cell line; Liposomes; Donepezil; Rivastigmine Tartrate.

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ORAL PRESENTATION

QA02

RP-HPLC Method for Simultaneous Determination of Ofloxacin and Ornidazole in Tablet Dosage Form

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Introduction: A Reliable and rapid RP-HPLC Method was developed for simultaneous determination of ofloxacin and ornidazole in tablet dosage Form. The proposed method has been validated for specificity, linearity, system suitability, accuracy, precision, robustness, LOD, and LOQ as per ICH guidelines. All parameters were found to be within the accepted limits, affirming the method's reliability.

Methods: Reversed-phase high-performance liquid chromatographic method was developed for the simultaneous determination of ofloxacin and ornidazole in tablet dosage form. The analysis was performed on C_{18} analytical column (150 × 4.6 mm, 3.5 µm), using 0.5mM Potassium dihydrogen orthophosphate buffer solution pH 4.5 and acetonitrile 70:30 % v/v as mobile phase at flow rate of 1 mL min^{-1} for isocratic elution. Detection of ofloxacin and ornidazole was performed on a PDA detector at 245 nm.

Results: The retention times of ofloxacin and ornidazole were 2.1 min and 4.0 min, respectively. The linearity range of ofloxacin and ornidazole was found to be 2-10 µg/ml (R^2=0.9994) and 5-25 µg/ml (R^2=0.9997) respectively. The recovery values were found to be Within the limit. The peak purity index values of ofloxacin and ornidazole were found to be 0.999 and 0.999 respectively. The limit of detection (LOD) and the limit of quantification (LOQ) for ofloxacin and ornidazole were found to be 0.30 µg/ml, 1.0 µg/ml, and 0.5 and 1.5 µg/ml respectively

Conclusion: Hence, a simple, reliable, accurate, and precise HPLC method was developed, proving suitable for the analysis of ofloxacin and ornidazole in bulk and commercial formulations.

Keywords: Ofloxacin, Ornidazole, HPLC, Validation.

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POSTER	**PC05**	IDENTIFICATION OF NOVEL CRYPTOSPORIDIUM PARVUM CDPK3 INHIBITORS USING PHARMACOPHORE MODELLING, MOLECULAR DOCKING AND MOLECULAR DYNAMICS SIMULATION.
POSTER	**PC06**	SYNTHESIS CHARACTERIZATION OF INDOLIZINE DERIVATIVES FOR ANTIDIABETIC ACTIVITY
POSTER	**PC08**	IN-SILICO STUDIES ON PYRAZOLE AS DRUG CANDIDATE FOR ANTICANCER AGENTS
POSTER	**PC10**	SYNTHESIS AND EVALUATION OF INDOLE LINKED BENZOHYDRAZIDES AS POTENTIAL CYTOTOXIC AGENT.
POSTER	**PC11**	IMIDAZO-THIADIAZOLE AS LEVAMISOLE ANALOGS INHIBIT TUMOR PROGRESSION BY INDUCING APOPTOSIS.
POSTER	**PC12**	SYNTHESIS, IN-SILICO AND IN-VITRO CYTOTOXICITY STUDY OF
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POSTER	**PC15**	COMPUTATIONAL DISCOVERY OF NOVEL NMDA RECEPTOR INHIBITORS FOR ALZHEIMER'S TREATMENT USING PHARMACOPHORE MODELLING
POSTER	**PC16**	IN SILICO SCREENING OF ANTI-INFLAMMATORY PHYTOCHEMICALS AS POTENT AND SAFE ANTI BREAST CANCER AGENTS
POSTER	**PC17**	DESIGN, SYNTHESIS, CHARACTERIZATION AND BIOLOGICAL EVALUATION OF NOVEL AMINO PYRIMIDINE DERIVATIVES
POSTER	**PC18**	IDENTIFICATION OF POTENT LEAD TO INHIBIT DHFR FOR THE TREATMENT OF CANCER: A COMPUTATIONAL APPROACH
POSTER	**PC19**	NOVEL COUMARIN-AZETIDONE HYBRIDS AS PBP INHIBITORS: DESIGN AND DOCKING STUDIES FOR ANTIBACTERIAL ACTIVITY
POSTER	**PC20**	PHYTOCHEMICAL EVALUATION OF ANTI-INFLAMMATORY ACTIVITY PROFILING OF EXTRACTS FROM CALOTROPIS GIGANTEA LEAF BY HPLC AND IN VITRO
POSTER	**PC21**	ANTICANCER DRUG STRATEGY: DESIGN AND DEVELOPMENT OF BRAFV600E INHIBITORS AND TO OCCLUDE BRAFV600E INHIBITOR RESISTANCE BY USING AKT INHIBITORS IN COMBINATION.

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POSTER	**PC23**	DEVELOPMENT OF NOVEL ROUTE OF SYNTHESIS FOR B-LACTAMASE INHIBITOR 'SULBACTAM'
POSTER	**PC24**	A VALIDATED STABILITY-INDICATING HPTLC METHOD FOR SIMULTANEOUS QUANTITATIVE ESTIMATION OF TELMISARTAN HYDROCHLOROTHIAZIDE & AMLODIPINE IN BULK DRUG AND IN PHARMACEUTICAL TABLET DOSAGE FORM
POSTER	**PC25**	SEMISYNTHETIC QUERCETIN DERIVATIVES WITH POTENT ANTITUMOR ACTIVITY IN HER2 -POSITIVE BREAST CANCER STUDIES.
POSTER	**PC27**	DETECTION OF COLIFORMS IN VARIOUS SAMPLES OF POTABLE WATER BY MPN METHOD.
POSTER	**PC28**	NOVEL COUMARIN-AZETIDONE HYBRIDS AS 14A-DEMETHYLASE INHIBITORS: DESIGN AND DOCKING STUDIES FOR ANTIFUNGAL ACTIVITY
POSTER	**PC29**	DEVELOPMENT OF COLORIMETRIC METHOD FOR VIGABATRIN: A FAST AND COST-EFFECTIVE APPROACH
POSTER	**PC30**	IN-SILICO STUDIES, SYNTHESIS AND BIOLOGICAL EVALUATION OF SOME NOVEL PARACETAMOL-BENZIMIDAZOLE HYBRIDS AS POTENTIAL ANALGESIC AND ANTIPYRETIC AGENTS

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POSTER	**PH06**	REVIEW OF FORMULATION, EVALUATION AND COMPARISON OF HERBAL SHAMPOO WITH COMMERCIAL SHAMPOO
POSTER	**PH07**	FORMULATION AND EVALUATION OF HERBAL FACE CREAM
POSTER	**PH08**	PREPARATION AND EVALUATION OF HERBAL ANTI-DANDRUFF HAIR OIL FOR THE MANAGEMENT OF HAIR LOSS
POSTER	**PH09**	DEVELOPMENT AND CHARACTERIZATION OF LIP BALM CONTAINING CAROTENOID PIGMENT FROM MUSKMELON PULP EXTRACT
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POSTER	**PH11**	NUTRACEUTICAL BASED CHIKKI FOR THE POSSIBLE BREAST CANCER PREVENTION
POSTER	**PH12**	FORMULATION DESIGN OF HERBAL GEL-BASED SUNSCREEN CONTAINING SILYMARIN FROM MILK THISTLE AND OTHER INGREDIENTS TO ENHANCE UV PROTECTION AND OTHER APPLICATIONS.

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POSTER	**PH14**	FORMULATION DESIGN OF HERBAL GEL-BASED SUNSCREEN CONTAINING SILYMARIN FROM MILK THISTLE AND OTHER INGREDIENTS TO ENHANCE UV PROTECTION AND OTHER APPLICATIONS.
POSTER	**PH15**	IMPACT OF COLD PLASMA TREATMENT ON SEED GERMINATION, GROWTH, PHYTOCHEMICAL PROFILE, AND THE OIL YIELD OF CASTOR (RICINUS COMMUNIS) PLANT
POSTER	**PH16**	HERBAL EMULGEL INCORPORATED WITH ETHANOLIC EXTRACT OF KALMEGH THERAPEUTIC POTENTIAL FOR THE MANAGEMENT OF NON-MELANOMA SKIN CANCER IN-VITRO
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POSTER	**PL14**	DATA MINING ON REAL-WORLD PATIENT SAFETY DATA OF DARBEPOETIN ALFA-INDUCED VASCULAR DEMENTIA BASED ON FAERS DATABASE
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POSTER	**PP14**	PERCENTAGE COEFFICIENT OF VARIATION AS AN INDICATOR OF GLYCEMIC CONTROL IN TYPE 2 DIABETES MELLITUS PATIENTS
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POSTER	**PT02**	DESIGN AND FORMULATION OF ETODOLAC-ISONICOTINAMIDE COCRYSTAL GEL FOR EFFECTIVE PAIN MANAGEMENT

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POSTER	**PT04**	DEVELOPMENT AND VALIDATION OF A UV-SPECTROPHOTOMETRIC SIMULTANEOUS EQUATION METHOD FOR THE ESTIMATION OF CURCUMIN AND BERBERINE HCL IN BULK AND PHARMACEUTICAL FORMULATIONS.
POSTER	**PT05**	DEVELOPMENT AND OPTIMIZATION OF SPANLASTICS BASED ANTIFUNGAL TRANSDERMAL DRUG DELIVERY
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POSTER	**e-PT29**	EXISTING AND EMERGING APPROACHES FOR IMPROVED MONITORING AND EVALUATION.
POSTER	**PT30**	ADVANCES IN PELLETIZATION TECHNIQUES FOR NOVEL AND EFFECTIVE APPROACH FOR HYPERTENSION DRUG DELIVERY: A COMPREHENSIVE REVIEW.

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POSTER	**QA04**	APPROACHES TO ANALYTICAL METHOD DEVELOPMENT IN PHARMACEUTICAL INDUSTRIES WITH A FOCUS ON HPLC TECHNIQUES
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POSTER	**RA01**	REVOLUTIONIZING DRUG DISCOVERY WITH AI FROM TARGET IDENTIFICATION TO POST-MARKETING SURVEILLANCE
POSTER	**RA02**	ARTIFICIAL INTELLIGENCE TRANSFORMING DRUG DEVELOPMENT FROM DISCOVERY TO REGULATORY APPROVAL
POSTER	**RA03**	ARTIFICIAL INTELLIGENCE IN PHARMACEUTICAL REGULATORY AFFAIRS
POSTER	**RA04**	EXPLORING CHALLENGES AND OPPORTUNITIES FOR IMPROVING PHASE 2 AND PHASE 3 CLINICAL TRIALS: A REVIEW
POSTER	**RA05**	UNDERSTANDING THE IMPACT OF PATIENT REPORTED OUTCOMES ON REGULATORY DECISIONS IN CLINICAL TRIALS
POSTER	**RA06**	REGULATORY PERSPECTIVES IN THE DEVELOPMENT OF PAEDIATRIC THERAPEUTICS
POSTER	**RA07**	REGULATORY REQUIREMENTS FOR RECYCLED COSMETIC PACKAGING COMPLIANCE AND SUSTAINABLE PACKAGING
POSTER	**RA08**	NAVIGATING ENVIRONMENTAL IMPACT ASSESSMENT AT CDER: A- COMPREHENSIVE VIEW

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POSTER PRESENTATION

POSTER	**RA09**	REAL WORLD EVIDENCE (RWE) IN REGULATORY DECISION MAKING: CURRENT STATUS AND FUTURE PROSPECTS IN THE UNITED STATES AND THE EUROPEAN UNION
POSTER	**RA10**	ARTIFICIAL INTELLIGENCE IN MEDICAL DEVICES: REVOLUTIONIZING PERSONALIZED HEALTHCARE THROUGH REAL-TIME RECOMMENDATIONS
POSTER	**RA11**	COSMETIC LABELING REGULATIONS: TOWARDS A UNIFIED GLOBAL FRAMEWORK
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POSTER	**RA13**	PATIENT-CENTRIC REGULATORY STRATEGIES: ENHANCING DRUG APPROVAL PROCESSES FOR RARE DISEASES.
POSTER	**RA14**	REGULATORY REQUIREMENTS FOR MEDICAL DEVICES IN INDIA AS PER CDSCO COMPARISON WITH SOUTH AFRICA.
POSTER	**RA15**	COMPARATIVE ANALYSIS OF ORPHAN AND NEW DRUG DEVELOPMENT: GLOBAL REGULATORY INSIGHTS
POSTER	**RA16**	NAVIGATING DRUG WITHDRAWALS – A COMPARATIVE STUDY OF STANDARD AND ORPHAN DRUG REGULATIONS IN INDIA.
POSTER	**RA17**	NAVIGATING THE ETHICAL AND LEGAL LANDSCAPE OF AI IN HEALTHCARE

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POSTER PRESENTATION

PHARMACEUTICAL CHEMISTRY AND CADD

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POSTER PRESENTATION

PC03

Design, Synthesis and Biological Evaluation of Novel Pyrimidine-based Analogues as PDE4B Inhibitors for Alzheimer's Disease

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Introduction:

Alzheimer's disease (AD) has emerged as one of the world's most difficult and sometimes fatal neurological disorders. AD is characterised by dopaminergic (DA) loss, oxidative stress (OS), apoptosis, and neuroinflammation. Since 1990, the number of people with PD has doubled to six million worldwide. Several investigations identify phosphodiesterase 4B (PDE4B) as a novel target in the development of AD. It has been seen that PDE4B inhibition raises the level of cAMP, which causes oxidative stress (OS).

Methods:

Design of structures using a desired scheme and drawing 2D structures using ChemDraw, analyzing the compounds for ADMET properties, Virtual screening of designed compounds by HTVS followed by XPD, MM-GBSA, IFD, DFT calculation and finally by MDS.

Results:

The compounds 4PBCG_19 demonstrated a notable glide of -12.66, emodel scores for XPD, and extremely accurate results in IFD. DFT calculations were used to activate the HOMO and LUMO when it was found to have the desired effects in MM-GBSA. Significant RMSD was seen during the 200 ns MDS run.

Conclusion:

The designed compounds showed promising potential against Alzheimer's disease, with significant results in virtual screening, XPD, MM-GBSA, IFD, and DFT calculations. Significant RMSD values during the 200 ns MDS run further supported their effectiveness, indicating strong therapeutic prospects.

Keywords: Alzheimer's disease, Phosphodiesterase 4B, IFD and MDS.

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POSTER PRESENTATION

PC05

Identification of Novel Cryptosporidium parvum CDPK3 Inhibitors Using Pharmacophore Modelling, Molecular Docking and Molecular Dynamics Simulation

Aishwarya Bharathi H M*, Prabitha

JSS College Of Pharmacy, JSS Academy Of Higher Education And Research, Mysore, India.

Introduction:

An apicomplexan pathogen, Cryptosporidium parvum is known to be a leading cause of critical diarrhea in humans and animals. Extensively, immunocompromised patients suffer the long-term effects. A calcium-dependent protein kinase CDPKs, particularly CDPK1 and CDPK3, vital for the development of parasites, stands out as a promising drug target.

Methods:

The homology model of the AMPPNP molecule-bound Cryptosporidium parvum CDPK3 (PDB_ID: 3LIJ) was generated using an SWISSMODEL server. A four-feature pharmacophore was designed using RCSB PHARMIT, screening 5000 molecules from the Molport database. Top molecules were docked using Auto Dock Vina, and five (M695, M1033, M1220, M2151, and M2842) potential molecules were selected based on binding affinity and orientation and endured for further molecular dynamic simulation studies for 100 ns using GROMACS. MMPBSA was used to compute the binding free energies.

Result:

The molecules M695 and M1033 exhibited the stable positive binding energies and binding in the CDPK3 active site throughout the simulations. Based on the relative root-mean-square deviation (RMSD) and relative root-mean-square fluctuation (RMSF) analysis, the structures remained stable with little active site residue movement. The binding free energies of M695 and M1033 were – 86.806 and – 71.539 kJ/mol respectively and thus confirmed their strong binding affinities.

Conclusion:

The M695 and M1033 were identified by this integrative computational approach as promising CDPK3 inhibitors. These results could be used as a basis for experimental validation and the development of targeted therapies against cryptosporidiosis.

Keywords: CDPK3 inhibitor, Homology modelling, Molecular dynamic simulation, MMPBSA.

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POSTER PRESENTATION

PC06

Synthesis characterization of indolizine derivatives for antidiabetic activity

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Introduction:

Diabetes mellitus (DM) is a metabolic disease characterized by insufficient secretion or inefficient processing of hormonal insulin. Several drugs like sulfonylureas, biguanides, thioglitazone, and acarbose inhibitors currently are used to reduce hyperglycemia in diabetes. Such drugs have side effects, so it is essential to look for a new class of compounds to combat such effects. Present work investigated the effect of indolizine derivatives on plasma blood glucose level in STZ induced diabetic rats.

Methods:

2-(Phenyl) indolizine synthesized using 2-methyl pyridine substituted phenacyl bromides (**C1–C6**), the synthesized compounds were characterized by IR, ^{1}H NMR, ^{13}C NMR, and mass spectral analysis. Formylation of 2- substituted indolizines were carried out with POCl3 and DMF. Derivatives were prepared by condensing with metformin and substituted 2- phenyl indolizine in equimolar quantity (**C7-C12**) in good yields. The structure of the synthesized compounds was confirmed by spectral analysis. All the compounds were screened *in-vivo* for their oral hypoglycemic activity by streptozotocin-induced diabetic model in rats.

Results:

All the compounds were screened *in-vivo* for their oral hypoglycemic activity by streptozotocin-induced diabetic model in rats. All the compounds have remarkable hypoglycemic properties however, with a degree of variation. A significant increase in blood glucose was observed in diabetic rats. All the compounds (**C7**–**C12)** showed significant reduction in blood glucose as compared to control diabetic rats at 50 mg/kg body weight for 7th and14th days. Among all the derivatives, compound **C8** depicted pronounced hypoglycemic effect.

Conclusion:

The synthesis of the indolizine derivatives was successfully prompted in a rather simple and scalable scheme that consisted of two steps. The chemical structures were confirmed by FT-IR, ^{1}H NMR,^{13}C NMR and MS analysis. Absorption bands obtained in the IR and NMR spectrum confirmed the formation of imine linkage with metformin. From the *in-vivo* studies it is shown that compound **C8** depicted pronounced protective hypoglycemic effects in STZ-induced diabetic rats with respect to standard.

Keywords: indolizine, antidiabetic, hypoglycemic, streptozotocin, cycloaddition

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POSTER PRESENTATION

PC08

In-silico studies on Pyrazole as Drug Candidate for Anticancer agents

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Introduction:

Lung cancer, a leading cause of cancer-related deaths, is driven by uncontrolled cell growth in the lungs, often leading to tumour formation and metastasis. While treatments like chemotherapy and immunotherapy have improved outcomes, the need for more targeted therapies remains. In silico approaches, such as molecular docking and QSAR modeling, offer promising tools to design and optimize drug candidates, potentially advancing more effective and personalized therapies for lung cancer.

Methods:

The QSAR model for pyrazole derivatives was developed using Sybyl x2.1.1 with CoMFA and CoMSIA descriptors. Molecules were aligned based on the lowest IC50, and test and training sets were selected through random screening. Docking studies in Schrödinger's Maestro 13.7 assessed protein–drug interactions with proteins 7R7R, 7R7K, and 6M9W. Binding affinities were evaluated, and the docked complexes were further refined using the Desmond module.

Results:

The QSAR models, including comparative molecular field analysis and similarity indices analysis, yielded strong results with cross-validated q^2 values of 0.52 and 0.58, and r^2 values of 0.88 and 0.85. Docking studies revealed that potent ligands showed improved binding affinities compared to co-crystallized ligands, with docking scores of 7.9014 kcal/mol and 9.7501 kcal/mol for 5UGU and 2X22 proteins, respectively, compared to 6.789 kcal/mol and 8.7725 kcal/mol for the co-crystallized ligands.

Conclusion:

In silico QSAR modeling and docking identified pyrazole derivatives as potential lung cancer inhibitors, with strong predictive power (q^2 = 0.52, 0.58; r^2 = 0.88, 0.85) and improved binding affinities to 5UGU and 2X22 proteins. These results warrant further optimization and experimental validation.

Keywords: Lung Cancer, Pyrazole, COMFA, COMSIA, QSAR.

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POSTER PRESENTATION

PC10

Synthesis and evaluation of indole linked benzohydrazides as potential cytotoxic agent

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[b]KLE College of Pharmacy (A Constituent Unit of KLE Academy of Higher Education & Research-Belagavi), Rajajinagar, Bengaluru, Karnataka, India-560010.

A series of indole linked-benzohydrazides were synthesized and screened for cytotxicity against L1210, REH, K562, CEM and HeLa cell lines. Among the tested derivatives, molecule 3,4,5-trimethoxy-*N*′-[5-methyl-2-oxo-1,2-dihydro-3*H*-indol-3-ylidene]benzohydrazide **(5t)** found to be most potent against all cell lines. Detail investigation found that the molecule 5t exhibited cytotoxic property by inducing apoptosis.

Keywords: Indole, Benzohydrazide, Apoptosis, Melphalan

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POSTER PRESENTATION

PC11

Imidazo-thiadiazole as levamisole analogs inhibit tumor progression by inducing apoptosis

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KLE College of Pharmacy (A constituent Umit of KLE Academy of Higher Education & Research-Belagavi), Rajajinagar, Bengaluru, Karnataka, India-560010

In the present study, a series of imidazo-thiadiazole derivatives **(4a-t)** were explored for their cytotoxicity against cancerous cells. Among tested derivatives molecule **4a** (2-benzyl-6-(4′-fluorophenyl)-5-thiocyanato-imidazo[2,1-b]thiadiazole) was identified as potential cytotoxic agent against CEM cells by accumulating reactive oxygen species (ROS) and inducing apoptosis. Levamisole was used as reference standard molecule during the study

Keywords: Imidazo-thiadiazole, Cytotoxicity, CEM, Apoptosis, ROS, Levamisole.

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POSTER PRESENTATION

PC12

Synthesis, *in-silico* and *in-vitro* cytotoxicity study of 1,2,3-triazole linked stilbenes as cytotoxic agents

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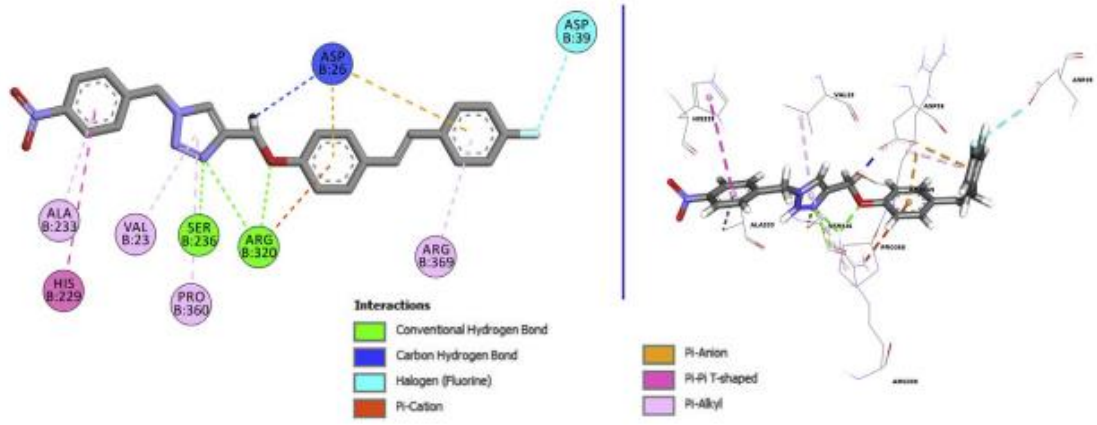
Series of stilbene linked-1,2,3-triazoles (**7a-x)** were obtained by reacting respective substituted benzaldehydes with benzyl triphenyl-phosphonium halides in benzene. All structures were duly characterized and screened for cytotoxic effect on pancreatic carcinoma, colorectal carcinoma, lung carcinoma, lymphoblastic, chronic myeloid, and non-Hodgkinson lymphoma cell lines. *In-vitro* cytotoxicity data showed moderate cytotoxicity (11.6-19.3 µM) by synthesized derivatives, against the selected cancer cell lines. Further, the cytotoxicity data was supported by molecular docking score against 1TUB receptor. Docetaxel and Staurosporine (STS) were used as reference during the study.



Keywords: Stilbene, 1,2,3-Triazole, Cytotoxicity, 1TUB, Docetaxel, STS.

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POSTER PRESENTATION

PC13

Synthesis, characterization and cytotoxicity evaluation of some imidazo[2,1-b][1,3,4]thiadiazoles as anticancer agents

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In the present study, a series of 2-aralkyl-6-(4′-aryl)-imidazo[2,1-b][1,3,4]thiadiazoles (SKS 1-12) were synthesized, characterized and screened against leukemic CEM cells by Trypan blue and MTT assay. The cytotoxic study showed that molecules SKS-1, SKS-4, SKS-8 and SKS-10 exhibited strong cytotoxicity against tested cell lines. Based on cytotoxicity data, molecule SKS-10 (IC_{50}, 8 μM) was further subjected to biological studies to predict mechanism of action. Cell cycle analysis, FACS analysis, mitochondrial membrane potential and DNA fragmentation studies were performed in collaboration indicated that SKS-10 induced cytotoxicity without arresting cell cycles.

Keywords: Imidazo-thiadiazole, CEM, Leukemia, Cell cycle, Mitochondrial potential, DNA Fragmentation.

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POSTER PRESENTATION

PC14

Piperidone derivatives as anti-cancer agent against breast cancer cell lines

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A series of piperidone derivatives were synthesized, characterized and evaluated for their cytotoxicity against breast cancer cell lines MCF-7 and MDA-MB231, by 3-(4, 5-dimethylthiazol-2-yl)-2–5-diphenyletrazolium bromide (MTT), and trypan blue dye exclusion assay. Mechanism of action was established by taking most potent molecule from the series SKS-09 by Annexin V-FITC, cell cycle analysis, and Western blotting methods. Curcumin was used as reference standard. It was observed that molecule SKS-09 had shown better cytotoxicity against MCF-7 and MDA-MB231 cells at nano-molar concentration. Cell cycle arrest was observed by SKS during the study.

Keywords: Piperidone, Breast Cancer, MDA-MB-231, MCF7, Curcumin.

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POSTER PRESENTATION

PC15

Computational discovery of novel NMDA receptor inhibitors for Alzheimer's treatment using pharmacophore modelling

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The Alzheimer's Disease (AD) is one of the most common neurodegenerative diseases around the elderly population around the world. The active, N-methyl-D-aspartate receptor (NMDAR), a glutamate receptor subtype, enhance Ca^{2+} entry. They are triggered by postsynaptic depolarization and glutamate binding. The dysfunction of NMDA receptor shows neurological and psychiatric conditions with mutations in subunits which may be one of the causes of the AD. The pharmacophore modelling assures the mechanism of action of the drug compound whereas the potency of the compound comparing to the standard may differ. The compounds are selected by structure-based pharmacophore modelling using Pharmit website and these compounds can be commercially available chemical compounds which was accessed in ChemBL library. After primary screening, the docking was performed, and the pharmacokinetic parameters are assessed by ADMET studies. The compounds obtained from the Pharmit are used for molecular docking using Autodock Vina. Among the selected compounds, nine compounds showed best binding score lies between 8.2 to 9.3 $KJmol^{-1}$ and further evaluated for ADMET properties using PKCSM webserver. ChEMBL575509 and ChEMBL3360583 were found to be the best moiety with good binding affinity and having good interaction with key amino acids of NMDAR.

Key words: Pharmacophore modelling, NMDA receptor, Alzheimer's disease, Molecular docking.

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POSTER PRESENTATION

PC16

In silico screening of anti-inflammatory phytochemicals as potent and safe anti breast cancer agents

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Introduction:

Breast cancer remains one of the most prevalent cancers and a leading cause of cancer-related deaths among women worldwide. Chronic inflammation can induce DNA damage and cellular changes, increasing the risk of breast cancer. This study examines the interconnection between breast cancer and inflammation, focusing on common targets and pathways involved in both conditions. It also explores the potential of phytochemicals reported for it's anti-inflammatory activity as anti-breast cancer agents, emphasizing their low toxicity, affordability, and accessibility.

Methods:

A comprehensive literature review identified the common targets associated with breast cancer and inflammation, focusing on their underlying mechanisms. Twelve anti-inflammatory phytochemicals were selected based on the literatures.HER-2, JAK-3, NF-κB, STAT-3, and TGF-β were the selected targets. Lapatinib, Upadacitinib, Daunorubicin, Dasatinib and Vactosertib were taken as standard drugs respectively. Phytochemical structures were retrieved from PUBCHEM. Molecular docking of selected phytoconstituents were simulated using AutoDock Vina in PyRx. Complex formation was done using PyMol and 2D structures obtained using BIOVIA Discovery studios were analysed.The pharmacokinetic features of prospective docking leads were predicted through pkCSM software to assess their drug-likeness and safety profiles.

Results:

Out of the twelve phytoconstituents,α-Amyrone showed a docking score of -11.1 with HER 2 and -9.3 with TGF-β. Epigallocatechin-3-gallate showed a score of -8 with NF-κB, -8.6 with STAT-3 and -8.4 with JAK-3. ADMET analysis revealed that, almost all the identified phytoconstituents followed Lipinski's Rule of Five. Although Log P value was not satisfied by α-Amyrone, it can be modified in drug development stage by adopting various methods.

Conclusion:

α-Amyrone demonstrated favourable docking scores and pharmacokinetic properties, making it a promising lead molecule for developing anti-breast cancer agents. Further *in vitro* and *in vivo* studies are recommended to validate its therapeutic potential.

Keywords: Breast cancer, Phytoconstituents, Anti-inflammatory, Molecular docking

PC17

Design, synthesis, characterization and biological evaluation of novel amino pyrimidine derivatives

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Objective:

Pyrimidine derivatives have been shown to exhibit a range of pharmacological activities, including antibacterial and antifungal activities. The rising issue of antimicrobial resistance to current medications highlights the urgent need for the development of new and effective agents. This study aims to synthesize a novel Amino pyrimidine derivatives as potential antimicrobial agents.

Methodology:

Ligands were created using ChemDraw Professional 15.0 in SDF format, and docking was conducted with AutoDock Vina. The 2D interactions were analyzed using PyMOL 2.4 and BIOVIA Discovery Studio Visualizer 4.5. ADMET and drug-likeness properties were predicted using PKCSM. Top ten promising pyrimidine derivatives were synthesized based on molecular docking studies The title compounds were synthesized through cyclization reactions involving chalcone intermediates derived by the Claisen Schmidt condensation in the presence of alcohol. Antimicrobial activity was assessed using the cup plate method.

Results:

The designed pyrimidine derivatives predicted by *in silico* studies to have the most potential activity were synthesized by standard protocols. JJMK06, JJMK27 and JJMK08 showed highest docking against Anti-bacterial activity. JJMK22, JJMK27 exhibited highest docking score for anti -fungal activity. Formation of the title compounds were confirmed by spectral data. *In vitro* investigation of the antimicrobial activity of the compounds was conducted using the cup plate method against two bacterial species and one fungal species. The novel demonstrated significant antibacterial activity when compared to trimethoprim. Additionally, several compounds showed promising antifungal activity comparable to ketoconazole. Overall, the compounds exhibited encouraging results in both antibacterial and antifungal screening studies.

Conclusion:

The newly synthesised compounds of Amino Pyrimidines were characterised and screened for anti-bacterial, anti-fungal. They may be considered as lead for further structural Modification and enzyme studies to arrive at possible anti-bacterial agents. These findings highlight the potential of these novel pyrimidine derivatives as effective therapeutic agents, warranting further investigation and development for clinical applications.

Keywords: Pyrimidine, molecular docking, ADMET, anti-microbial, anti-fungal.

PC18

Identification of potent lead to inhibit DHFR for the treatment of cancer: a computational approach

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Introduction:

Cancer arises from uncontrolled cell growth and division. Developing effective cancer treatments with minimal side effects is a major challenge in drug discovery. Dihydrofolate reductase (DHFR), crucial for de novo purine synthesis, is a key target for anticancer antimetabolites. This work aims to identify new moieties with anti-cancer activity by inhibiting DHFR, potentially leading to effective treatments with fewer side effects.

Methods:

Identification of drug molecules based on literature research of DHFR, the current identified medications include methotrexate, raltitrexed, pralatrexate, pemetrexed, piritrexim, trimetrexate, talotrexin, and nolatrexed. Ligand-based pharmacophore modeling involves creating a three-dimensional framework by mapping the essential chemicals necessary for a ligand to bind to and interact with a specific target protein. Using ZINC pharmer, compounds from the pharmacophore were downloaded from the ZINC database and underwent a molecular docking study with 26 compounds from the ZINC library targeting PDB ID: 4P68. ADMET predictions were performed using the PKCSM online webserver.

Results:

The top eight compounds were identified based on docking scores ranging from -11 to -8 kcal/mol. ZINC59491741 and ZINC01062617 showed the best interactions. ZINC59491741 has a docking score of -10.4, interacting with GLY89, THR45, ARG43, and HIS44 (H-bond), and ARG90 (cation interaction). ZINC01062617 has a docking score of -10.3, interacting with ARG43, HIS44, and THR45 (H-bond), HIS44 (π-π T-shaped), and LEU50 (π-sigma interaction).

Conclusion:

Based on preliminary study eight hits were obtained. Among these eight obtained hits, ZINC59491741 and ZINC01062617 as shown good binding affinity with DHFR as target. Further the eight hit molecules evaluated for ADMET properties.

Key Words: Cancer, DHFR, Pharmacophore Modelling, Molecular Docking.

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POSTER PRESENTATION

PC19

Novel Coumarin-Azetidone Hybrids as PBP Inhibitors: Design and Docking Studies for Antibacterial Activity

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[1]Faculty of Pharmacy, M S Ramaiah University of Applied Sciences, Bengaluru

Introduction:

Antibiotics play a vital role in combating bacterial infections, but the growing challenge of antibiotic resistance demands the development of novel therapeutic agents. This study investigates coumarin-azetidone-linked derivatives as potential antibiotics targeting the penicillin binding protein, a key enzyme in bacterial cell wall synthesis

Methods:

Fifteen coumarin-azetidone derivatives were designed and evaluated using molecular docking to determine their binding affinities and interactions with the penicillin binding protein (Target id: 3UDF). Penicillin was used as the standard drug for comparison.

Results:

Docking analysis showed binding scores ranging from -7.6 to -6.0 kcal/mol. Compounds 10 and 11 had the highest scores (-7.6 kcal/mol), outperforming penicillin (-7.1 kcal/mol). Compound 3 showed maximum interactions with residues ASP648, TYR485, ARG481, ILE645, and VAL649, while ligand 15 interacted with TYR485, ARG481, ARG482, VAL649, HIS652, ARG647, and ASP648. ADMET analysis confirmed good absorption, low toxicity, and minimal cytochrome P450 interactions, supporting their therapeutic potential.

Conclusions:

Compounds 10 and 11 demonstrate potential as novel antibiotics, with superior binding affinities compared to penicillin. These findings support further biological evaluation to confirm their therapeutic efficacy and advance them towards clinical application.

Keywords: Antibiotics, coumarin-azetidone, molecular docking, Penicillin Binding Protein

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POSTER PRESENTATION

PC20

Phytochemical Evaluation of Anti-inflammatory Activity Profiling of Extracts from *Calotropis gigantea* Leaf by HPLC and In Vitro

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Introduction:

Extracts from *Calotropis* have the potential to be developed as a complimentary therapy for inflammatory disorders. *Calotropis gigantea* is a tropical wild herbaceous species belonging to the Apocynaceae family. Dried leaf powders are used traditionally to cure wounds and can be used to treat respiratory, digestive, and skin infections.

Methodology:

Calotropis gigantea was sequentially extracted using solvents of varying polarities: n-hexane, toluene, ethyl acetate, chloroform, ethanol, and water. Phytochemical analysis and TLC method were used for each extract for the identification of alkaloids, flavonoids, terpenoids and tannins. HPLC and GC-MS methods were used for phytochemical profiling of the extract. In addition to assay and MTT tests, *in-silico* analysis of phytoconstituents present in the ethanol extract was also conducted using the software AutoDock.

Results:

Flavonoids, phenolic compounds, tannins, and alkaloids were identified in Calotropis gigantea leaves. HPLC profiles revealed 4-5 peaks in the extracts. GC-MS analysis of the ethanol extract identified approximately 9 compounds, from which nine phytoconstituents were selected for in-silico studies. These compounds showed moderate binding affinities with inflammatory targets in molecular docking. ADMET LABS 3.0 analysis suggested favorable pharmacokinetics NO inhibition assay showed a concentration-dependent anti-inflammatory effect (12.5-200 µg/ml), while the MTT assay indicated no toxicity to untreated or LPS-induced Raw 264.7 cells.

Conclusion:

The study demonstrates that *Calotropis gigantea* leaf extracts contain bioactive compounds with significant anti-inflammatory properties. The HPLC and GC-MS analysis revealed various phytoconstituents that exhibit favorable pharmacokinetic profiles and strong binding affinities to inflammatory targets. The ethanol extract showed non-toxic effects and a concentration-dependent inhibition of nitric oxide, confirming its potential as a natural alternative to synthetic anti-inflammatory drugs.

Key words: *Calotropis gigantea*, HPLC, NO inhibition, anti-inflammatory.

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POSTER PRESENTATION

PC21* (Poster Pitch)

Anticancer drug strategy: design and development of brafv600e inhibitors and to occlude brafv600e inhibitor resistance by using AKT inhibitors in combination

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Introduction:

Chemotherapy in cancer targets proto-oncogenes, which regulate normal cell proliferation. Mutations in these genes can transform them into oncogenes, leading to uncontrolled cell growth. Identifying proto-oncogenes and developing inhibitors is crucial for cancer drug discovery. Braf is one such proto-onco gene that codes for the B-Raf receptor of the tyrosine kinase family. Various mutations occur in the B-Raf protein, but the most predominant is the B-Raf V600E. The previously developed First and second-generation B-Raf V600E inhibitors were deemed ineffective against major mutations and resistance. Among the B-Raf inhibitor resistance, activation of the Akt-mediated proliferative pathway is the most predominant mechanism. In this study, we have developed new B-Raf V600E inhibitors and confirmed their activity with in silico docking against PDBs of B-Raf V600E and Akt proteins.

Methodology:

Utilizing the advanced Computer-Aided Drug Design software like P2Rank and Biovia Discovery Studio we designed over 75 molecules. The molecules were docked with B-RafV600E protein (PDB: 4XV2) using AutoDock Vina and the molecular interactions were visualized using BIOVIA Discovery Studio. They bear the pharmacophore of Vemurafenib and Plixorafenib, as these molecules are by far the most effective B-Raf V600E inhibitors. Among the 75 molecules, the Top 10 molecules were selected for detailed binding activity and were analyzed using various computational tools.

Result:

Compound N2 showed significant binding towards B-RafV600E with the docking score of (-10.9) and possessed the maximum common amino acids with B-RafV600E, indicating its inhibitory action when compared to Vemurafenib which has a score of (-9.6). To overcome the PI3K/Akt mediated B-RafV600E inhibitor resistance, limited Akt inhibitors were developed which possess the structural similarity of Capivasertib and Savolitinib. C2 and S1 showed significant binding with the Akt protein with docking scores of (-7) and (-8.7), when compared to the standards respectively.

Conclusion:

The newly developed B-Raf and Akt inhibitors upon optimization and detailed evaluation by molecular dynamic study can be tested and confirmed by carrying out pre-clinical screening against cancer cell lines like A549 (Lung carcinoma) and A375 (Melanoma).

PC22

Targeting krasg12c in non-small cell lung cancer (nsclc): a structure-based pharmacophore approach for novel inhibitor discovery

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Introduction:

Kirsten rat sarcoma (KRAS) G12C mutations, which are notably common in non-small cell lung cancer (NSCLC), have historically been deemed “undruggable” due to the absence of appropriate binding sites. However, recent progress has made it possible to target this mutation. This research employs computational methods like structure-based pharmacophore modelling and virtual screening to discover potential leads as KRAS-G12C inhibitors.

Methods:

In this study, a structure-based pharmacophore model was created based on the KRAS-G12C structure complexed with Sotorasib (PDB-ID:6OIM) to identify ligands with similar binding characteristics. Compounds exhibiting pharmacophore features were screened from the PUBCHEM database and subjected to molecular docking studies using PyRx software to evaluate binding interactions, ADMET predictions using pkCSM for assessing drug-likeness properties, and molecular dynamics.

Results:

From hundreds of screened compounds, 46 compounds we selected for docking. Among those, CID_160070179, CID_138461167, and CID_146235452 showed highest binding affinities, with docking scores ranging from -10.8 to -10.6 kcal/mol. These compounds interacted with critical KRAS-G12C residues like CYS12 and TYR96, exhibiting strong binding affinities. ADME/T analysis confirmed the drug-like properties of these compounds, making them promising candidates for further investigation.

Conclusion:

The study identifies three potential KRAS-G12C inhibitors with good binding affinities and favourable pharmacokinetic properties. These findings emphasize the potential of computational drug design in identifying new lead compounds for KRAS-G12C driven cancers.

Key words: KRASG12C, NSCLC, pharmacophore modelling, ADMET, molecular dynamics.

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POSTER PRESENTATION

PC23

Development of novel route of synthesis for β-Lactamase inhibitor 'Sulbactam'

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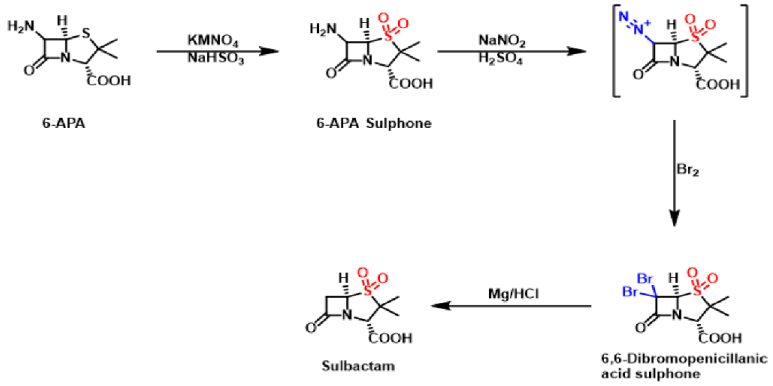
Introduction:

Sulbactam is a semi-synthetic β-Lactamase inhibitor which is given in the combination of a β-Lactam antibiotics like ampicillin or cefoprazone to treat variety of susceptible bacterial infection. It is a sulphone derivative of penicillin which is being synthesized from 6-Aminopenicillanic acid (6-APA).

Methods:

Oxidation of 6-Aminopenicillanic acid with aqueous $KMnO_4$ under mild acidic condition obtained 6-APA sulphone. The sulphone has higher stability under the acidic condition. Diazotization followed by bromination of diazo intermediate affords 6,6-Dibromopenicillanic acid sulphone. Sulbactam is obtained by debromination with Mg in the presence of dilute HCl.



Results:

The novel method when used to obtain sulbactam, the spectral analysis results were accurate which meant that we are getting the desired off-white compound. The experiment was started on 5 gm scale, but the yield turned out to be lower due to very sensitive reaction conditions.

Conclusion:

The novel route developed was very well suited for the manufacture of the sulbactam drug because it eliminated all the hazardous disadvantages of the previous method which was being used from before. It also made the process cost effective.

Keywords: Sulbactam, Oxidation, β-Lactamase inhibitor.

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POSTER PRESENTATION

PC24

A Validated stability-indicating HPTLC method for simultaneous quantitative estimation Of Telmisartan Hydrochlorothiazide & Amlodipine in bulk drug and in pharmaceutical tablet dosage form

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Introduction:

A simple, sensitive and economic stability indicating high performance thin layer chromatography (HPTLC) method was developed for quantitative estimation of telmisartan, hydrochlorothiazide & amlodipine in bulk and tablet dosage form.

Method:

A trinary mixture standard solution was prepared which contain 400 µg/ml of telmisartan, 125µg/ml of hydrochlorothiazide and 50 µg/ml of amlodipine. densitographic separation was achieved by using TLC plates precoated with Silica gel 60 F_{254} as stationary phase and the mobile phase consisting of toluene: chloroform: methanol in the ratio of 2:5:2 v/v/v as mobile phase. Forced degradation studies were performed with 0.1N HCl, NaOH, hydrolytic, 3% H_2O_2, photolytic and thermal degradation. Optimized method was validated with the help of validation parameters.

Results:

The densitographic separation of telmisartan, hydrochlorothiazide & amlodipine was observed at Rf 0.63 ± 0.03, 0.32 ± 0.03 and 0.13±0.03 respectively. Densitometric scanning was carried out for the detection of spots at 265nm. Major degradation of Telmisartan, Hydrochlorothiazide and Amlodipine were observed under acidic, alkali, hydrolytic and oxidative degradation conditions and very less degradation was observed under dry heat and photolytic condition for Telmisartan, Hydrochlorothiazide and Amlodipine. The described HPTLC method was validated as per ICH guideline and validation parameter such as linearity, accuracy, precision, specificity and robustness results were within acceptable limits.

Conclusion:

Newly developed stability indicating HPTLC method is suitable for simultaneous quantitative estimation of Telmisartan, Hydrochlorothiazide and Amlodipine in routine quality control laboratories

Key words: Telmisartan, Hydrochlorothiazide, Amlodipine, Method Validation, Forced degradation.

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POSTER PRESENTATION

PC25

Semisynthetic Quercetin Derivatives with Potent Antitumor Activity in HER2 - Positive Breast cancer studies

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Introduction:

Quercetin has been shown to exhibit a wide range of pharmacological properties, including potential therapeutic effects against various types of cancers. However, its application in pharmaceuticals is limited due to its low bioavailability, which is a result of poor water solubility and limited permeability. In this study, we present a systematic approach to chemically modify quercetin in order to develop semisynthetic derivatives.

Methodology:

Using a selective synthetic methodology, we successfully acetylated the hydroxyl groups at positions 3, 7, 30, and 40 of quercetin, resulting in the formation of 3,7,30,40-O-tetraacetylquercetin (4Ac-Q). The aim of this manuscript was to modulate the log D value and aqueous solubility of quercetin by attaching facilitator moieties. The semisynthetic derivatives, with an optimized log D value and enhanced aqueous solubility, are expected to exhibit superior cell-penetrating ability compared to quercetin. As a result, acetylation could serve as a strategic approach to improve the potential of quercetin and related flavonoids in inhibiting cancer cell proliferation.

Results:

ADMET analysis demonstrated that all of the studied compounds exhibited low toxicity and favourable absorption and solubility properties. The molecular docking results showed an exceptional affinity for binding to the HER2 main protease. These findings are significant not only due to the binding energy values, which surpass those of several compounds from previous studies, but also because of the number of hydrogen bonds formed. Compound 1c was able to form 10 strong hydrogen bonds and interacted with the protein receptor with a binding energy of -8.367 kcal/mol.

Conclusion:

As a result, these compounds should be emphasized in future experimental studies, including their characterization and synthesis, in the context of investigating their potential effects on HER2-positive breast cancer treatment.

Keywords: Semisynthetic, Quercetin Derivatives, HER2-Breast cancer.

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POSTER PRESENTATION

PC27

Detection of coliforms in various samples of Potable water by MPN method

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Introduction:

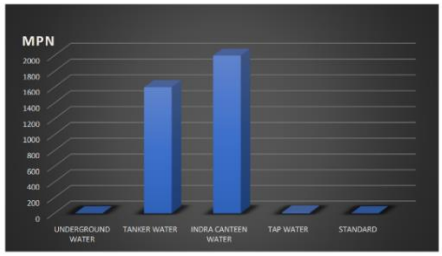
Water quality monitoring is crucial for safeguarding public health, as contaminated water may contain harmful microorganisms. Coliform bacteria serve as reliable indicators of fecal contamination and potential pathogen presence. The Most Probable Number (MPN) method is a statistical approach widely used to estimate viable coliform levels, particularly in low-concentration scenarios. This study aimed to assess the applicability of the MPN method for detecting coliforms in various Samples of Potable Water.

Methods:

Water samples were collected and subjected to serial dilutions. Different volumes of these dilutions were inoculated into tubes containing **lactose broth**, a selective medium for coliform growth. The tubes were incubated at **35–37°C for 24–48 hours**. Coliform presence was identified based on:

1. **Gas production** in inverted Durham tubes.
2. **Colour change to yellow**, indicating lactose fermentation. The number of positive tubes at each dilution was recorded, and MPN values were calculated using established statistical tables.

Results:



MPN Count
Various Potable Water Samples

Conclusion:

Water samples were collected from various sources, and preliminary tests, including the Most Probable Number (MPN) test, were conducted. During the presumptive test, 10 mL, 1 mL, and 0.1 mL of each sample were filled into nutrient media and incubated for 48 hours. The MPN values were then calculated. Samples Tanker Water and Canteen Water showed the highest MPN values, indicating significant microbial contamination and rendering them unfit for drinking. In contrast, samples Underground Water and Tap water had the lowest MPN values, suggesting they are safer for consumption.

Key words: MPN Test, Most Probable Number, Water quality Analysis, Coliform Detection

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PC28

Novel Coumarin-Azetidone Hybrids as 14α-demethylase Inhibitors: Design and Docking Studies for Antifungal Activity

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Introduction

Coumarin-azetidione derivatives are emerging as promising candidates for antifungal therapy due to their structural versatility and biological activity. Targeting 14α-demethylase, a critical enzyme in fungal sterol biosynthesis, is a well-established approach to combating fungal infections. This study explores the potential of coumarin-azetidione hybrids as inhibitors of 14α-demethylase (PDB ID: 5D5Z) using molecular docking studies.

Methods

Fifteen coumarin-azetidione derivatives were designed and subjected to docking studies to evaluate their binding affinities and interactions with the active site of 14α-demethylase. PyRx was used to calculate binding scores, and a standard antifungal drug was included as a reference. Protein-ligand interactions were analyzed to identify the most promising derivatives.

Results

Docking results revealed that compounds 11 and 16 demonstrated the highest binding affinities, with scores of -10.4 and -10.3 kcal/mol, respectively, outperforming the standard drug ketoconazole (-7.2 kcal/mol). Compounds 10 and 18 exhibited strong interactions with key residues such as LYS151, VAL311, GLY314, and ILE471, highlighting their potential for effective inhibition. The binding affinities for all the derivatives ranged from -7.2 to -10.4 kcal/mol.

Conclusion

The findings suggest that coumarin-azetidione hybrids possess significant potential as 14α-demethylase inhibitors, paving the way for further exploration as antifungal agents. These compounds warrant experimental validation and optimization for therapeutic applications.

Keywords

Coumarin-azetidione hybrids, 14α-demethylase, Molecular docking, Antifungal therapy, Binding affinity.

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PC29

Development of Colorimetric method for Vigabatrin: A fast and cost-effective approach

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Introduction:

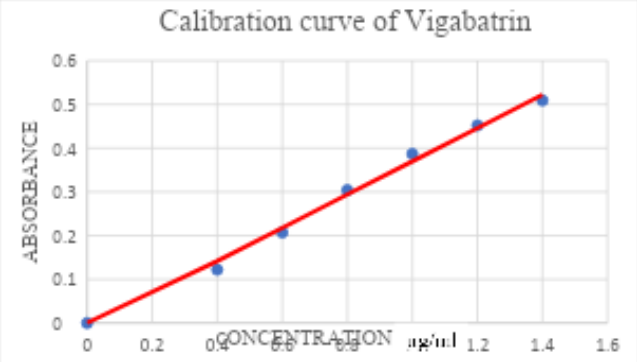
A Calorimetric method for Vigabatrin analysis involves measuring the heat change during a chemical reaction where vigabatrin interacts with a specific reagent. This technique is advantageous for its simplicity, cost-effectiveness, and rapid execution. The development process includes selecting a suitable reagent, optimizing reaction conditions for sensitivity, and validating the method for accuracy and precision by using UV Spectrophotometer.

Methodology:

The Vigabatrin was reacted with Ninhydrin reagent to obtain Ruhemann's purple. The intensity of the colour was measured at wavelength of 571nm. The Concentration was measured in the range of 0.4 to 1.4µg/ml.

Results:

The Linearity of vigabatrin was observed with a correlation coefficient to 0.994. The Accuracy and Precision was found to be 99.35% to 101.55% and less than 2%.



Conclusion:

- The Colorimetric method was developed and validated in accordance with ICH guidelines for Vigabatrin. The developed method can be used for the quality control of drugs and formulations.
- This demonstrates that developed Colorimetry method is simple and rapid.

Keywords: Vigabatrin, UV- Visible Spectrophotometer, Ninhydrin, Validation

PC30

In-silico studies, Synthesis and Biological Evaluation of Some Novel Paracetamol-Benzimidazole hybrids as Potential Analgesic and Antipyretic agents

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Introduction:

Paracetamol is a major active metabolite of acetanilide and phenacetin. It is reported as an effective analgesic-antipyretic agent and benzimidazole analogues shows pharmacological activities like antitumor, antiviral, antihistaminic, anthelmintic and antiprotozoal agent. So, it's a worthwhile to design the synthesis and investigate the *in vivo* analgesic-antipyretic activity for the novel paracetamol derivatives containing substituted benzimidazole analogues.

Methodology:

In-silico molecular docking studies were carried out on selected targets (PDB ID: 1OXR and 4XTA) for 8 novel paracetamol- benzimidazole hybrids. They were also assed for drug likeness. Paracetamol was esterified with ethyl-chloro-acetate in dry acetone to give Ethyl[4-(acetylamino) phenoxy] acetate [JJRK 01]. This was further treated with hydrazine hydrate to give N-[4-(2-hydrazinyl-2-oxoethoxy) phenyl] acetamide [JJRK 02] which was condensed with various substituted 2-chloromethyl-1H-benzimidazoles [JJRK 3(A-H)] in presence of absolute alcohol to produce various novel paracetamol derivatives [JJRK 4(A-H)]. All the newly synthesized compounds have been evaluated for their *in-vivo* analgesic and antipyretic activity. Tittle compounds were subjected to QSAR and virtual toxicity studies.

Results:

In-silico molecular docking studies gave very promising results compared to paracetamol with higher binding affinities for the selected target proteins. ADME properties predicted the compounds to be druglike. Hence the design compounds were synthesized using standard protocol. The purity of synthesized compounds confirmed by TLC and elemental analysis. Further characterized by IR, ^{1}H NMR & Mass spectral data. Contrary to the prediction of promising activity by *in-silico* studies, the compounds exhibited poor activity during *in-vivo* screening.

Conclusion:

The synthesized paracetamol-benzimidazole derivatives showed promising activity in *in-silico* molecular docking, indicating good binding affinity and drug-like properties. However, the *in-vivo* evaluation revealed poor analgesic and antipyretic activity, contrary to the computational predictions.

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PC31

Identification of novel PI3K Receptor Inhibitors for Breast Cancer Therapy Using Computational Approach

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Introduction:

Breast cancer, the fifth leading cause of death worldwide, results from uncontrolled breast cell growth. Hyperactivation of PI3K signaling cascades is a common occurrence in human cancers, making PI3K promising therapeutic target. Upregulation of this pathway is commonly observed in breast cancer patients. It as been associated with breast cancer tumorigenesis, progression and development of resistance to hormone therapy and chemotherapy. The aim of the present study is to identify novel and safe PI3K inhibitors for breast cancer using computational approach.

Method:

A computational approach was employed to identify potential PI3K inhibitors. The study began with 392 compounds from the ZINC Database, which were screened using "Pharmit" for pharmacophore modeling and refined based on physicochemical properties of Alpelisib with "Data Warrior." Molecular docking studies, conducted for 29 compounds using "PyRx," evaluated compound binding affinities to the PI3K receptor, while ADMET analysis using "pkCSM" assessed pharmacokinetic properties to determine drug-likeness.

Result:

From the initial 392 compounds, 29 were selected based on their Physio-chemical similarity to Alpelisib, a standard PI3K inhibitor. Of these, eight compounds demonstrated strong interactions with the PI3K receptor. ZINC000253623959 and ZINC000097272464 showed highest binding affinities -10.2 kcal/mol and -9.6 kcal/mol respectively, outperforming Alpelisib (-8.6 kcal/mol) in docking scores. ADMET analysis further confirmed that these two compounds exhibited favorable pharmacokinetic properties, including drug-likeness and safety, supporting their potential for further development.

Conclusion:

This study identified ZINC000253623959 and ZINC000097272464 as promising PI3K inhibitor candidates with strong receptor interactions and favorable pharmacokinetics. These findings provide a basis for further *in-vitro* and *in-vivo* investigations, advancing the development of safer and more effective treatments for breast cancer.

Key words: Breast Cancer, PI3K Pathway, Pharmacophore modelling, Molecular docking, ADMET.

PC32

Targeting AKT1 in Breast Cancer: Identification of Promising Novel Inhibitors through Computational Studies

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Introduction:

Breast cancer is the most prevalent cancer among women in India, with high mortality rates due to treatment resistance and relapse. The AKT1 protein plays a crucial role in cell survival and growth, making it a key therapeutic target. This signalling pathway is often deregulated in breast cancer and plays an important role in its development and progression. The present study uses a computational approach to identify novel and safe AKT1 inhibitors for breast cancer.

Method:

This study involves molecular docking and interaction analysis of Capivasertib (a standard AKT1 inhibitor) and novel ligands with the purified human AKT1 protein. 1090 ligands from the ZINC library were screened through "Pharmit" for Pharmacophore Modelling and filtered through "Data Warrior". Molecular Docking was performed using "Pyrx" software for 35 compounds to evaluate binding efficiency, while pharmacokinetic profiles were assessed through ADMET analysis using "SwissADME".

Result:

Out of 1090 compounds 35 were selected based on physio-chemical similarity to Capivasertib, a standard AKT1 inhibitor. From this, eight compounds formed effective interactions with the AKT1 receptor. ZINC13806248 and ZINC17216112 showed the highest binding affinities -12.3 kcal/mol and, -11.9 kcal/mol respectively, outperforming Capivasertib (- 10.8) in docking scores. ADMET analysis revealed favourable pharmacokinetic properties for these compounds, underscoring their potential as therapeutic candidates.

Conclusion:

This study identified ZINC13806248 and ZINC17216112 as promising AKT1 inhibitors with strong binding interactions and favourable pharmacokinetics. These findings provide a basis for further *in-vitro* and *in-vivo* investigation of lead compounds targeting breast cancer.

Keywords: Breast Cancer, AKT1 Pathway, Pharmacophore Modelling, Molecular Docking, ADMET.

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POSTER PRESENTATION

PC33

Synthesis, Characterization, and Biological Evaluation of Benzidine and Isoniazid Derivative Schiff Base Molecules as Potential Antioxidant and Anti-Alzheimer Agents

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Introduction: Schiff base molecules are pivotal in medicinal chemistry, particularly in developing potential therapeutic agents for neurodegenerative diseases. This study explores the synthesis and comprehensive evaluation of Benzidine and Isoniazid derivative Schiff base molecules for their antioxidant and cholinesterase inhibitory properties.

Methods: Two Schiff base compounds were synthesized using reflux method with organic solvents. Characterization involved physicochemical analysis, including molecular weight, melting point, and IR spectroscopy. Biological evaluation encompassed in vitro assays for acetylcholinesterase (AChE) and butyrylcholinesterase (BChE) inhibition, along with antioxidant activity testing using DPPH, hydroxyl radical, and hydrogen peroxide scavenging methods. Molecular docking and dynamics simulations were performed using computational techniques.

Results: Compound-1 demonstrated moderate antioxidant activity, particularly in hydroxyl radical and hydrogen peroxide scavenging, with good BChE inhibition. Compound-2 exhibited superior antioxidant properties, especially in hydrogen peroxide scavenging, and outperformed Donepezil in AChE inhibition. Both compounds showed promising potential for neurodegenerative disease intervention.

Conclusion: The synthesized Schiff base molecules exhibit significant potential as therapeutic agents, with notable cholinesterase inhibitory and antioxidant properties. Future research should focus on validating safety and efficacy through animal models and clinical studies.

Keywords: Schiff base molecules, Antioxidant, Cholinesterase inhibition, Alzheimer's disease

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POSTER PRESENTATION

PC34

Identification of a potential lead compound targeting FFAR3 from the *Ocimum* genus for the prevention of multi-system disorders

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Introduction:

Free fatty acid receptor 3 (FFAR3), a G protein-coupled receptor activated by short-chain fatty acids (SCFAs) like acetate and butyrate, is encoded by the FFAR3 gene. Fenchol, a natural compound from basil, exhibits antimicrobial and antioxidant properties and has been identified as a FFAR2 stimulator. This study explores Fenchol's potential to activate FFAR3 and employs virtual screening of Ocimum-derived compounds to identify additional FFAR3 agonists.

Methods:

Ligands from the Ocimum genus were retrieved from the COCONUT database and converted from SMILES to .mol files. Energy minimization and docking were performed using PyRx to optimize ligands and predict binding affinities to FFAR3. Molecular dynamics simulations were conducted, and RMSD and RMSF plots were generated to analyze ligand stability.

Results:

Over 300 Ocimum-derived compounds from the COCONUT database were screened for binding affinity to FFAR3 using PyRx. Butyrate, a known FFAR3 activator, served as a reference with Vina scores ranging from −3.6 to −4.0 kcal/mol. Several Ocimum compounds exhibited docking scores between −3.0 and −5.5 kcal/mol, indicating strong interactions. Key binding residues (Arg185, Met185, Val150, Phe96, Tyr100, His245, Arg258, Tyr241, Ser280) were identified, and five ligands showed superior binding profiles and hydrogen interactions. These ligands were further taken for molecular dynamics studies.

Conclusion:

Five lead-like phytochemicals from the genus Ocimum were identified through a molecular docking approach, and further analysis of a potentially identified lead-like molecule confirmed a stable interaction with the protein, as demonstrated through molecular dynamics simulations.

Keywords: Alzheimer's disease (AD), Short-chain Fatty acids(SCFA), FFAR2, FFAR3, Fenchol, Amyloid-beta(Ab) accumulation.

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POSTER PRESENTATION

PC35

Analytical Method, Development and Validation of Raloxifene Hydrochloride By RP-HPLC

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An accurate, fast, simple and cost-effective RP-HPLC technique for detecting of Raloxifene HCL was developed. The RP-HPLC method is developed by using ACN and Millipore water with 0.1% OPA (50:50 v/v) as mobile phase for Raloxifene HCL. Flow rate is maintained at 0.5mL/minute respectively. Detection of Raloxifene HCL was performed by using UV detector at 287nm respectively. By this proposed method RT of Raloxifene HCL was identified at 2.9 min respectively. The R^2 value is 0.996. The LOD value is 1.5µg/ml.The LOQvalue is 10g/ml. The proposed method is used for the routine Quality control. The R^2 value is 0.996, the LOD value is 0.8µg/ml and LOQ value is 0.5µg/ml. The accuracy was found to be 98.71%.

Key words: UV detector, RP-HPLC method, Raloxifene HCL, LOD, LOQ.

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POSTER PRESENTATION

PC36 (Poster Pitch)

Development and Validation of Novel RP-HPLC Method for Characterization of Levonorgestrel-loaded Polycaprolactone Nanoparticles Designed for Long-term Contraception

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The prime objective of current research was to develop and validate a reliable RP-HPLC technique to quantify levonorgestrel (LNG) in polycaprolactone (PCL) nanoparticles designed for long-term contraception. The acetonitrile-prepared LNG stock solution was subjected to UV spectrophotometry for wavelength selection, followed by RP-HPLC analysis utilizing a Shimadzu system with a Phenomenex Luna C18 column. Chromatographic conditions were optimised, achieving a mobile phase of 20% millipore water and 80% acetonitrile with a flow rate of 1 ml/min, and a detection wavelength of 240 nm was selected as an optimized chromatographic condition. Method validation adhered to ICH Q2 (R1) guidelines, encompassing precision, linearity, accuracy, LOD, LOQ, robustness, and system suitability were validated. The developed method was, hence, found to be reliable for characterizing LNG-loaded nanoparticles and ensuring effective contraceptive drug delivery.

Keywords: Levonorgestrel; Analytical Method; RP-HPLC method development; Validation; Drug delivery; Nanotechnology; Polymeric nanoparticles.

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SPSR Society of Pharmaceutical Sciences and Research

POSTER PRESENTATION

PHYTOPHARMACEUTICAL RESEARCH

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POSTER PRESENTATION

PH02

Pharmacognostic Evaluation of *Litsea Coriacea*e (Heyne Ex Meisner) Hook. F

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Introduction:

Medicinal herbs or plants have been known to be an important potential source of therapeutics or curative aids. *Litsea coriacea*e (Heyne ex Meisner) Hook.F is a Dioecious tree, belongs to the family Lauraceae. Pharmacognostic Evaluation of bark of *Litsea coriacea*e (Heyne Ex Meisner) Hook.F were determined.

Methods:

Morphological features were observed and evaluated Powder microscopy and transverse section of leaf and bark of plant. The proximate values like extractive values Moisture content, Ash values, Foaming index were determined for the powder drug shows the nature of constituents, purity and quality of the drug.

Results:

Morphological features viz. color; odour, taste, shape, texture and size were observed. Microscopical characters were observed by Microscopical Evaluation of Leaf/ bark of the plant. Proximate values of bark of plant like Extractive values (Cold maceration method) Alcohol soluble extractive value 6.50, Water soluble extractive value 4.20, Ether soluble extractive value 1.40 , Hot extraction method, Moisture content by Loss on drying 5.80,Water soluble extractive value 8.30, Ether soluble extractive value 3.50 ,Alcohol soluble extractive value 12.20 Ash Values like Total ash 5.25 ,Acid insoluble ash 0.85 ,Water soluble ash 4.5, Sulphated ash 1.5, Foaming index More than 100. This information will be helpful in standardization for quality, purity and sample identification.

Conclusion:

The present study is focused on the bark of plant *Litsea coriaceae* (Heyneex Meisner) Hook.F to evaluate its pharmacognostic studies which helps the scientific community as documentary evidence for further investigation of the plant.

Keywords: *Litsea coriaceae* (Heyneex Meisner) Hook. F, Proximate values, Morphology, Microscopical features

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POSTER PRESENTATION

PH03

Evaluation of Antifungal Activity of Piperine Isolated from Black Pepper

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Introduction:

Piper nigrum, scientifically known as black pepper, belongs to the family *Piperaceae*. Also recognized by synonyms like Kari Menasu and Kali Mirch, originates from the dried unripe fruits of the perennial climbing vine Piper nigrum. Indigenous to India and extensively grown in regions such as Assam, Kerala, Karnataka, and Maharashtra.

Methods:

20 grams of black pepper powder was extracted with 95% ethanol using a Soxhlet extractor for 6 hours. The extract was concentrated, treated with alcoholic KOH, and filtered. The final extract was stored at 4°C for further analysis. 20 grams of sample was mixed with distilled water and irradiated in a microwave extractor for a specific time and power. The extract was centrifuged, concentrated, and stored at 4°C for further analysis.

Result:

The phytochemical screening of Piper nigrum extract revealed the presence of alkaloids, flavonoids, steroids, carbohydrates, tannins, and cardiac glycosides. Piperine, a major bioactive compound, was successfully isolated using Soxhlet and microwave-assisted extraction methods. TLC analysis confirmed the identity of the isolated piperine, and UV-spectrophotometry quantified its amount in the extract. The isolated piperine exhibited significant antifungal activity compared to standard piperine and commercial antifungal agents.

Conclusion:

Piper nigrum, a medicinal plant with a rich history, demonstrated a wide range of bioactive compounds, including piperine. The successful isolation and characterization of piperine support its potential as a natural antifungal agent. Further research is necessary to entirely explore the therapeutic potential of Piper nigrum and its active constituents.

Keywords: Piperine, antifungal, piper nigrum

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POSTER PRESENTATION

PH04

Analgesic activity of *Sorghum halepense* (l.) Root extract

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Introduction:

Sorghum halpense (L.) belongs to the family Poaceae is extensively used in traditional system of medicine for ailment of analgesic activities of the *Sorghum halepense* root. Methanolic extract and its different fractions were evaluated.

Methods:

Freshly collected plant material of *Sorghum halepense* roots were washed with tap water and dried using hot air oven for 24 hours. The coarsely powdered roots were subjected for extraction using decoction method with hot extraction process using methanol as solvent. Investigation of analgesic properties methanolic extract using Eddy's Hot plate method and Radiant heat tail-flick method in rats.

Results:

Methanolic extracts of *Sorghum halepense* (L.) were found to be nontoxic when administered orally to rats in the dose 100mg/kg. In the Eddy's Hot plate method both the extract and ibuprofen caused the significant increase in the reaction time. The percentage increase in the reaction time of *Sorghum halepense* L extract significantly among the groups of rats and ibuprofen. In the Radiant heat tail-flick method increase in latency period at different time points significantly differed compared to initial values with drug treated groups. The extract and ibuprofen caused significant increase at all the specified time intervals. Overall, the result showed that *Sorghum halepense* (L.) possesses the analgesic effect.

Conclusion:

Hence it can be opened that *Sorghum halepense* L roots to be a good analgesic agent. It is worthwhile to consider this aspect for clinical application in patients in severe and moderate pain conditions. Analgesic activity of *Sorghum halepense* L root methanolic extract shows significant activity in three different models.

Keywords: Analgesic, *Sorghum halepense* root, methanolic extract

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POSTER PRESENTATION

PH05

Phytoconstituents as Therapeutic Agents for Alzheimer's Disease: A Comprehensive Review of Mechanisms and Clinical Potential

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Introduction:

Alzheimer's disease (AD) is a progressive neurodegenerative disorder that significantly impairs cognitive function and memory. Current treatments primarily offer symptomatic relief without addressing the underlying pathology of the disease. Phytoconstituents, which are naturally occurring compounds in plants, have garnered attention due to their potential therapeutic effects and lower incidence of adverse effects. This review explores various phytoconstituents, including polyphenols, alkaloids, terpenoids, and glycosides, and their mechanisms of action in the treatment and prevention of AD.

Methods:

A comprehensive literature review was conducted, focusing on preclinical and clinical studies involving phytoconstituents with reported effects on AD. The mechanisms of action of these compounds were examined, including their antioxidant, anti-inflammatory, anti-amyloidogenic, and neuroprotective properties. Databases such as PubMed, Scopus, and Web of Science were utilized to gather relevant studies.

Results:

Key phytoconstituents, such as curcumin, resveratrol, epigallocatechin gallate, and ginsenosides, were found to modulate AD pathology through various mechanisms. These include reducing oxidative stress, inhibiting amyloid-beta aggregation, attenuating neuroinflammation, and protecting against neuronal damage. The review highlights significant findings from both in vitro and in vivo studies, demonstrating the potential efficacy of these compounds. Challenges related to the bioavailability and delivery of phytoconstituents were also discussed, along with potential strategies to enhance their therapeutic effects.

Conclusion:

Phytoconstituents hold significant promise as therapeutic agents for the treatment of Alzheimer's disease due to their multifaceted mechanisms of action and relatively low side effect profiles. The reviewed evidence suggests that these natural compounds can complement conventional therapies, providing a holistic approach to managing AD. However, further research is necessary to optimize their bioavailability and delivery, and to validate their efficacy in larger clinical trials. This review identifies crucial research gaps and proposes directions for future studies to fully realize the potential of phytoconstituents in AD therapy.

Keywords: Alzheimer's disease, Phytoconstituents, Neuroprotection, Antioxidants, Polyphenols, Terpenoids, Alkaloids, Glycosides.

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POSTER PRESENTATION

PH06

Review of formulation, evaluation and comparison of herbal shampoo with commercial shampoo

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Introduction:

The increasing prevalence of hair-related issues, such as hair loss, dandruff, and hair damage, has led to a growing demand for natural and effective hair care solutions. Synthetic shampoos, while widely available, often contain harsh chemicals that can strip the hair of its natural oils and lead to various scalp problems. To address this issue, we aimed to develop a herbal shampoo formulation using natural ingredients with known hair-beneficial properties.

Materials and Methods:

A variety of plant extracts, including those from *Zizyphus jujuba*, *Acacia concinna*, *Emblica officinalis*, and *Sapindus mukorossi*, were selected based on their traditional use in hair care and their reported pharmacological activities. These extracts were standardized for their active constituents and incorporated into a shampoo base. The formulation was optimized to achieve the desired properties, such as pH, viscosity, and foaming capacity.

Results and Discussion:

The developed herbal shampoo exhibited excellent foaming properties, comparable to commercial synthetic shampoos. It was found to be mild on the scalp and did not cause any adverse effects, such as irritation or dryness. The shampoo effectively cleansed the hair and scalp, removing dirt, oil, and product buildup. Furthermore, it imparted a significant degree of hair conditioning, leaving the hair soft, smooth, and manageable.

Conclusion:

The successful development of this herbal shampoo formulation demonstrates the potential of natural ingredients in providing effective and safe hair care solutions. The formulation can be further optimized and scaled up for commercial production. Future research can explore the long-term effects of using this herbal shampoo and investigate the underlying mechanisms of action of the active ingredients.

Key words: Herbal shampoo, Natural hair care, Plant extracts, Hair conditioning, Scalp health

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POSTER PRESENTATION

PH07

Formulation and Evaluation of Herbal Face Cream

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Introduction:

This study focuses on the formulation of a herbal face cream using extracts of *Curcuma longa* (turmeric), *Carica papaya* (papaya leaves), and *Aloe barbadensis* (Aloe vera). These ingredients possess anti-inflammatory, antibacterial, antioxidant, and moisturizing properties, making them ideal for skincare solutions targeting acne treatment and hydration.

Methodology:

The ingredients were collected and processed using Soxhlet extraction and maceration techniques. The formulated cream underwent evaluations including organoleptic characteristics, pH, viscosity, spreadability, washability, and phase separation. Antimicrobial activity was assessed using the agar well diffusion method.

Results:

The cream demonstrated satisfactory results in all physicochemical tests, with a pH of 6.5, viscosity of 39010 cP, and excellent spreadability (7.4 g.cm/sec). Thin Layer Chromatography (TLC) analysis confirmed the presence of active constituents. The antimicrobial test revealed significant activity against Staphylococcus aureus.

Conclusion:

The herbal face cream is a promising product for acne treatment and skincare, offering effective moisturization and antibacterial properties. The study highlights the potential of herbal formulations in creating safe and effective cosmetic products.

Keywords: Herbal face cream, *Curcuma longa, Carica papaya*, *Aloe barbadensis*, phytochemicls. microbial, skincare

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POSTER PRESENTATION

PH08

Preparation and Evaluation of Herbal Anti-Dandruff Hair Oil for the Management of Hair Loss

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Introduction:

This study aims to develop an herbal Anti-dandruff hair oil incorporating sesame, caraway, lotus seed, and bay leaf oils. These natural ingredients were chosen for their anti-fungal, anti-microbial, and nourishing properties to manage dandruff and hair loss. The work seeks to promote an effective, safer alternative to synthetic formulations, which may have adverse effects.

Methodology:

The formulation process involved combining non-volatile oils (sesame, caraway, and lotus seed) with the volatile bay leaf oil in a sterile spray container to create the tonic. The evaluation included tests for spreadability, pH, and viscosity, alongside anti-microbial and anti-fungal activity assessments, using the agar diffusion method against pathogens like Malassezia furfur.

Results:

The tonic exhibited excellent spreadability (19.4 cm post-application), an ideal viscosity of 35.1 centipoise, and a pH suitable for scalp use. It demonstrated significant anti-fungal activity, particularly against Malassezia furfur, the primary dandruff-causing fungus.

Conclusion:

The formulated herbal hair oil showed promising results in managing dandruff and hair loss. Its natural composition ensures safety and efficacy, making it a viable alternative to synthetic products. Further studies could explore its long-term effects and broader applications in hair care.

Keywords: Hair Oil, Bay Leaf Oil, Lotus Seed Oil, Antifungal Agents

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POSTER PRESENTATION

PH09

Development and characterization of lip balm containing carotenoid pigment from muskmelon pulp extract

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Introduction:

Lip balms are widely used to protect lips from dryness, chapping, and other conditions. This study aimed to utilize muskmelon carotenoid extract, rich in vitamin C and antioxidants, to formulate a lip balm. The carotenoid imparts a natural color while offering skin benefits such as lightening pigmentation and improving elasticity. Natural ingredients like coconut oil, beeswax, shea butter, and honey were used to create an eco-friendly product.

Methodology:

Carotenoid pigment was extracted from muskmelon pulp using acetone, sodium bicarbonate, and ascorbic acid. The extract was standardized using Thin Layer Chromatography (Rf value = 0.95). Pre-formulation studies assessed its physical and chemical properties. Three lip balm formulations (F1, F2, F3) with varying carotenoid concentrations (0.2g, 0.4g, 0.6g) were prepared. They were evaluated for organoleptic properties, melting point, spreadability, and pH. Antioxidant activity was determined using hydrogen peroxide scavenging assay.

Results:

The carotenoid extract exhibited an IC_{50} value of 133.17 µg/ml, demonstrating strong antioxidant activity. The lip balms showed good spreadability, stable melting points (66–68°C), and a neutral pH (7.2), ensuring safety and usability.

Conclusion:

Muskmelon carotenoid extract is a promising natural ingredient for lip balm formulations, offering antioxidant benefits, stable properties, and sustainable cosmetic applications.

Keywords: Muskmelon, Coconut Oil, Bees Wax, Shea Butter, Honey

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POSTER PRESENTATION

PH10

Formulation and Evaluation of Antimicrobial Activity of Polyherbal Cream

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Introduction:

Skin, the body's largest organ, protects against environmental hazards, regulates temperature, and enables sensation. Acne, a prevalent skin condition caused by Propionibacterium and Staphylococcus aureus, leads to inflammation and blemishes. Herbal formulations, known for their safety and efficacy, offer a natural approach to skin care. This study focuses on developing a polyherbal cream using Coleus aromaticus (Mexican mint), mango leaves, and coconut oil to address acne and other skin issues while enhancing skin health.

Methodology:

The active ingredients were extracted using maceration (for Coleus aromaticus) and Soxhlet (for mango leaves) methods. The cream formulation involved blending the extracts with beeswax, coconut oil, and other excipients. The mixture was emulsified by combining oil and water phases, followed by cooling and adding preservatives. Evaluation criteria included parameters like homogeneity, consistency, color, odor, spreadability, and irritancy, alongside antimicrobial tests.

Results:

The polyherbal cream displayed desirable physical characteristics, including smooth consistency, pleasant odor, and easy removal. Antimicrobial testing confirmed its efficacy against acne-causing bacteria without inducing skin irritation. These findings highlight the formulation's potential as a natural alternative for skin health.

Conclusion:

The developed polyherbal cream effectively combines the antimicrobial and skin-enhancing properties of its herbal ingredients. With promising results in physical and antimicrobial evaluations, it provides a safe use on skin care and warrants further clinical and toxicological studies.

Key words: *Coleus aromaticus*, Mango Leaves, Coconut Oil, Skin Acne

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POSTER PRESENTATION

PH11

Nutraceutical Based Chikki for the possible Breast Cancer Prevention

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[2]Department of Biotechnology, Manipal Institute of Technology, Manipal Academy of Higher Education, Eshwar Nagar, Manipal, Karnataka, India.

Introduction:

India has been recognized all over the world for its medicinal plants and spices. Both exhibit a wide range of physiological and pharmacological properties. Nutraceuticals or functional foods represent one of the fastest growing segments in food industry and have exploded in to the market. Prevention is as prevalent a reason for nutraceutical consumption as is treatment. They are sold in many forms including tablets, capsules, liquids, powders, extracts and concentrations. Therefore, our study focuses on manufacturing nutraceutical enriched nutri- bar, and to check the anticancer property.

Methods:

Preparation of powders of the components (Bael, Ginger, Turmeric, Soya) in 7 different formulations Preparation of nutribar. Extraction Process, Filtering and Storing of the prepared nutribars. Sensory and Texture analysis of the nutri bar, Polyphenol Estimation of the nutribars. Insilico Analysis: Modelling the protein SULF-2 (Uniprot, STRING), Checking for the toxicity (ADMETSAR), ADMET properties (SWISSADME), Docking studies (AUTODOCK)

Results:

Identified that Nutri bar [Sample 4 proportioned- 0.5(bael peel):1(turmeric):1(soya):1(ginger)] exhibited maximum polyphenol content. The sensory and texture analysis of the nutri bar showed optimal parameters which makes it suitable for consumption. Identified that genistein shows potential activity against breast cancer, which can be used as a preventive. Docking and physiochemical interaction studies showed that Genistein has inhibitory activity towards breast cancer.

Conclusions:

Nutraceuticals offer a viable natural option to consumers who are looking for convenience, efficacy, and higher safety in products aimed at the betterment of health. Indian nutraceuticals market is going to be more than double of current market within next five years. Currently functional foods have largest share of the Indian nutraceuticals market followed by dietary supplements.

Keywords: Nutra chikki, bael fruit, turmeric, docking study

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POSTER PRESENTATION

PH12

Formulation Design of Herbal Gel-based sunscreen containing Silymarin from Milk Thistle and other ingredients to enhance UV Protection and other applications

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Introduction:

This study focuses on Milk thistle (Silybum marianum), a medicinal plant known for its flavonolignans, particularly silymarin, which may have UV protective effects. The research involves extracting and analyzing these metabolites using Soxhlet extraction, HPLC, and LC-MS techniques. The goal was to develop a safer, SPF-enriched cosmetic product by addressing the issues associated with current organic cosmetic claims.

Methods:

Silymarin was extracted from milk thistle seeds using the Soxhlet extraction method, and the solvent was removed using a rotary evaporator. The extracted compound was quantified through HPLC analysis. A sunscreen gel base was formulated using Carbopol, incorporating excipients and crude extract to enhance the herbal properties. The products characteristics were evaluated through pH testing, water resistance analysis, microbial testing, and SPF determination.

Result:

The HPLC analysis confirmed the presence of silymarin in milk thistle. Two sunscreen formulations, containing 1% and 1.5% concentrations, exhibited pH values of 7.4 and 7.8, respectively. SPF testing revealed values of 20 for the 1% formulation and 30 for the 1.5% formulation.

Conclusion:

The study successfully confirmed the presence of silymarin in milk thistle through HPLC analysis. The formulated sunscreen gels demonstrated acceptable pH levels and effective sun protection, with SPF values of 20 and 30 for 1% and 1.5% concentrations, respectively. These results highlight the potential of milk thistle-based formulations as effective herbal sunscreens.

Keywords: Silymarin, UV protection, Herbal, Formulation design

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POSTER PRESENTATION

PH13

Phytochemical analysis and In-Vitro Antioxidant activity of *Nothopegia racemosa* Dalz.

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Introduction:

The majority of Western Ghats plants include phytochemicals that are not well known and for which there is insufficient scientific data. However, due to a lack of understanding regarding their attractiveness and nutraceutical composition, these are not commercialized. The active ingredients and In-Vitro antioxidant properties of stem bark of plant Nothopegia racemosa. Dalz., is a member of the Anacardiaceae family.

Methods:

The stem bark of plant Nothopegia racemosa. Dalz., Were collected from Dandeli, Tinaighat , Malsang forest area Karnataka, and authenticated by a Taxonomist, and successive extraction were done by increasing polarity, and subjected to Phytochemical screening and in-vitro free radical scavenging activity for different extracts by using parameters like DPPH Scavenging activity and Hydroxyl radical scavenging activity and IC50 was calculated against standard Ascorbic and Gallic acid respectively.

Results:

In the present study, a Preliminary Phytochemical Investigation of the successive plant extract revealed the presence of tannins, steroids, flavonoids, glycosides, and polyphenolics. Ethanolic and Aqueous extracts (IC_{50} = 172.36µg/ml and 71.18µg/ml), which is equivalent to (IC_{50} = 20.28µg/ml) of Ascorbic acid. Moderate Antioxidant property (DPPH scavenging) was observed in the EtOAc extract (IC50 =366.52µg/ml) as compared to other extracts and standard Ascorbic Acid.

Conclusion:

Based on the above results, the preliminary Phytochemical analysis of the Stem bark of the plant Nothopegia racemosa (Dalz), revealed the presence of phenolics, tannins and flavonoids, steroid compounds. Also, in the in-vitro antioxidant activity, the ethanolic and aqueous extracts revealed better IC50 values, this activity may be due to the solubility of phenolic components in ethanolic and aqueous media. Hence above extracts which show promising antioxidant activity will be further screened for various pharmacological activities.

Keywords: Phytochemicals, DPPH- Antioxidant, HRS

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POSTER PRESENTATION

PH14

Formulation Design of Herbal Gel-based sunscreen containing Silymarin from Milk Thistle and other ingredients to enhance UV Protection and other applications.

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Introduction:

This study focuses on Milk thistle (Silybum marianum), a medicinal plant known for its flavonolignans, particularly silymarin, which may have UV protective effects. The research involves extracting and analyzing these metabolites using Soxhlet extraction, HPLC, and LC-MS techniques. The goal was to develop a safer, SPF enriched cosmetic product by addressing the issues associated with current organic cosmetic claims.

Methods:

Silymarin was extracted from milk thistle seeds using the Soxhlet extraction method, and the solvent was removed using a rotary evaporator. The extracted compound was quantified through HPLC analysis. A sunscreen gel base was formulated using Carbopol, incorporating excipients and the crude extract to enhance the herbal properties. The product's characteristics were evaluated through pH testing, water resistance analysis, microbial testing, and SPF determination.

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Conclusion:

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POSTER PRESENTATION

PH15

Impact of cold plasma Treatment on seed germination, growth, phytochemical profile, and the oil yield of Castor (*Ricinus communis)* plant

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Castor plant, belonging to the spurge family Euphorbiaceae can grow in different geographical areas Growth of castor is favorable around 20°C to 25°C whereas temperatures lower than 12 °C or higher than 38°C affects germination and yield. The main objective of the study was to investigate the effect of different time duration (0,5,10, 15 min) of cold plasma exposure on the growth and yield of castor plant. In the current study, germination rate, morphological growth, phytochemical content, enzyme activity, and oil quality were assessed for both control and treated plants. Among the different time duration exposed plasma, the significant results were shown by 10 min duration compared with control. In the phytochemical analysis, tannins, anthroquinones, reducing sugars were prominent in the 10 min treated plants compared with control in the second week of growth. The study also highlighted the oil yield increase in treated seeds at a higher rate compared with the control. The enhancement of oil content in castor by plasma technology can be a promising aspect of green and alternative method compared with the conventional methods. In future, breeding of cultivars that can be grown under challenging climatic conditions with higher yields and good oil quality should be taken into future consideration.

Keywords: castor, cold plasma, phytochemicals, tannins

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EMERGING TOOLS AND TECHNIQUES

POSTER PRESENTATION

PH16

Herbal Emulgel Incorporated with Ethanolic extract of *Kalmegh* therapeutic potential for the management of Non-melanoma Skin Cancer in-vitro

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Background and objectives:

As on date Topical phytotherapy for dermal carcinoma is not available. Numerous Promising anti-inflammatory, anti-oxidant, anti-cancer activities of *Andrographis paniculata* are reported in the literature. However its potential is not been translated into any topical formulations. This proof of concept gave the impetus to explore the fabrication of *Andrographis* extract in the form of nano emulgel against dermal cancer. The objective of the study is to formulate and characterise an emulgel containing ethanolic extract of *Andrographis paniculata* leaves.

Methods:

Ethanolic extract of *Andrographis* leaves was done by soxhlet extraction process. The obtained *Andrographis* extract is used for the formulation of herbal emulgel with reference to the Standard method from the literature. The obtained formulations were optimised by using appropriate amount of triethanolamine, ensuring better skin penetration, activity towards melanoma cells. All the emulgels were subjected to various, in-vitro & Ex-vivo drug release characteristics. The optimised and stable emulgels were screened for anticancer activity in the skin cancer cell lines such as A-431 through MTT assay.

Results/ Discussion:

All the formulations F1 to F4 showed good homogeneity, pH from 6.10 to 6.76, extrudability 18.51–21.26 g/cm^2, drug content 76.91–82.64%, and in vitro diffusion 88.36–98.40%, respectively. The drug release study showed that all the formulations followed a diffusion-controlled, zero-order release mechanism. Anticancer activity results indicate that *Andrographis* gel induce cell death in A-431 cells having IC50 57.73 µg/ml and % apoptosis 54.67 ± 4.58.

Keywords: *Andrographis*, Melanoma, A-431, MTT assay, Emulgel.

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POSTER PRESENTATION

PH17

The Impact of Eburicoic Acid From *Curculigo Orchioides* Gaertn On The Enzymatic And Pathological Activities Of *V. Russelli* Phospholipase A2

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Introduction: The issue of snake envenomation presents a substantial worldwide health concern, with *Vipera russelli* being accountable for a noteworthy proportion of mortalities. In 2019, there were 63,400 envenoming deaths worldwide, with India accounting for 51,100 of them. Russell's viper made up 43% of the snakes. Snake venom PLA2 (svPLA2) is a major toxin found in snake venom, causing cardiotoxicity, myotoxicity, pre or postsynaptic neurotoxicity, edema, haemolysis, hypotension, convulsion, platelet aggregation inhibition, and anticoagulation. svPLA2s provide an excellent experimental model for the development of anti-inflammatory drugs for human use. Natural inhibitors have a significant role in neutralizing the toxic effects of snake venom proteins and enzymes.

Methodology: Eburicoic acid from Curculigo orchioides subjected to inhibit Vipera russelli venom PLA2 (VRV-PLA2) through *in vitro*, *in vivo*, and *in silico* methods, including CD, FTIR, ELISA, paw edema, Haemorrage and molecular docking.

Results: With an IC_{50} value of 6.7µM, the isolated compound eburicoic acid neutralized the $sPLA_2$activity. The interaction between inhibitor and $sPLA_2$ increases relative intrinsic fluorescence intensity and appears to shift the far UV-CD spectrum. Eburicoic acid also decreased GIIA-induced mouse paw edema from 172 to 123% and neutralized indirect hemolytic activity from 96 to 8%. Furthermore, eburicoic acid also reduced the hemorrhagic effect caused by the synergistic interaction of PLA2 and the neurotoxic non-enzymatic peptide (VNTx-II).

Conclusion: The discovery of bioactive compounds derived from *C. orchioides* that exhibit inhibitory effects against *V. russelli* sPLA2 IIA underscores the promise of plant-based chemicals as viable options for the advancement of anti-venom & anti-inflammatory therapies that are both safer and more readily available.

Keywords: Inflammation, Snake Venom, Phospholipase A2, Medicinal plants

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POSTER PRESENTATION

PHARMACOLOGY AND TOXICOLOGY

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POSTER PRESENTATION

PL01

Potential of phytoactives in mitigating pathophysiological factors of Rheumatoid Arthritis

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Rheumatoid arthritis (RA) is an autoimmune disease that is marked by persistent synovial inflammation leading to tissue destruction, representing a substantial source of disability, affecting around 0.2–1% of the global population. Despite the efficacy of disease-modifying anti-rheumatic medications (DMARDs) in controlling inflammation and reducing bone damage, the overall remission rates of rheumatoid arthritis (RA) remain low. In recent years, numerous active compounds have been extracted from herbs and evaluated for their therapeutic efficacy in rheumatoid arthritis by various pharmacological screening models. Phyto-actives, including berberine, Sophoridine, Sinomenine, and Luteolin, have demonstrated substantial therapeutic efficacy in arthritis by significantly down-regulating pro-inflammatory mediators such as TNF-α, IL-1β, and IL-6. The data indicated that phyto-actives may serve as superior alternatives to traditional treatments for Rheumatoid arthritis.

Keywords: Rheumatoid arthritis, Alkaloid, phytochemical.

PL04

Deciphering the underlying mechanism of action of *Lippia nodiflora* (L.) Greene on wound healing based on network pharmacology and experimental validation

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Introduction:

The leaves of the plant *Lippia nodiflora* was used traditionally by traditional healers for healing wounds. The plant has been unexplored scientifically despite its use in many ailments, especially in wounds. The aim of the study is to scientifically validate the wound healing action of methanol extract of *L. nodiflora* to support its folkloric claim.

Methods:

The active phytoconstituents of methanol extract *L. nodiflora* (MELN) was identified by using UPLC-QToF-MS analysis and the targets of the phytoconstituents was predicted by online available databases. Network pharmacology analysis was carried out to know the pathways and related targets. Kyoto Encyclopaedia of Genes and Genomes (KEGG) and Gene Ontology (GO) analysis was used for enrichment of signalling pathways and functional enrichment of different genes respectively. *In-vitro* MTT and Scratch assays was performed to study the cell viability of *L. nodiflora* and wound healing efficacy respectively. Subsequently, RT-qPCR was performed to validate the studies. Furthermore, *in-vivo* wound healing activity was conducted in Wistar albino rats using excision model and supported by histopathological study.

Results:

Our findings suggested that that MELN exhibits wound healing action by modulating EGFR Tyrosine Kinase inhibitor resistance signaling pathway. *In-vitro* studies revealed that MELN promoted cell proliferation and migration proposing the wound healing potency of MELN. Moreover, RT-qPCR analysis revealed that MELN significantly upregulates the mRNA expression of the hub targets that induces cell migration and proliferation. Topical application of MELN hydrogel portrayed significant wound closure on the 12th day as compared to the control group in excision model. Furthermore, histopathological investigation revealed that application of MELN hydrogel showed significant epithelialization which signifies the wound healing action MELN.

Conclusion:

In summary, the present study scientifically demonstrated the wound healing efficacy of *L. nodiflora* by integrating network pharmacology, *in-vitro* and *in-vivo* experimental validation which justifies the folkloric claim on the wound healing potential of *L. nodiflora.*

Keywords: *Lippia nodiflora;* Wound healing; HUVEC; Scratch assay; Network pharmacology; RT-qPCR.

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POSTER PRESENTATION

PL06

Exploring *Alpinia officinarum*: A Phytotherapeutic Approach to Pulmonary Embolism

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Introduction:

The aim of this study is to evaluate the ameliorative effects of *Alpinia officinarum* rhizome on epinephrine and collagen-induced pulmonary embolism in mice.

Method:

Alpinia officinarum rhizome was collected, and ethanolic extraction was performed using the Soxhlet extraction method. Swiss albino mice were pretreated with the Alpinia officinarum extract for 14 days. On the 14th day, pulmonary embolism was induced in all groups using epinephrine and collagen. Subsequently, hematological parameters (bleeding time and CBC), serum parameters (calcium, IL-6, TNF-α), tissue antioxidant parameters (SOD, CAT, LPO, and GSH), and lung histopathology were evaluated.

Results:

This study demonstrated that the ethanolic extract of *Alpinia officinarum* rhizome contains significant amounts of flavonoids and phenolic compounds, as confirmed by qualitative and quantitative analyses. In-silico docking studies revealed that most constituents of the rhizome exhibit higher binding affinity toward key targets involved in the pathogenesis of pulmonary embolism compared to the standard drug. Drug-likeness, pharmacokinetic, and toxicokinetic evaluations indicated that these compounds are safe and bioavailable. Hematological analysis showed an increase in bleeding time and a reduction in WBC, RBC, platelet count, and hemoglobin levels in both treatment groups (AOE 50 mg/kg and 100 mg/kg). Additionally, the extract led to decreased serum levels of calcium, IL-6, and TNF-α in the treatment groups. Histopathological examination revealed improved bronchiolar lining and reduced thrombus formation in blood vessels among the treated groups.

Conclusion:

The results of this study show that the ethanolic extract of *Alpinia officinarum* rhizome has strong anti-thrombotic, anti-inflammatory, and antioxidant qualities and successfully reduces the effects of epinephrine and collagen-induced pulmonary embolism in mice.

Keywords: Pulmonary embolism, Aspirin, Epinephrine, Collagen, *Alpinia officinarum*.

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POSTER PRESENTATION

PL07

Evaluation of vanishing cream containing *Perilla frutescens (linn.,)* plant for anti-allergic activity in guinea pigs

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Introduction:

A literature study suggests that *Perilla frutescens* is recommended for numerous allergic symptoms, including different forms of skin allergies. Common dermatological allergic conditions are characterized by the presence of pruritic and potentially painful wheals, angioedema, or erythema. Allergic responses occur due to chemicals, certain foods, and insect stings, which frequently trigger histamine release. A preliminary screening of Perilla frutescens was conducted for research on acute contact urticaria.

Method:

Healthy adult guinea pigs weighing between 300 g to 400 g, were selected and were divided into four groups each containing three guinea pigs. The four groups were assigned as group-1 (normal control), group-2 (positive control), group-3 (Standard), group-4 (test drug formulation in cream base). Topical application of cinnamic acid (20% w/v ethanolic solution) to all groups (except group 1), produced signs of urticaria, which is characterized by redness, itching, swelling. The animals after treatment were subjected to evaluation of parameters such as ear thickness, redness, itching, swelling and time taken for reduction in swelling. The measurements were carried out using the digital micrometer screw guage with smooth plastic disc attached.

After lapse of 5 days, the animals were checked for health and recovery. The same group of animals were subjected to experimentation this time the test drug (1%w/v aqueous solution of the *Perilla frutescens* extract) was administered orally instead of an external application of test drug formulation and standard drug (0.1% w/v CPM aqueous solution) after inducing urticaria by an external application of 20%w/v cinnamic acid solution on guinea pig ear lobe. The measurements were carried out and were recorded.

Result:

Topical treatment as well as per oral treatment of test drug *Perilla frutescens* formulations are able to reduce contact urticaria reactions induced by 20% Cinnamic acid.

Conclusion:

From the results obtained in the study, it was concluded that the formulations of *Perilla Frutescens* can be used to treat acute non complicated contact urticaria.

Key words: Urticaria, *Perilla frutescens*, vanishing cream formulations.

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POSTER PRESENTATION

PL08

Evaluation of Anthelminthic Activity Using Cassytha Filiformis

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Introduction:

Cassytha filiformis, commonly known as dodder, is a parasitic plant that is widely distributed in tropical and subtropical regions. In traditional medicine, C. filiformis has been used for its various therapeutic properties, including its potential anti-helminthic activity. These abstract sims to summarize the research conducted on the anti-helminthic activity of *C. filiformis* and its potential as a natural remedy for helminth infections.

Methods:

Numerous studies have investigated the bioactive compounds present in *C. filiformis* and their effects on helminths, such as roundworms, tapeworms, and flukes. The key bioactive constituents identified in *C. filiformis* include alkaloids, flavonoids, Tannins. These compounds have demonstrated significant anti-helminthic properties.

Results:

Experimental studies have shown promising results regarding the anti-helminthic activity of *C filiformis* extracts. Test using helminth models have revealed dose-dependent activity, with *C filiformis* effectively inhibiting the survival of helminths. However, further research is warranted to elucidate the specific mechanisms of action, optimize extraction techniques, determine appropriate dosage regimens, and evaluate potential side effects

Conclusion:

C. filiformis holds promise as a natural source for anti-helminthic agents. Its bioactive compounds have shown significant potential in combating helminth infections, making it a valuable candidate for further investigation and development of novel anti-helminthic treatments. Harnessing the therapeutic potential of *C.Filiformis* could offer an alternative or complementary approach to conventional anti-helminthic drugs, addressing the growing concern of drug resistance and providing affordable treatment options in resource-limited settings.

Keywords: Anthelminthic activity, Cassytha Filiformis, Albendazole and Earthworm.

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POSTER PRESENTATION

PL09

Exploring *Leucas aspera* as a Natural Therapeutic for Psoriasis Management

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Introduction:

Psoriasis is a chronic autoimmune inflammatory condition characterized by keratinocyte hyperproliferation and immune dysregulation. Proinflammatory cytokines such as interleukin-12, interleukin-17, and tumor necrosis factor-alpha (TNF-α) play critical roles in its pathophysiology. This study evaluates the anti-psoriatic activity of *Leucas aspera* (LA) ointment in Swiss Albino mice, using an imiquimod (IMQ)-induced psoriasis model.

Methods:

Thirty male Swiss Albino mice were divided into five groups (n=6/group). Psoriasis was induced in all groups except the control by topical application of 5% IMQ cream (62.5 mg/kg body weight) for seven days. Group I served as the normal control, and Group II as the disease control. Group III was treated with standard Betamethasone ointment (0.5%), while Groups IV and V were treated with 2% and 4% *Leucas aspera* ointments, respectively, for 23 days. Physical parameters, Psoriasis Area and Severity Index (PASI) scores, hematological and biochemical markers (IL-6, IL-17, TNF-α), and antioxidant enzyme levels (SOD, LPO, catalase) were analyzed.

Results:

The treatment with *Leucas aspera* significantly reduced PASI scores and improved body weight compared to the disease control. Hematological and biochemical markers showed a decrease in proinflammatory cytokines (IL-6, IL-17, TNF-α) in the LA-treated groups. Antioxidant enzyme activity (SOD, catalase) improved, while lipid peroxidation (LPO) decreased. Histopathological examination revealed marked improvement in epidermal thickness and inflammatory cell infiltration in the LA-treated groups. The 4% LA ointment showed the most significant effects.

Conclusions:

Leucas aspera exhibited significant anti-psoriatic activity in IMQ-induced psoriasis in Swiss Albino mice. The study supports its potential as an alternative treatment for psoriasis, highlighting its anti-inflammatory and antioxidant properties.

Keywords: Psoriasis, *Leucas aspera*, Anti-inflammatory, Swiss Albino Mice.

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POSTER PRESENTATION

PL10

Genetic Insights in Mental Health: Enhancing Psychiatric Care with Pharmacogenomics

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Introduction:

Pharmacogenetics provides crucial insights into how genetic variations influence drug response, shaping the emerging field of precision psychiatry. It focuses on optimizing treatment outcomes by tailoring psychotropic drug regimens to an individual's genetic profile. This review examines the impact of cytochrome P450 enzyme polymorphisms, particularly CYP2D6 and CYP2C19, on drug metabolism, efficacy, and safety. Such insights are vital for antidepressants, antipsychotics, and mood stabilizers.

Methods:

An extensive literature review was conducted using databases including PubMed, Embase, covering research articles, clinical guidelines, and meta-analyses. Pharmacogenetic testing approaches were evaluated for their applicability in psychiatric care, focusing on their role in personalizing therapy and reducing adverse drug reactions

Results:

Genetic variations significantly affect drug metabolism, therapeutic outcomes, and the risk of adverse effects. For instance, CYP2D6 poor metabolizers often exhibit higher plasma drug levels, increasing efficacy but also side effects. In contrast, ultrarapid metabolizers may require higher dosages for therapeutic benefit. Despite proven advantages, barriers such as cost, limited clinician awareness, and accessibility restrict widespread implementation of pharmacogenetic testing. Evidence suggests that integrating pharmacogenetic data into clinical decision-making enhances treatment precision, reduces trial-and-error prescribing, and minimizes adverse drug reactions.

Conclusions:

Pharmacogenetic testing is a transformative tool for psychiatry, enabling personalized treatment plans that optimize therapeutic efficacy while minimizing risks. Overcoming barriers like cost and lack of infrastructure requires collaborative efforts from healthcare providers, policymakers, and researchers. Future research should focus on improving accessibility, developing cost-effective testing methods, and incorporating pharmacogenetic guidelines into routine psychiatric care.

Keywords: Pharmacogenetics, Psychiatry, Personalised Medicine, CYP450

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POSTER PRESENTATION

PL11

The Role of Cytokine Modulation in Neurodegeneration

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Neurodegenerative diseases, such as Alzheimer's, Parkinson's, and multiple sclerosis, are characterized by chronic neuroinflammation that exacerbates neuronal damage and accelerates disease progression. Cytokines, small signalling proteins involved in immune responses, play a pivotal role in this neuroinflammatory process. Pro-inflammatory cytokines, including interleukin-1β (IL-1β), tumour necrosis factor-alpha (TNF-α), and interleukin-6 (IL-6), are notably elevated in neurodegenerative disorders, contributing to neuronal toxicity and synaptic dysfunction. Conversely, anti-inflammatory cytokines, such as interleukin-10 (IL-10) and transforming growth factor-beta (TGF-β), are essential for promoting neuroprotection and maintaining immune homeostasis in the central nervous system (CNS). This manuscript reviews current research on cytokine modulation as a therapeutic strategy for neurodegeneration, with a focus on pharmacological agents, gene therapy approaches, and novel biologics designed to suppress pro-inflammatory cytokine activity or enhance anti-inflammatory signalling. Additionally, we explore the implications of cytokine modulation on microglia and astrocyte function, which are crucial for neuroinflammation regulation in the CNS. Emerging clinical data on cytokine-targeted therapies demonstrate promising results, though challenges in achieving CNS specificity and minimizing side effects remain. Understanding the dual roles of cytokines in neurodegeneration offers insights into developing more precise and effective treatments for neurodegenerative diseases.

Keywords: Neurodegeneration, cytokine modulation, neuroinflammation, pro-inflammatory cytokines, anti-inflammatory cytokines

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POSTER PRESENTATION

e-PL12

Formulation and Evaluation of Herbal Syrup

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Introduction:

Fig (Ficus Carica L.) is an important crop worldwide and one of the most abundant fruits in the mediterranean diet, both dried and fresh. The possible advantages of herbal fig syrup, a natural concoction made from the rich nutritional profile of figs combined with specific herbs, are examined in this study. Figs are the main ingredient in this syrup. To improve flavor and health benefits, a variety of herbs with medicinal qualities are added. The specific process used to make the syrup, including the choice of herbs and the extraction method used to increase their potency. Potential Health Benefits of Herbal Fig Syrup are in Consumption, from Immune System Support to Digestive Health. The study highlights this syrup's versatility and potential uses in culinary and medicinal contexts.

Methods:

Herbal syrup was made using the decoction process. Indiamart supplied the fig powder, while local sources provided the other necessary materials. Four batches of syrup with varying concentrations were made and assessed using several characteristics, including density, viscosity, color, odor, and PH. Additionally, a phytochemical evaluation was conducted.

Results:

Using chloroform as a carrier, extracts from Ficus carica (fig fruit) were used to produce the fig fruit syrup. Flavonoids, tannins, and saponins were the main predominant phytochemicals found in the formulation using chloroform as compare to acyl acetate. The syrup had a delicious smell. The syrup's color was pink. The density was determined to be between 1.15g/cm3, and the PH was found to be between 4-4.2 using PH meter. The fig syrup's specific gravity is 1.370, according to the measurement. High viscus efficacy was seen in batch 4 using the Brookfield viscometer.

Conclusion:

The fig fruit syrup was formulated using extracts from *Ficus carica* (fig fruit). The primary phytochemicals identified in the formulation include flavonoids, tannins, and saponins, with flavonoids being the dominant component. These flavonoids contribute significantly to the syrup's therapeutic properties, offering antiviral, antioxidant, anticancer, and anti-inflammatory benefits. Upon observing, analyzing, and studying various formulation batches, it was concluded that Batch No. 4 demonstrated the most optimal activity in terms of efficacy and stability.

Key words: Herbal syrup, Figs, Health benefits antioxidant capacity

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e-PL13

Comparative Study on Extracted Chitosan from Different Marine Species

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Introduction:

Chitin, the precursor of chitosan, is the second most abundant natural polymer after cellulose and is commonly found in exoskeletons of marine organisms such as fishes, crab, snail and other species. Chitosan is inert polymer and help to increase transdermal efficacy. In this regard, various marine species was selected and evaluated comparative study. The present aim of study was to extract chitosan from different marine species and compare its results.

Methods:

Marine species (*Labeo rohita, Labeo catla, Mossambique tilapia, Cyprinus carpio, Pomacea canaliculate*, Indian fresh water crab) were selected for extraction of chitosan. The process for extraction of chitosan: deproteination involves the removal of protein from the raw material; demineralization aimed for removing inorganic minerals especially calcium carbonate from the raw material to get chitin and deacetylation involves the removal of acetyl groups from chitin to obtained chitosan, a soluble and bioactive derivative.

Result:

Pomacea canaliculate sample showed highest extracted chitosan yield 95.75 % while *Cyprinus carpio* exhibited lowest extracted chitosan yield 27.22 % when compared with all extracted chitosan yield of selected samples.

Conclusion:

In this study, chitosan is extracted from fishes, crab and golden apple snail species. Snail shell provide consistently high yield of chitosan as compared to other species. This study emphasizes the importance of selecting appropriate sources and optimizing extraction methods to achieve desired chitosan properties.

Keywords: Chitosan, Marine species, deproteination, demineralization, deacetylation. Extract

PL14

Data mining on Real-World patient safety data of Darbepoetin alfa induced Vascular Dementia based on FAERS database

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Introduction:

Darbepoetin Alfa is commonly utilized to treat anaemia that is caused due to a chronic kidney injury. Signal detection helps to identify an unidentified adverse drug reaction (ADR) for a medication to assist cognisant clinical decision making.

Method:

The study was aimed to identify a novel signal for darbepoetin alfa using FAERS data, which is freely accessible to the public. The adverse events reported in FAERS database is documented by the manufacturers, consumers, health care professionals and other stakeholders. Disproportionality analysis is used as the primary data mining method for signal detection. Darbepoetin Alfa was utilized as the primary suspect using specific preferred terms as per Medical Dictionary for Regulatory Activities (MedDRA). The data mining algorithms like reporting odds ratio (ROR) and proportional reporting ratio (PRR) were obtained from OpenVigil database. Positive signals were defined as values of PRR≥1 and ROR-1.96SE>1.

Results:

Totally 27634809 adverse events were reported in the FAERs database. Out of them, 39191 responses were linked to Darbepoetin Alfa since the drug was approved by USFDA in 2001. The OpenVigil data showed 6 events of Vascular Dementia. The results revealed that Darbepoetin Alfa may cause vascular dementia. The PRR was found to be 5.74 (2.56; 12.86) and ROR was 5.81 (2.59; 13.02) for vascular dementia which indicated positive signals.

Conclusion:

The association between darbepoetin alfa and vascular dementia should be explored to establish the underlying mechanisms by pharmacoepidemiologic research and continuous post marketing surveillance to increase the accuracy of the adverse event. Awareness should be created among the health care professionals to minimize the incidence of vascular dementia, as it may progress to other cerebral complications.

Keywords: Darbepoetin Alfa, Vascular Dementia, Signal Detection, FAERS database

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PL15

Data mining of Lumateperone using FAERS: Bioinformatics analysis of genes and proteins

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Introduction:

Lumateperone is an antipsychotic medication indicated for the treatment of schizophrenia, which acts by simultaneous modulation of dopaminergic, serotonergic, and glutamatergic neurotransmission. This medication was approved by USFDA in 2019.

Method:

A retrospective case-control analysis was conducted using real-world data from the US FDA Adverse Event Reporting System (FAERS) database. The reporting odds ratio (ROR) and proportional reporting ratio (PRR) were obtained from Open Vigil. A PRR ≥ 2 and ROR - 1.96SE > 1 were considered as positive signals for a novel adverse reaction. The disproportionality analysis method identified potential positive signals for Lumateperone. Literature reviews and HuGE navigator were used to associate the adverse event with proteins and genes. Molecular docking studies using PyRX, PYMOL, BIOVIA Discovery Studio, and Swiss PDB viewer software examined the binding affinity of Lumateperone with relevant receptors.

Results:

Among the 28655483 reactions reported in the FAERS database, a total of 2910 cases were associated with lumateperone for in-depth investigation. Signal detection analysis for lumateperone in Open Vigil database revealed 10 adverse events for amnesia, 9 for somnambulism and 3 for bruxism. The PRR was 2.367 (1.277; 4.391), 9.002 (3.382; 23.964) and 8.616 (2.781; 26.699) and ROR was 2.378 (1.276; 4.429), 9.026 (3.381; 24.095) and 8.633 (2.779 ; 26.817) which signposts the reactions as novel positive signal. The literature analysis and huge navigator showed protein DQB1 (4D8P), DRD2 (6CM4), 5HTT (7LIP), RB8P 48 (4PBY) and FKBP 5protein (3O5E) are associated to cause amnesia, somnambulism and bruxism. The receptor binding affinity based on the docking scores of lumateperone were found to be -8.3, -10.4, -8.6, -8.5 and -7.8 respectively.

Conclusion:

Current study identified potential adverse reactions like amnesia, somnambulism and bruxism with the utilisation of Lumateperone. Further pharmacogenetic and pharmacoepidemiological studies are required to validate the findings.

Keywords: Lumateperone, Amnesia, Somnambulism, Bruxism, Signal Detection, FAERS

PL16

Amelioration of 2,4,6-trinitrobenzenesulfonic acid (TNBS) induced ulcerative colitis in rats by hydroalcoholic extract of Urgenia indica

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Introduction: Ulcerative colitis (UC) is a chronic inflammatory disorder of the gastrointestinal tract with no definitive cure. Urginea indica, known for its therapeutic value in various traditional systems of medicine, has shown promise in treating gastrointestinal disorders. This study aimed to evaluate the effect of hydroalcoholic extract of Urginea indica (HEUI) on UC induced by 2,4,6-trinitrobenzenesulfonic acid (TNBS) in rats.

Material: Hydroalcoholic extract of bulbs of Urginea indica was prepared and subjected to preliminary phytochemical analysis and acute oral toxicity study in rats. Further, UC was induced rats (either sex) by intrarectal administration of TNBS (120mg/ml). The rats were then treated with varying doses of HEUI (100, 300, 500 mg/kg, PO) for 10 days. The parameters, including body weight, stool consistency, colon length, colon weight to length ratio, biochemical parameters of inflammation myeloperoxidase (MPO) activity, malondialdehyde (MDA) levels, and antioxidant enzymes (superoxide dismutase and catalase), cytokines TNF-α, IL-6 and histopathological analysis of the colon tissue was performed to assess the extent of inflammation, ulceration, and tissue damage

Results: Treatment with the hydroalcoholic extract of Urginea indica significantly improved clinical signs of IBD, with a dose-dependent restoration of percentage weight loss, stool consistency score, and colon shortening. Histopathological examination revealed a marked reduction in inflammatory cell infiltration and mucosal damage in the treatment groups compared to the TNBS-induced group. Biochemical analysis showed a significant reduction in MPO, MDA TNF--α, and IL-6 levels alongside an increase in antioxidant enzyme activities, suggesting an anti-inflammatory and antioxidant effect.

Conclusion: The HEUI demonstrated significant therapeutic potential in alleviating the symptoms and pathophysiological changes associated with TNBS-induced UC in rats. These findings support the traditional use of Urginea indica as an anti-inflammatory agent, and further studies are warranted to elucidate its molecular mechanisms of action and potential clinical applications.

Keywords: TNBS, Ulcerative colitis, Urginea indica

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POSTER PRESENTATION

PL17

Benzimidazole: A Promising Immunotherapeutic Agent for Combating Neurodegeneration

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Introduction:

The increasing malfunction and degradation of neurons characterize neurodegenerative disorders (NDs), such as Alzheimer's, Parkinson's, and Huntington's diseases, which represent a major worldwide health concern. New immunotherapeutic approaches are being investigated as a result of recent research that highlight the critical role that immune system dysregulation plays in the development of NDs.

Method:

Benzimidazole derivatives have emerged as potential possibilities because of their neuroprotective qualities, immunomodulatory effects, and ability to target particular inflammatory pathways that contribute to neurodegeneration. Benzimidazole's mechanisms of action, therapeutic potential, and preclinical studies that demonstrate its capacity to lessen neuroinflammation, oxidative stress, and neuronal death are the main topics of this review, which aims to provide an overview of the current understanding of this immunotherapeutic drug.

Results:

It is well known that benzimidazole chemicals can alter key immunological signaling pathways, including microglial activity regulation, anti-inflammatory response activation, and pro-inflammatory cytokine inhibition. By improving neuronal survival and function, these activities provide a novel treatment strategy for NDs.

Conclusion:

The potential of benzimidazole derivatives as a class of drugs with promise for immunotherapy for neurodegenerative illnesses is highlighted in this study. Notwithstanding their noteworthy pharmacological properties, issues with receptor selectivity, low bioavailability, and long-term safety continue to be major roadblocks in their development. The study emphasizes how urgently thorough clinical research is required to confirm these drugs' safety and effectiveness in human populations. In conclusion, benzimidazole-based treatments provide a promising path toward therapeutic innovation; nevertheless, more study is necessary to improve and maximize their use in clinical settings.

Keywords: Benzimidazole, Immunotherapy, Neurodegeneration, Neuroinflammation, Inflammatory pathways, Oxidative stress.

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POSTER PRESENTATION

PL19

Current therapeutic overview and advancements in the management of psoriasis

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Introduction:

Psoriasis is a chronic inflammatory dermatological condition caused by the immune system involving neutrophils and T lymphocytes which has a significant negative impact on one's physical and mental health. This is characterized by the atypical growth of the outer layer of the skin, resulting in the progress of red, scaly areas on the skin. This disease significantly affects individual's quality of life, resulting in social humiliation and serious distress which can hamper their daily routines. The most frequently impacted areas are the knees, ankles, elbows, scalp, and trunks. This review aims to deliver novel current therapeutics, and emerging treatments of Psoriasis.

Methods:

The databases that are searched include Scopus, Web of Science, PubMed, ScienceDirect, ResearchGate, and Google Scholar. Numerous nanocarriers, already available formulations, forthcoming and existing psoriasis therapies, and a comprehensive description of phytopharmaceuticals and their processes constitute the basis of the research information.

Results:

The currently approved available drug i.e. TNF-α inhibitors (etanercept, infliximab, adalimumab, certolizumab, and golimumab), interleukin-23 (IL-23), interleukin-17 (IL-17) are used for the treatment of Psoriasis. Janus kinase inhibitors have been used globally for different forms of Psoriasis. Moreover, therapies targeting adenosine A3 receptors and phosphodiesterase-4 (PDE4) are progressing in clinical trial phase III.

Conclusion:

A cost-effective, patient-compliant treatment is required for psoriasis to be fully treated and controlled. Extended use of some treatments may result in immunological tolerance, increased drug costs, and decreased efficacy over time. Diets high in gluten-free and anti-inflammatory foods have shown encouraging outcomes in the treatment of psoriasis.

Keywords: Psoriasis, immune system, neutrophils, T-lymphocytes and cost-effective therapy.

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POSTER PRESENTATION

PL20

TB in the 21st Century: Global Epidemiology and Implications

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This article provides a comprehensive overview of the global impact of tuberculosis (TB), examining various elements such as epidemiology, economic impact, treatment challenges, drug resistance, and potential solutions. It underscores the significant global burden of TB, with millions of cases reported annually across different regions, worldwide. In developing countries such as India, TB has economic implications that extend beyond treatment completion. Policy interventions are necessary to reduce treatment costs and safeguard patients from long-term economic consequences, as they often face high out-of-pocket expenses. Multidrug-resistant/Rifampicin-resistant TB (MDR/RR-TB) is a severe strain of TB that is resistant to first-line antibiotics, posing challenges and escalating costs in treatment. As part of this article on enhancing TB treatment, new technologies and strategies are discussed, instilling hope for the future. The article suggests that with advancements in diagnostics, drugs, and vaccines, the 2050 target for TB elimination is feasible.

Keywords: Tuberculosis, epidemiology, Multidrug resistance, Implications

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POSTER PRESENTATION

PL22

Antimicrobial Resistance and the Role of Gene Transfer Mechanisms

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Antimicrobial resistance (AMR) is a growing global health threat that undermines the efficacy of existing antibiotics, leading to persistent infections and increased mortality. Central to the spread of AMR is the role of gene transfer mechanisms, particularly horizontal gene transfer (HGT), which facilitates the dissemination of resistance genes across bacterial populations. This manuscript explores the molecular basis and ecological contexts of HGT pathways, including conjugation, transformation, and transduction. It highlights the role of mobile genetic elements such as plasmids, transposons, and integrons in promoting genetic plasticity and resistance. The study examines the environmental and anthropogenic factors, such as agricultural practices and antibiotic misuse, that drive selective pressures and amplify genetic exchange. Moreover, the manuscript addresses the evolution of multidrug resistance in pathogens, focusing on clinically significant bacteria such as Escherichia coli, Klebsiella pneumoniae, and Staphylococcus aureus. It also discusses the use of genomic technologies, such as whole-genome sequencing and metagenomics, to track resistance genes and assess their transmission dynamics. Strategies for mitigating AMR, including targeted surveillance, novel therapeutic approaches, and public health policies, are evaluated. By unraveling the genetic and ecological dimensions of AMR, this work underscores the urgency of a multidisciplinary approach to curb the global burden of resistant infections.

Keywords: Antimicrobial resistance (AMR), Horizontal gene transfer (HGT), conjugation transformation, transduction, mobile genetic elements, resistance genes, genomic surveillance.

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POSTER PRESENTATION

PL23

Intrahepatic Hepatocellular Carcinoma: A Growing but Neglected Malignancy

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Introduction:

One type of primary liver cancer that has a major influence on world health is intrahepatic hepatocellular carcinoma (HCC). It originates in hepatocytes and is closely linked to cirrhosis, hepatitis B, and hepatitis C, among other chronic liver illnesses. Its development is influenced by the intricate interaction of environmental and genetic variables. Improving patient outcomes requires early detection and efficient treatment methods.

Methods:

A complete literature review was undertaken utilizing PubMed and Google Scholar databases. To find relevant articles published in peer-reviewed journals, important keywords like hepatocellular carcinoma, liver cancer, cirrhosis, hepatitis B, hepatitis C, risk factors, pathogenesis, clinical presentation, diagnosis, treatment, prognosis, and surveillance were used.

Result:

According to the literature study, HCC is a varied illness with a range of clinical manifestations and molecular changes. Since early-stage HCC frequently exhibits no symptoms, early identification is difficult. Chronic hepatitis B and C virus infections greatly raise the likelihood of developing HCC, and liver cirrhosis is a substantial risk factor. Surgical resection, liver transplantation, ablation therapy, systemic medications, and targeted therapies are among the available treatment options for HCC. However, advanced-stage HCC still has a dismal prognosis.

Conclusion:

Global health is greatly impacted by the complicated condition known as intrahepatic HCC. Improving patient outcomes requires early detection and efficient treatment methods. To overcome drug resistance and increase overall survival, further research is required to create new biomarkers, targeted medicines, and combinations
strategies.

Keywords: Hepatocellular carcinoma, liver cancer, cirrhosis, hepatitis B

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POSTER PRESENTATION

CLINICAL PHARMACY PRACTICE

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POSTER PRESENTATION

PP01

A Study to Assess Compliance to 1- Hour Sepsis Care Bundle Among Neutropenic Sepsis Patient in A Tertiary Care Centre

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Introduction:

1-hour sepsis management bundle aims to promote timely effective delivery of specialized care, making the therapy more cost-effective, condensing the use of resources and alleviating the rates of complications and includes parameters such as laboratory test, fluid resuscitation and antibiotic administration, reducing complications.

Methods:

In our prospective observational study conducted from August 2021 to April 2022, 42 patients admitted based on inclusion and exclusion criteria. Data was collected over 72 hours, and QSOFA was calculated to determine infection severity, time to antibiotic administration, culture send, lactate measurements, and patient condition before discharge.

Results:

Out of 45 patients, 42 met the inclusion criteria, with most aged 41-60 years. The majority met the SIRS 4 criteria, while 67% met the QSOFA criteria. 57% underwent chemotherapy, 67% had standby antibiotics, and 73% required new antibiotics. Only 4 patients died, resulting in a sepsis-related mortality rate of 9.52%. In our study we observed that only 16.7% followed the 1-hour sepsis care bundle, primarily due to the lack of blood lactate level measurement. However, most patients had blood cultures collected and received antibiotic administration within 1 hour.

Conclusion:

Our study concluded compliance to sepsis care bundle was deficient. We suggest that education of hospital staff about severity of sepsis and management of sepsis care bundle can lead to improve to 1-hour sepsis care bundle. Also, an interdisciplinary comprising of clinicians, pharmacist and infection control nurses can reduce time delay and mortality rate in sepsis management.

Key words: Neutropenic sepsis, sepsis care management, 1- hour sepsis care bundle

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POSTER PRESENTATION

PP03

Case Report on Pulmonary Atresia with Ventricular Septal Defect

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Introduction: Pulmonary atresia with ventricular septal defect is a complex congenital heart defect characterized by the absence or abnormal development of the pulmonary valve, coupled with a hole in the septum between the heart's lower chambers. This condition disrupts normal blood flow to the lungs, leading to hypoxemia and cyanosis.

Case:

A 43 years old female patient admitted with the complaints of shortness of breath for 1 week in a private hospital. The patient has medical history of recurrent respiratory problem and hypothyroidism, the patient was on NIV support for past 1 year. Her Echo summary, Plain CT Thorax report, and ECG reports confirms an absent main pulmonary artery and abnormalities creating a connection between the right ventricle and left ventricle, which concludes a pulmonary atresia and ventricular septal defect.

Management:

She was managed with Oral anti-coagulants, Potassium channel blockers, Beta blockers, Diuretics, Anti-thyroid agent, Antibiotics, Proton pump inhibitors, and Bronchodilators. She was discharged in a stable pulmonary condition. Alternate treatment options include shunting

Keywords: Pulmonary atresia, Critical congenital heart disease, Major aorto-pulmonary collateral arteries, Ventricular septal defect.

PP04

Adverse Events Linked to Dental Devices: An In-Depth Analysis of the Manufacturer and User Facility Device Experience Database Analysis

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Introduction:

Dental devices play a pivotal role in enhancing oral health outcomes, but their use is not without risks. Adverse events (AEs) associated with these devices can compromise patient safety and treatment efficacy. The Manufacturer and User Facility Device Experience (MAUDE) database, maintained by the U.S. Food and Drug Administration (FDA), is a critical resource for monitoring device-related issues.

Methods:

This study investigated adverse events (AEs) related to 143 FDA-listed dental devices reported to the MAUDE database from January 1, 2019, to September 30, 2024. Data for each device were extracted using specific product codes and downloaded individually. A detailed analysis of the reports was performed to identify patterns and trends, providing valuable insights into the safety and performance of these devices.

Results:

Over a 5.9-year period, the MAUDE database documented 14,274 unique adverse event (AE) reports involving dental devices. Of the 143 FDA-listed devices, 82 were associated with reported AEs. The most common device issues were breakage (16.8%), osseointegration failure (16.6%), and fractures (14.7%). Among reported event types, 59% (8,424) involved injuries, 40.9% (5,849) were malfunctions, and 1 case reported a death. The majority of reports originated from the United States, followed by Switzerland and Germany. Dentists were the primary reporters, with contributions from healthcare professionals and patients. Devices most frequently implicated were endosseous dental implants (3,000), implant abutments (2,939), and dental hand instruments (2,021).

Conclusion:

The findings highlight the need for enhanced materiovigilance practices to reduce the risk of AEs associated with dental devices. By identifying high-risk devices and addressing common failure modes, stakeholders can work towards improved device safety and patient care outcomes. This study serves as a valuable reference for clinicians, manufacturers, and regulatory authorities aiming to enhance dental device safety.

Keywords: Dental devices, Adverse events, MAUDE database, Materiovigilance

PP05

Evaluating Coronary Drug-Eluting Stent Complications: A Manufacturer and User Facility Device Experience Database Analysis

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Introduction:

A coronary drug-eluting stent (DES) is a small, metal mesh tube that's coated with medicine to help prevent blood clots from forming in an artery. DESs are used to treat coronary artery disease by reopening and maintaining narrowed arteries. The objective of this study is to describe adverse events related to DES.

Methods:

The authors reviewed the coronary drug eluting stents related adverse events (AEs) reported to MAUDE from Jan 1, 2020, to Nov 1, 2024.

Results:

A review of 2,500 cases from the MAUDE database (January 1, 2020 to November 1, 2024) identified key trends in device-related and patient-related adverse events. Of the device issues, 776 were classified as "Adverse Event without Identified Device or Use Problem," and 677 involved "Material Deformation." Additionally, 1,325 patient-related reports cited "No Clinical Signs, Symptoms, or Conditions," while 310 were linked to "Vascular Dissection." The SYNERGY brand accounted for the highest number of incidents (345). Gender distribution revealed 735 male and 238 female reports, with the 61-70 age group having the most adverse events (310), followed by the 71-80 age group (221). Geographically, 468 events were reported in the United States and 441 in India. A total of 2,123 devices were operated by healthcare professionals.

Conclusion:

The study highlights the prevalence of adverse events associated with coronary drug-eluting stents, emphasizing the need for on-going surveillance and improved safety measures. The findings highlight the need for further investigation to improve device performance, patient outcomes, and reduce risks.

Keywords: MAUDE, Coronary drug eluting stents, adverse events

PP06

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POSTER PRESENTATION

Analysis of Adverse Events Associated with Renal Stents: A Review of the MAUDE Database

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Introduction:

A renal artery stent is a medical device used to treat significant blockages in the renal artery, often in cases of uncontrolled hypertension, ischemic nephropathy, or cardiac issues. This procedure helps improve blood pressure control and renal function. The aim of this study is to identify and describe adverse events associated with renal stents.

Methods:

The authors reviewed the renal stents related adverse events (AEs) reported to MAUDE from Jan 1, 2014, to Oct 30, 2024. Analyses of details collected are presented.

Results:

The MAUDE database reported 604 adverse events related to renal stents. Of these, 79 were classified as "Adverse Event without Identified Device or Use Problem," and 68 involved "Device Dislodged or Dislocated." The highest incidence occurred in the 65-79 age group (47%), followed by 50-64 (20.9%) and 80+ (20%). More events were reported in females than males. Common patient outcomes included "No Consequences or Impact" (191) and "No Clinical Signs or Symptoms" (124). The U.S. reported the most events (207), followed by Switzerland (47). Outcomes showed 286 events required intervention, with 218 evaluated by the manufacturer, and most events were due to device malfunction (263) and injury (319).

Conclusion:

Renal stents pose risks to patient safety if not properly managed. MAUDE data highlights adverse events, underscoring the need for further analysis. Until more studies emerge, operators must exercise caution, follow best practices, and raise awareness to enhance patient education and support informed decision-making during procedures.

Keywords: MAUDE, Adverse events, renal stents

PP07

Evaluating the Association between Mental Illness, Medication Adherence and Quality of Life in Patients with Inflammatory Bowel Disease

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Introduction:

Inflammatory bowel diseases (IBD) include Ulcerative colitis (UC) and Crohn's disease (CD), which are chronic inflammatory conditions affecting the gastrointestinal tract (GIT). Healthcare providers do not generally evaluate the psychological health of Inflammatory Bowel Disease (IBD) patients. Depression/anxiety should be evaluated because such problems are common among IBD patients, compromising their Quality of Life (QoL).

Methods:

This prospective observational study included healthy controls and IBD patients with and without depression/ anxiety symptoms. Anxiety / depressive symptoms were assessed using the Hamilton Anxiety Rating Scale (HAM-A) and Hamilton Depression Rating Scale (HAM-D). Perceived Stress Scale (PSS) and the Quality-of-Life Scale (QOLS) were used to assess stress and QoL respectively. Morisky Medication Adherence Scale (MMAS-8) was used to assess Medication Adherence (MA). The data were analysed using descriptive statistics. We employed the Chi-square/Fischer exact test to determine the relationship between categorical variables and the Pearson correlation coefficient to determine the relationships among quantitative variables.

Results:

Of the 59 patients enrolled, 26 were diagnosed with CD and 12 with UC. The mean age of patients was 41.18 ± 14.51 years. Fifteen males and six females had IBD symptoms, while 12 males and five females had anxiety/depression symptoms. Males reported higher levels of anxiety/depression than females. In IBD patients with anxiety/depression, the severity of anxiety (HAM-A score) was strongly linked with the severity of depression (HAM-D score) (p < 0.001). HAM-A and HAM-D scores are negatively correlated with QoL (p < 0.001). IBD with anxiety/depression patients were reported to have poorer QoL and MA than other groups. (p < 0.000).

Conclusion:

These findings illustrate the complicated interplay between IBD patients' physical and mental health (anxiety, depression), underscoring the importance of integrated approaches to patient care that cover both physical and mental well-being for optimizing QoL.

Key words: Hamilton Anxiety Rating Scale, Hamilton Depression Rating Scale, Perceived Stress Scale

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POSTER PRESENTATION

PP08

Development and Validation of a Questionnaire to Assess the Knowledge, Attitude and Practice of Healthcare Professionals on Poison Information and Control Centre of a Tertiary Care Hospital

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Introduction:

Poison Information and Control Centres (PICCs) play a crucial role in preventing and managing poisoning cases worldwide. Operating 24/7, they provide emergency support, education and data on poisoning trends that are essential for shaping public health. However, PICCs in many developing countries are often underutilized due to limited awareness, infrastructure and funding. To address this issue, a questionnaire was developed and validated to evaluate the knowledge, attitude and practice (KAP) of healthcare professionals on the PICC of a tertiary care hospital.

Methodology:

The questionnaire was developed using a standardized process, which included steps such as domain determination, item development and questionnaire formation. Suggestions of expert panels and statistical methods like descriptive statistics, content validity ratio (CVR), content validity index (CVI), modified Kappa coefficient, item impact score and Cronbach's alpha were used to evaluate the validity and reliability of the questionnaire.

Results:

A set of 42 items was initially developed, with 14 items in each domain (KAP). To assess content validity, 15 healthcare experts evaluated the questionnaire, and items with a CVR and CVI 0.49 and 0.70 respectively were eliminated. As a result, each domain contained 10 items and the scale content validity index (S-CVI) average was calculated to be 0.89. Face validity (FV) was assessed both qualitatively and quantitatively by 10 experts, resulting in unanimous agreement on the items and an impact score of 3. Cronbach's alpha for the questionnaire was excellent at 0.92, indicating high internal consistency and confirming the reliability of the questionnaire.

Conclusion: While extensive research exists on KAP regarding various poisons, no standardized questionnaire currently exists for evaluating KAP of healthcare professionals on PICC services. Availability of a validated questionnaire can be useful for assessing the KAP of healthcare professionals working in the tertiary care hospital, specifically on the services offered by the PICC and their utilization within the hospital.

Keywords: Development, Validation, Questionnaire, Healthcare Professionals, Poison Information and Control Centre

PP09

Comparing the effectiveness of medication adherence using medisafe mobile application versus pillo mobile application in type 2 diabetes mellitus patients in south indian population – a randomised control trial

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Introduction:

Diabetes mellitus, a chronic metabolic condition, is characterized by consistently high levels of blood sugar. Medication adherence plays a pivotal role in maintaining optimal glycaemic control in Type 2 Diabetes Mellitus (T2DM), thereby preventing complications. Mobile health (mHealth) technologies are promising intervention in improving medication adherence among patients with T2DM. The aim of this study is to determine the effectiveness in medication adherence mobile applications compared to conventional counselling in improving the medication adherence among T2DM patients. This study aims to bridge the gaps due to lack of understanding the true potential by conducting a randomized controlled trial that will offer insights into the real-world applicability and benefits of Medi-safe and Pillo in South India.

Method:

This prospective study comprising of total of 120 T2DM patients were randomized to Group A (n=40) T2DM patients using Medi-safe application, Group B(n=40) T2DM patients using Pillo mobile application and Group C (n=40) patients receiving general counselling. These patients were enrolled based on the inclusion and exclusion criteria. The assessment of medication adherence was done using Medication adherence rating scale (MARS) and the improvement in glycaemic parameters were noted at the baseline (initial visit) and at the follow up (3 months). Statistical Analysis was done using Ms Excel and GraphPad prism.

Results:

The study demonstrated significant increase ($P<0.002$) in medication adherence with patients using Medi-safe application compared to Pillo app and standard treatment group. Glucose profile among 3 groups also showed notable difference over the study period. Google form was circulated among patients in which majority responded that Medi-safe was easier to use than Pillo.

Conclusion:

The patients who used mobile applications showed marked improvement in medication adherence than those who were given only standard counselling session. Incorporation of Medi-safe and Pillo app into diabetes care protocol not only increased patient outcome but also contributed to better glycaemic control.

Keywords: T2DM, mHealth, Medisafe, Pill

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POSTER PRESENTATION

PP10* (Poster Pitch)

Study of clinical factors and klotho gene single nucleotide polymorphism in kidney transplant recipients in a tertiary care hospital in Kochi, Kerala

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Introduction:

The klotho gene, involved in phosphate and calcium regulation, is linked to allograft function and bone disorders post renal transplantation in end stage renal disease. The investigation emphasizes on four particular klotho gene single nucleotide polymorphisms and their correlation with osteoporosis and persistent hyperparathyroidism (PHP) in individuals who have undergone kidney transplant for end-stage renal disease.

Methods:

An interventional study conducted in a tertiary care hospital identifying patients 3 years post renal transplant. Informed consent obtained from study participants selected based on inclusion and exclusion criteria. The blood samples of the patients were taken and analysed using HRM-PCR and mutation was confirmed by sanger sequencing method. Electronic Medical Records were used for data collection over 6 months. Descriptive statistics was used for analysis of the data.

Results:

The study included 18 kidney transplant patients, focusing on the genetic variable and clinical parameters associated with hyperparathyroidism and osteoporosis/osteopenia. Results showed that patients with hyperparathyroidism had lower RBC and monocyte levels but higher MCV, MCH, and uric acid levels. In contrast, patients with osteoporosis/osteopenia had lower WBC and magnesium levels. HPT and osteoporosis/osteopenia were associated with Genetic polymorphisms in the Klotho genes, 5.9% and 6.3% of the HPT and osteoporosis patients were mutated with the - rs480780 gene respectively. For genes rs211234 and rs211235 as well as rs576404 it was found that 35.3% and 31.3% of the patients with HPT and osteoporosis were mutated respectively. These findings highlight the need for personalised therapeutic management in post-transplant patients thereby focusing on genetic and clinical factors to improve outcomes for these patients.

Conclusion:

This study provides significant insights into kidney transplant recipients' demographic, clinical, and biochemical characteristics and genomic elements. These insights can assist in modifying clinical practices for kidney transplant recipients by improving their long-term renal, skeletal, and cardiac health.

Keywords: SNP, Klotho gene, HRM PCR

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EMERGING TOOLS AND TECHNIQUES

POSTER PRESENTATION

PP11

Prospective observational study assessing opioid addiction potential in postoperative patients using the opioid risk tool (ort) at a tertiary care hospital"

Satish S, **Tasfiya Manzer Sayed***, A.R Shabaraya[3],

Srinivas College of Pharmacy, Valachil, Farangipete, Mangalore, Karnataka India

Introduction:

Opioids are the narcotic analgesics prescribed to treat persistent and severe pain. An alarming increase in opioid misuse in the past two and a half decades has led to a public health crisis. Patients often get hold of opioids either unnecessarily or in excess of their requirements for surgical pain control.

Methods:

The present study was a prospective observational study conducted in a tertiary care hospital for a period of 6 months. Patient individuals aged 18 years and above who underwent surgery and were prescribed opioid analgesics were included in the study. The opioid risk tool (ORT) was used to assess the potential for addiction of opioid drugs. Required information collected from patients, patient parties and medical records.

Results:

There was a total of 220 patients prescribed with opioids after surgery. Among them 190 were males and 148 were females, which suggests among 220 patients, 18.35% patients were seen to be high potential to opioid addiction, 41.44% were at moderate risk and 35.9% were at low risk of opioid addiction potential. Assessing opioid addiction using opioid risk tool shows a personal history of substance abuse, alcohol abuse, personal history of depression, family history of substance abuse, and long-term use of opioids are one of the main causes of opioid addiction potential.

Conclusion:

Opioids are commonly prescribed for post-operative pain management, but prolonged use can lead to the induction of tolerance and the development of dependence. Alternative pain relief methods or pain management plans can be used to reduce opioid misuse and addiction.

Keywords: Opioid; Addiction Potential; Opioid Risk Tool; Post-Operative; Hospital; Patients.

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POSTER PRESENTATION

PP13

Efficacy of advanced platelet-rich fibrin (a-prf) versus standard platelet-rich fibrin (s-prf) in treating chronic wounds: an open-label randomized controlled trial

Jasmine Sarwan*, Divya Unnikrishnan, Shashanka J
Gautham College of Pharmacy, R.T Nagar Post, Bangalore

Introduction:

Chronic wounds can occur due to a variety of causes and are associated with high morbidity, expensive, and prolonged treatment. Advanced-Platelet-rich fibrin (A-PRF) is one of the newer modalities, which represents a refinement of traditional PRF preparation techniques. While both A-PRF and S-PRF have shown promise in wound healing, there remains a paucity of comparative studies evaluating their efficacy specifically in the context of chronic wound. Hence, this study aimed to compare the efficacy of A-PRF versus S-PRF in healing chronic wounds.

Methods:

Total of 30 patients with various etiologies of the chronic wounds were recruited and randomized into two groups, one receiving A-PRF dressing (1500 rpm for 14 min) and the other S-PRF dressing (2700 rpm for 12 min) once a week for 4 weeks. The wound area was measured at week 2 and week 4 from the baseline to assess wound healing. The QoL was determined by using Wound QoL-17 questionnaires during the therapy.

Results:

The mean reduction in wound size at the end of 4 weeks in A-PRF group was 47.49%, and in S-PRF group was 27.22% which was statistically significant with a $p<0.05$. The mean improvement in QoL of the participants at the end of 4 weeks in A-PRF group was 56.6%, and in S-PRF group was 44.59% which was statistically significant with a $p<0.05$.

Conclusion:

It was concluded that A-PRF can be used as chronic wound dressing, since it represents a safe and effective outpatient procedure.

Keywords: Chronic Wounds, Advanced Platelet-Rich Fibrin(A-PRF), Standard Platelet-Rich Fibrin(S-PRF), Wound Healing

PP14

Percentage Coefficient of Variation as an Indicator of Glycemic Control in Type 2 Diabetes Mellitus Patients

Mohammed Azhar Hussain*, Mahadevamma Lingaiah
College of Pharmaceutical Sciences, Dayananda Sagar University, India

Introduction:

Glycemic variability, quantified using the percentage coefficient of variation (%CV), has emerged as an essential metric in diabetes management. Unlike traditional measures, %CV captures short-term glucose fluctuations and may serve as a predictor of glycemic control outcomes. The objective of this study is to explore the association between %CV and glycemic parameters, including time-in-range (TIR), time-above-range (TAR), time-below-range (TBR), average glucose, and glucose management indicator (GMI).

Methods:

A prospective observational study was conducted among individuals diagnosed with Type 2 Diabetes Mellitus. The study examined glycemic data by Continuous Glucose Monitoring over a 14-day period, with glycemic variability quantified as a Percentage Coefficient of Variation (%CV). Glycemic measures (TIR, TAR, TBR, average glucose, and GMI) were examined for associations with %CV. Regression analyses were used to find predictors of glycemic control.

Results:

The study included 32 T2DM patients with Type-2 diabetes, comprising 17 Females (53%) and 15 Males (47%). Analysis of glycemic data found that the mean %CV was 24.29%, TIR (70.81%), TAR (23.34%), TBR (2.85%), Average Glucose (154.9) and GMI (7.01%). The %CV was found to be negatively correlated with TIR (r=-0.04357) , TBR (r=-0.1304), Average glucose (r=-0.03725) and Glucose management Indicator (r=-0.04624). However the %CV was positively correlated with TAR (0.2394).

Conclusion:

The percentage coefficient of variation (%CV) correlates with key glycemic metrics, including reduced TIR, TBR, average glucose, GMI and increased TAR. These findings support %CV as an essential metric for evaluating glycemic control and guiding diabetes management strategies.

Keywords: %CV, Glycemic Variability, Time in Range (TIR), Time above Range (TAR), Continuous Glucose Monitoring

PP16

Medication Adherence and its association between Quality of Life and Depressive Symptoms in Type – 2 Diabetes Mellitus

Gooty Shanaz*, Abhirup Bhusan Nandi, Sannik Chakraborty, Mahadevamma Lingaiah
College of Pharmaceutical Sciences, Dayananda Sagar University, India

Introduction:

Diabetes Mellitus poses a significant global challenge, notably increasing the risk of comorbidities and complications. Medication adherence, a significant modifiable factor plays a vital role in the effective management of diabetes. Promoting medication adherence can delay the progression of depressive symptoms, as poor adherence is associated with reduced quality of life. This study aims to evaluate the relationship between medication adherence and the severity of depressive symptoms, as well as to assess the quality of life (QOL) among patients with Type 2 Diabetes Mellitus.

Methodology:

We conducted a cross-sectional study involving 101 patients diagnosed with Type 2 Diabetes Mellitus. Medication adherence was evaluated using the Medication Adherence Report Scale (MARS). The severity of depressive symptoms was assessed with the Hamilton Depression Scale (HDS), and QOL was measured using the World Health Organization Quality of Life (WHOQOL) questionnaires.

Results:

The study population comprised 101 patients, with 64.4% identifying as female and 35.6% as male, predominantly aged between 50 and 70 years. Our findings indicate that the severity of depressive symptoms increases among patients with lower medication adherence. Furthermore, a significant association was observed between depressive symptoms and diminished quality of life. Regression analysis revealed that the MARS score significantly predicts variations in HDS scores, whereas the HDS score serves as a predictor for QOL outcomes.

Conclusion:

Implementing strategies to enhance medication adherence may effectively delay the progression of depressive symptoms among Type 2 diabetes patients. Better management of depressive symptoms can lead to improved quality of life for this population.

Keywords: Diabetes Mellitus, Medication Adherence, Depression, Quality of Life.

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POSTER PRESENTATION

e-PP17

Study of Non-Adherence and The Effect of Counselling in the Therapy of Neurologic and Psychiatric Patients

Aishwarya S. Unchegaonkar*
Dr. D.Y.Patil college of Pharmacy, Akurdi, Pune, Maharashtra, India

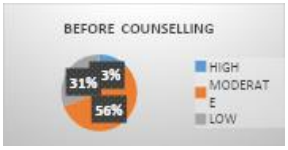
Introduction:

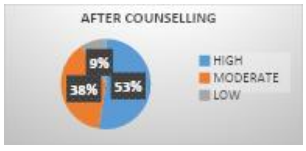
Medication is a vital component in the treatment of patients with severe mental disorders; but it can be a challenge for clinicians to motivate patients to stay on medication. Non-adherence estimates vary between studies and this variation seems to reflect inconsistency in study design and methods. This makes it difficult to compare results and limits the generalizability of findings. However, some of the variation could also reflect true differences in adherence due to characteristics of the samples or the health care systems. Thus, it is important to measure adherence in large well described samples from different health care systems. It seems reasonable that being able to motivate patients by counselling to better adhere to their medication would improve adherence and thereby reduce suffering and save money.

Methods:

The main objective was to determine adherence rates in patients of District General Hospital, Amravati with neurologic and psychiatric disorders and to identify predictors for non-adherence in this population. To be able to do this, several methodological issues needed to be solved. These methods are applied to measure the adherence, as well as the measure of some of the proposed predictors. The Morisky 4 scale involving Questionnaire used to measure adherence, needed to be validated for the patient sample in the current study. Multiple adherence measures like pill identification test and pill count were used to establish overall adherence level in the study sample.

Result: The result was that outpatients with neurologic and psychiatric disorder after counseling showed relatively good adherence to prescribed medication before counselling. In addition, the use of self-report in adherence studies was addressed, with the conclusion that simple self-report questionnaires and other methods seem to be a valid for measuring adherence.





Conclusion:

Regarding the proposed factors for non-adherence, in neurologic and psychiatric disorder forgetfulness, unintended effect of drugs, economical factors and illiteracy about medication, illness duration, social determinants, loss of insight and substance abuse were related to worse adherence. According to the age factor adults are more prone to neurological and psychiatric disorder. The use of illegal substances and alcohol and beliefs about medication were related to worse adherence.

PP18

The severity of cravings and it's outcomes among alcohol dependence patients prescribed with anti-craving drugs

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2. Department of Psychiatry, Dr. Chandramma Dayananda Sagar Institute of Medical Education and Research, Ramanagara, Karnataka, India.

Background:

Alcohol use disorder is a prevalent condition characterized by difficulty in controlling alcohol consumption, leading to significant global health impacts. Despite the effectiveness of anti-craving. medications such as naltrexone, acamprosate, baclofen, ondansetron, and topiramate in reducing cravings and relapses, these medications are underutilized by healthcare providers. This study seeks to investigate the impact of different anti-craving medications on cravings and relapse rates in individuals who have been prescribed these medications.

Methodology:

A 6 months Prospective observational study was conducted at Department of Psychiatry CDSIMER to assess the changes in the cravings among the ADS patients who were being prescribed with different anticraving medications. The study enrolled 61 participants who met eligibility criteria.

Results:

The study involved ADS patients on anti-craving drugs, with 65.6% aged 30-50, 96.7% males, 88.5% rural residents, and 73.8% with severe alcohol dependence. Baclofen was prescribed to 90.2% of participants. There was a significant correlation between SADQC and PACS scores ($r = 0.304$, $p = 0.017$). MARS scores significantly predicted PACS scores ($R = 0.757$, $R^2 = 0.573$, $p < 0.001$). 67.2% aimed to reduce alcohol use, with over 80% achieving abstinence.

Conclusion:

The study observed a statistically significant decrease in cravings among individuals prescribed with anticraving drugs. However, there was no statistically significant correlation found between the dosage of Baclofen and PACS scores.

Keywords: Alcohol dependence syndrome, Cravings, Anticraving medication, Baclofen, Naltrexone.

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POSTER PRESENTATION

PHARMACEUTICAL TECHNOLOGY ANDADVANCES IN DRUG DELIVERY SYSTEMS

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POSTER PRESENTATION

PT02

Design and Formulation of Etodolac-Isonicotinamide Cocrystal Gel for Effective Pain Management

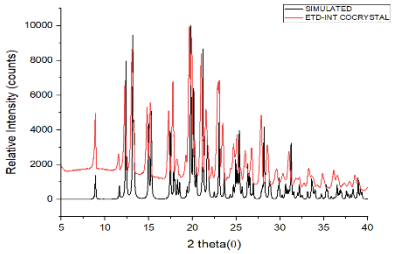
Britika Pal*
Department of Pharmaceutical Sciences & Technology, Birla Institute of Technology, Mesra, Ranchi (Jharkhand), India

Introduction:

Cocrystals are defined as crystalline materials composed of two or more different molecules, one of which is the API, in a defined stoichiometric ratio within the same crystal lattice that are associated by nonionic and noncovalent bonds. The goal of cocrystal screening is to identify complementary coformers that can enhance the physicochemical properties of an active pharmaceutical ingredient (API). Physicochemical properties of API such as solubility, permeability, dissolution rate, etc., are largely influenced by the molecular arrangement within its crystal lattice. Therefore, understanding these interactions can aid in the rational tuning of the physicochemical properties of active pharmaceutical ingredients (APIs) through the principles of crystal engineering. This current research work focuses on the cocrystal screening of an anti-inflammatory drug **Etodolac** (**ETD**), which is part of the pyranocarboxylic acid group of nonsteroidal anti-inflammatory drugs, belongs to BCS Class II drug. ETD was first approved for medical use in 1985 and later by the US FDA under the brand name of Lodine® in 1991. The prescribed daily dosage of ETD includes 300 mg taken orally two to three times a day/ 400 mg/ 500 mg administered twice daily. Due to its high dose and multiple daily administration, it suffers from several side effects and hence decreases patient compliance and convenience. Optimizing a suitable solid form of ETD with enhanced physicochemical properties and later on formulating the same as a topical gel can be an effective way to treat pain locally.

Method:

Etodolac-Isonicotinamide (ETD-INT) cocrystal was prepared by RCM (Reaction crystallization method). 560mg of ETD and 480mg of INT in 5ml Methanol and kept it on a water bath shaker for 7 hours and the sample was collected and examined by PXRD for any changes.



Result:

Conclusion: The cocrystal was successfully prepared and characterised.

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POSTER PRESENTATION

PT03

Design, Formulation, and Characterization of Isoniazid– Resveratrol cocrystal Topical Gel for Cutaneous Tuberculosis

Anuradha*
Department of Pharmaceutical Sciences & Technology, Birla Institute of Technology, Mesra, Ranchi (Jharkhand), India

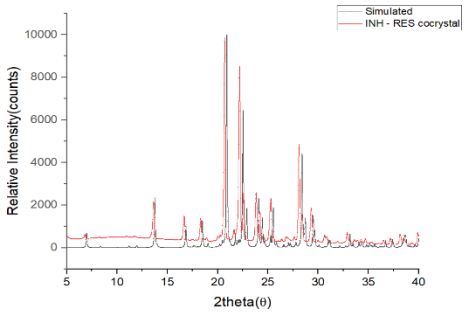
Introduction:

Cutaneous tuberculosis (CTB), is a form of tuberculosis that affects the skin, often presenting as chronic, ulcerative lesions. While systemic treatments with oral anti- tuberculosis drugs like isoniazid (INZ) are effective, they are often accompanied by various side effects, limiting their bioavailability. Topical formulations that deliver drugs directly to the skin can be an alternative approach over oral therapy. To date, no topical therapy for CTB has been identified and although conventional therapy has mostly shown positive results, there is a lack of other treatment regimens. Cocrystallization is a technique in which two or more active compounds are combined in a crystalline form modulated its crystal packing resulting in improved physicochemical properties. The incorporation of isoniazid-resveratrol (INZ-RES) cocrystals into a gel formulation for localized treatment because of their ability to provide sustained release, ease of application, and reduced risk of systemic side effects. Thus, this research work aims to decrease the solubility of isoniazid in order to get a sustained action over a longer period of time.

Method:

Isoniazid-Resveratrol (INZ-RES) cocrystal was prepared by RCM (Reaction crystallization method). 50mg of INZ and 104mg of RES in 2ml Methanol and kept it on a magnetic stirrer at 200rpm for 6 hours and the sample was collected and examined by PXRD for any changes.

Result:



Conclusion: The cocrystal was successfully prepared and characterised.

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POSTER PRESENTATION

PT04

Development and Validation of a Uv-Spectrophotometric Simultaneous Equation Method for the Estimation of Curcumin And Berberine HCl In Bulk And Pharmaceutical Formulations.

M.Sarvar khan*, Suma.R, Parikshith, Aisha khanum, Tanushree. C
Al-Ameen College of Pharmacy, Near Lalbagh Main Gate, Bengaluru, India.

Introduction:

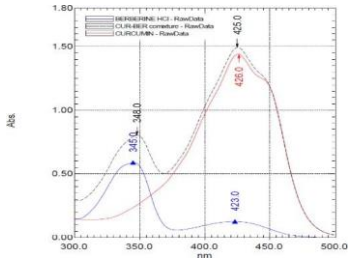
A UV-spectrophotometric simultaneous equation method was designed for the accurate quantification of Curcumin and Berberine HCl in pharmaceutical formulations, addressing the need for a precise and cost-effective analytical technique.

Methods:

Stock solutions (1 mg/mL) of Curcumin and Berberine HCl were prepared in methanol, mixed in various ratios, and diluted with a medium containing 2% w/v Tween-80 in phosphate buffer (pH 6.8). λmax values were identified at 425 nm for Curcumin and 348 nm for Berberine HCl. Validation followed ICH guidelines, including linearity, accuracy, precision, LOD, and LOQ.

Results:

The calibration curves showed excellent linearity (R^2: 0.9991 for Curcumin; 0.9990 for Berberine HCl) over 1– 6 µg/mL. LOD and LOQ values for Curcumin were 0.0407 µg/mL and 0.123 µg/mL, respectively, while for Berberine HCl, they were 0.072 µg/mL and 0.69 µg/mL. Recovery ranged from 98.18% to 102.25%, with %RSD below 2%, confirming accuracy. Intraday and interday studies demonstrated the method' s precision and robustness.



Conclusions:

This validated UV-spectrophotometric method offers a reliable, simple, and cost-effective approach for simultaneous estimation of Curcumin and Berberine HCl, ensuring high accuracy and reproducibility.

Keywords: Curcumin, Berberine HCl, UV-spectrophotometry, Simultaneous estimation method.

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POSTER PRESENTATION

PT05

Development And Optimization Of Spanlastics Based Antifungal Transdermal Drug Delivery

Pooja V M*, S Rajarajan, Beny Baby, Tejas R, Mallikarjun D P

Karnataka College of Pharmacy, Bangalore, India

Introduction:

Development, optimization, and evaluation of spanlastic based antifungal transdermal drug delivery were the objectives of the current work. Econazole Nitrate is an antifungal drug that is used to treat fungal skin infections. According to the BCS classification system II, it has poor solubility. The current study's goal was to encapsulate Econazole Nitrate in Spanlastics for transdermal administration.

Methods:

A Rotary flash evaporator was used to create Econazole Nitrate loaded Spanlastics utilizing a thin film hydration technique. By employing the non-ionic surfactant Span 60, edge activator Tween 80, and a solvent such as chloroform, several formulations of Econazole Nitrate loaded Spanlastics were formed. A variety of evaluations, characterizations, and optimization studies using Box-Behnken design and quadratic model analysis were later conducted for the spanlastics that had been formulated.

Results:

According to the optimized formulation, the two variables utilized had a minor impact on the globule size of the Econazole Nitrate loaded Spanlastics. The *In-vitro* data revealed that the steady state release at the time of 8 hours ranged from 77.85% to 88.96% of the Econazole Nitrate loaded Spanlastics release pattern. The optimised formulation passed thermodynamic stability studies and were robust to dilution, mean globule size and *In-vitro* drug release studies were evaluated.

Conclusion:

It can be concluded that the spanlastics produced using the thin film hydration approach were in good shape when examined under a binocular microscope. Comparing this method-prepared formulation to other topical dosage forms, it was also simple and practical. One could argue that the former Econazole Nitrate loaded Spanlastics are more stable.

Key words: Spanlastics, Econazole Nitrate, Transdermal drug delivery, Antifungal.

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POSTER PRESENTATION

PT06* (Poster Pitch)

Development and Evaluation of Orodispersible Films of Rivaroxaban

Dhanyashree K*, Preethi Sudheer, Venkatesh, Ashwini M, R.Narayana Charyulu

Nitte (Deemed to be University), NGSM Institute of Pharmaceutical Sciences, Mangaluru, Karnataka, India.

Introduction:

Rivaroxaban is an anticoagulant agent and a factor Xa inhibitor that acts in deep vein thrombosis. Being a biopharmaceutics classification system (BCS) II candidate, the drug requires a significant improvement in solubility to present as a film. The nano-cocrystal incorporated Rivaroxaban oral film could be used to improve the drug's therapeutic potential.
Thus the study aimed to formulate and evaluate a Rivaroxaban in developing Orodispersible Film to improve clinical acceptance.

Method:

A formulation containing Rivaroxaban, Gallic acid and involved all analytical grade agents (chemicals, solvents). The formulation was further investigated for physical evaluation, drug content, disintegration time, drug release studies, Compatibility studies and Saturation solubility studies.

Result:

Cocrystals of Rivaroxaban were developed to enhance drug delivery. The study focused on improving the drug's solubility and dissolution rate. FTIR analysis confirmed the safety of the drug and its components in the film. Cocrystals demonstrated significantly higher dissolution rates compared to the pure drug. The particle size of the cocrystals was uniformly small, contributing to their enhanced performance. Statistical analysis identified key factors influencing solubility and dissolution rate. The final oral film formulation exhibited consistent drug content and met quality standards.

Conclusion:

Based on the results obtained the combining nanocrystals of poorly soluble drugs with orodispersible films is a promising approach to improving the bioavailability and therapeutic potentials of such a class of drugs**.**

Keywords: Rivaroxaban; Oral disintegrating films; Nano co-crystals; Dissolution.

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POSTER PRESENTATION

PT07

Development of a Nano-Emulsion type mouth rinse containing essential oil of *Cuminum cyminum*

Sai Kiran Lakamsani [1*], Aswathi Raju Hegde[2]

M.S. Ramaiah University of Applied Sciences, Bangalore, India

Introduction:

Oral candidiasis is a fungal infection that occurs in the mouth and throat which is typically caused by an overgrowth of *Candida albicans*, which requires treatment using antifungal medications.

Method:

Freshly collected cumin seeds were authenticated and extracted using hydro-distillation method. GC-MS analysis was used to elucidate the phytoconstituents. Physicochemical characterization was assessed to determine its quality. Minimum inhibitory concentration for the extract against *C. albicans* was determined using serial dilution. Mouth rinses were prepared by simple mixing or nano-emulsion technique and subjected to evaluation parameters such as pH, viscosity, % transmittance, particle size analysis and stability testing. *In vitro* antifungal assay of the formulation was studied by disk diffusion method.

Results:

Theoretical yield of the CEO extract was 2.7±0.03%. FTIR analysis showed strong peaks corresponding to functional groups present in the active component(s). GC-MS analysis indicated the presence of gamma terpene, beta myrcene and D-limonene which are evidenced for antifungal activity. CEO extract showed inhibition of *C. albicans* growth at a minimum concentration of 25%. Formulation by nano-emulsion technique showed optimal characteristics. All formulations showed pH 7-8. NE-05 showed highest transmittance and lowest viscosity. Particle size analysis revealed the nano-size 160nm and homogeneity 0.374. NE-05 also showed good antifungal activity against *C. albicans* and was found to be stable.

Conclusion:

Hence, the developed nano-emulsion type mouth rinse containing CEO extract could be an alternative to conventional formulations for the treatment of oral candidiasis to combat fungal diseases while enhancing general oral health.

Key Words: Cumin, Hydro-distillation, GC-MS, Nano-emulsion, CEO

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POSTER PRESENTATION

PT08

Synthesis and Biological Evaluation of Some Novel Isatin Derivatives Containing Benzimidazole Moiety

Pooja Lokesh[1*], Judy Jays, Kriti Mjoka
Ramaiah University of Applied Sciences, Bengaluru, Karnataka, India

Introduction:

As the current scenario of antimicrobial resistance is increasing to alarming heights, we are in dire need of novel antimicrobial agents. Isatins and benzimidazoles are associated with a broad spectrum of microbial activity along with numerous other pharmacological activities. Hence we have designed and synthesized novel Isatins tethered with benzimidazole ring and assessed their antimicrobial properties *in vitro*.

Methodology:

Substituted anilines were reacted with Chloral hydrate, sodium sulphate, and hydroxylamine hydrochloride resulting in an isonitrosoacetanilide derivative. This was then treated with concentrated sulphuric acid to produce indole-2,3-diones (Isatins). Several 2-[2-(ethylsulfanyl)-1*H*-benzimidazol-1-yl]-*N*'-[(3Z)-2-oxo-1,2-dihydro-3H-indol-3-ylidene] acetohydrazide derivatives were obtained by fusing the corresponding Isatins with 2-ethylthiobenzimidazolyl-1-N-methyl carbohydrazide. Compounds were tested for antibacterial efficacy against Staphylococcus aureus and Bacillus subtilis (gram-positive bacteria), Klebsiella and E. coli (gram-negative bacteria).

Results:

Rf values, Melting Point, elemental analysis, IR, NMR, and mass spectral examinations have authenticated the identities and structures of novel compounds synthesized. Using the agar dilution method, *invitro* antibacterial activity of the compounds against four bacterial species have been investigated. Compared to ciprofloxacin and amoxycillin, compounds showed notable antibacterial activity. Compounds JJKM-3B, JJKM-3C, and JJKM-3D have demonstrated encouraging antibacterial properties.

Conclusion:

In view of synthesising novel antimicrobial agents, Isatins were tethered with Benzimidazole and ten novel indole-benzimidazole hybrids were synthesized, purified, characterized, and their antibacterial activity was assessed. Title compounds had a yield between 75% and 92%. Physical data such as M.P. and TLC and elemental analysis verified the purity while the structure of the compounds was confirmed by the spectral data. Three derivatives have showed promising antibacterial activity. Hence, they may be used as leads for the design of novel antibacterial agents.

Keywords: Isatins, Benzimidazole, Antimicrobial activity

POSTER PRESENTATION

PT09

Liposomal Transdermal System for Breast Cancer: Pharmacokinetics & Bioavailability studies"

Jyoti S. Patel*, Keerthana Devi. M, B. Sajeev Kumar

College of Pharmaceutical Sciences, Dayananda Sagar University, India

Introduction:

Oral drug delivery systems (ODDS) and conventional cancer therapies face challenges such as complex absorption, GI barriers, drug resistance, poor specificity, and severe side effects. This study investigates liposomal transdermal delivery as a promising alternative for enhanced bioavailability and pharmacokinetics.

Method:

Gefitinib liposomes were prepared using the thin-film hydration (TFH) method with Lipoid S100. Phospholipid and cholesterol concentrations were optimized using a central composite design (CCD) and modeled with Design-Expert software (v13). The liposomes were evaluated for encapsulation efficiency (%EE), particle size, and polydispersity index (PDI). Optimized formulations were incorporated into transdermal patches using the mercury substrate method and assessed for drug content, in vitro diffusion, in vivo biodistribution (pharmacokinetics and bioavailability), skin irritation in female Albino Wistar rats, and 3-month stability.

Results:

GEF-LIPs (F1–F13) had vesicle sizes of 112.8–373.7 nm, a PDI of 0.186–0.510, and a ZP of −3.69 to −82.2 mV and the CCD model was significant with an F-value of 37.97, P-value of 0.0500, and R^2 of 0.9644. F3-GEF-LIP exhibited optimal properties: vesicle size of 96.07 nm, ZP of −46.06 mV, PDI of 0.423, %EE of 97.79, and sustained release (%CDR = 83.32) via Higuchi diffusion kinetics. The structural study TEM confirmed multivesicular liposomes (<100 nm). In Wistar rats, F3-GEF-LIP-TD showed no edema, enhanced liver biodistribution ($p < 0.05$), and superior bioavailability (74.05 ± 0.11%) compared to oral GEF-LIP (65.25 ± 0.08%) and pure GEF (58.10 ± 0.17%).

Conclusion:

The optimized GEF-LIP-TD demonstrated a twofold increase in bioavailability and improved tissue distribution. This may enhance patient compliance by reducing dose size and frequency while minimizing side effects. Additionally, it could serve as an alternative to oral formulations and can support combination therapy.

Keywords: Triple-negative breast cancer, Liposomal transdermal DDS,

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EMERGING TOOLS AND TECHNIQUES

POSTER PRESENTATION

Advancements in Nano-Phytoconstituent Formulations for Hepatoprotection: A Comprehensive Review

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Introduction:

Hepatoprotective activity is crucial for managing and preventing liver diseases. Recent nanotechnology advancements have enhanced the efficacy and bioavailability of phytoconstituents. This review compiles the latest research on nano-phytoconstituent formulations for hepatoprotection, focusing on their mechanisms, formulation techniques, and therapeutic efficacy.

Methods:

A systematic literature review was conducted using PubMed, ScienceDirect, and Google Scholar. Studies on nano-phytoconstituent formulations for hepatoprotection were included, with keywords like "nano phytoconstituents," "hepatoprotective activity," "chitosan nanoparticles," "PLGA," and "liver targeting." Data focused on formulation methods, particle size, zeta potential, in vitro and in vivo efficacy, and safety profiles.

Results:

Formulation Techniques: Methods such as ionic gelation, emulsion-diffusion, and nanoprecipitation were used. Chitosan and PLGA are the most common polymers, forming stable nanoparticles with sizes ranging from 50 to 300 nm and good zeta potential stability.

Mechanisms of Action: Nano-phytoconstituents enhance hepatoprotective activity through antioxidant, anti-inflammatory, and anti-apoptotic effects. For example, Phyllanthus niruri nanoparticles significantly reduced ALT and AST levels in CCl_4-induced hepatotoxicity models. Curcumin-loaded PLGA nanoparticles showed better bioavailability and oxidative stress reduction than free curcumin.

Therapeutic Efficacy: In vivo studies significantly improved liver histopathology and biochemical parameters. Silymarin-loaded chitosan nanoparticles provided superior hepatoprotection compared to conventional treatment. Combining multiple phytoconstituents in a single nano-formulation showed synergistic effects, enhancing therapeutic outcomes.

Safety Profiles: Toxicity studies indicated nano-phytoconstituent formulations are generally safe and well-tolerated. However, long-term toxicity and biodistribution studies must establish their safety profiles fully.

Conclusions: Nano-phytoconstituent formulations significantly advance hepatoprotective therapies by enhancing phytoconstituent bioavailability and efficacy and providing targeted delivery capabilities. Future research should focus on optimizing formulation techniques, exploring synergistic combinations, and conducting comprehensive safety evaluations to pave the way for clinical applications.

Keywords: Nano-Phytoconstituents, Hepatoprotection, Chitosan Nanoparticles, PLGA, Liver Targeting.

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POSTER PRESENTATION

PT11

Advanced Curcumin-Based Delivery Systems: Enhancing Therapeutic Potential for Psoriasis Management

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Introduction:

Curcumin, a biomolecule from Curcuma longa, has potential for skin wound healing, anti-inflammatory, and antioxidant properties. It is poorly water soluble, rapidly metabolized and poor absorption that leads to deprived bioavailability.

Methods:

Advanced techniques increased the delivery and efficacy of curcumin by incorporation into nano emulsions and nanoemulgels , whereas nanostructured lipid carriers improved stability and its effects on antioxidants and microbicidal action. Another study focused on the development of nano sponges of dimethyl carbonate β-CD, prepared by hot melt method which are embedded in gels with phytoconstituents, having antioxidant activity and antibacterial properties. CURC-NLCs prepared by the emulsion-evaporation-solidification method demonstrated enhanced antioxidant and antimicrobial activity, with twice the inhibitory effect on microbes compared to curcumin. Nano-emulsions were formulated with low energy emulsification, along with development into nano emulgel by incorporation with gelling agent Carbopol 934. A biphasic emulgel system was formulated using emulsification for curcumin and tea tree oil, to improve spreadability .

Results:

Nano-emulgel increased curcumin permeation 4.87-fold, following Korsmeyer-Peppas kinetics with Fickian diffusion. Curcumin nano lipid carriers enhanced phenolic and flavonoid content, boosting antioxidant activity and showing stronger antimicrobial effects. The nanogel achieved faster anti-psoriatic activity, with sustained drug release for 12 hours. Liposomal gels reduced epidermal thickness and cytokine levels in mouse models, with improved skin penetration and retention. Nano emulgels enhanced curcumin permeation by 4.87-fold.

Conclusion:

Curcumin's efficacy was enhanced by advanced delivery technologies and synergistic combinations with other compounds, resulting in a multi-targeted approach that overcomes the limits of standard formulations and demonstrate the potential as feasible and successful treatment for psoriasis, giving way for comprehensive and focused therapeutic to improve curcumin's solubility, skin penetration, and targeted delivery to the affected skin areas

Key words: Curcumin, Combination therapy. antipsoriatic activity.

PT12

Thermal sintering: A novel technique used to design and evaluate Salbutamol Sulphate tablets"

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Introduction:

The Gastrointestinal Retentive Drug Delivery system is an approach to prolong gastric residence time by targeting site-specific drug release in the upper gastrointestinal tract (GIT), which facilitates the controlled release of drugs. Salbutamol sulphate is a selective short-acting β2 agonist of bronchial smooth muscle, which is significantly used in the treatment of Asthma. This experimental study's goal involves preparing and evaluating the Salbutamol sulphate hydrophilic matrix-forming tablets using the thermal sinter technique.

Method:

Salbutamol sulphate tablets were formulated using a special technique known as the Thermal sintered technique, which is used to impart strength, and integrity to the tablets and reduce porosity. The hydrophilic matrix-forming Salbutamol sulphate tablets were prepared using HPMC as a matrix-forming polymer in four different concentrations along with drug and other excipients by Wet granulation method followed by punching of the tablets. Later the prepared tablets were exposed to high temperature to achieve Thermal sintered tablets**.**

Result:

The stability studies of the selected formulation were studied as per ICH specification. Their drug content, and physical parameters like hardness and floating behavior were evaluated. All the process parameters and results of formulations were found to be satisfactory in the salbutamol sulphate tablets. The floating matrix tablets were characterized by the evaluation of bulk density, flow property, drug content, hardness, and friability, and dissolution and disintegration study. After the evaluation, TF3 and TF4 formulations showed promising results with floating behavior (17h, 19h), disintegration time (4h 10min, 4h 35min), and dissolution profile (98.5%, 82.8%) out of four formulations.

Conclusion:

The study concluded that the prepared thermal sintered floating matrix tablets showed satisfactory results compared to the un-sintered tablet formulation in terms of dissolution, disintegration time, and buoyancy studies.

Keywords: GDDS, Salbutamol sulphate tablet, the hydrophilic matrix forming polymer, Thermal sinter technique.

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POSTER PRESENTATION

PT13

Formulation and Evaluation of Herbal Cream for Skin Care using Pomegranate Peel Extract

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Introduction:

Herbal cosmetics are the preparations used to enhance the human appearance, promoting attractiveness & caring the skin from pollution. Herbal formulations are receiving more concentration in the present scenario because of their natural properties and less side effects. The present work aims to formulate an oil in water emulsion based herbal cream using Pomegranate Peel (PP) extract which possess Wound healing property.

Methods:

The study involved morphological analysis of Pomegranate Fruit, chemical tests, and microscopic analysis. A 70% alcoholic extract was prepared using maceration method, Standardization of PP extract for total phenolic content and Oil in Water emulsion-based cream was created by using three formula (F1, F2, F3). The cream was evaluated for physical parameters, spreadability, type, phase separation, pH, washability, and viscosity.

Results:

The study evaluated three O/W emulsion-based creams: F1, F2, and F3. F2 was found to be the best due to its good colour appearance, PH, viscosity, spreadability and consistency compared to F1 and F3. Where F1 formulation shows phase separation at room temperature. The cream's percentage of TPC remained unchanged, and its quality was 99.1% assured with the present extract.

Conclusion:

The study revealed that the 70% ethanolic extract of PP especially the Mesocarp is rich in phenolic compounds such a Tannins & Flavonoids. The chemical test of the PP extract also revealed the occurrence of Alkaloids & Carbohydrates as minor constituent. TPC was found to be in good amount, so that PP is considered as an excellent source of antioxidant. So the formulated herbal cream containing PP extract can be used for Wound healing & many other skin ailments like acne, scars & skin pigmentation.

Keywords: Pomegranate Peel extract (PP), Cream, Wound healing property.

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POSTER PRESENTATION

PT14

Biosynthesis of Copper Nanoparticles and Formulation of Nanoemulgel from Aloe Vera: Optimization of Burn Wounds Using Synthesized Nanoparticles and Evaluation of Antibacterial Activity

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Introduction:

Copper nanoparticles (CuNPs) have emerged as potent agents due to their antimicrobial and wound-healing properties. Aloe vera, with its natural bioactive compounds, provides an ideal medium for nanoparticle synthesis and formulation. This study focuses on biosynthesizing CuNPs using Aloe vera extract, formulating a nanoemulgel for burn wound treatment, and evaluating its antibacterial efficacy.

Methods:

CuNPs were biosynthesized using Aloe vera extract as a reducing and stabilizing agent. The nanoparticles were characterized through UV-Vis spectroscopy, dynamic light scattering (DLS), and transmission electron microscopy (TEM). A nanoemulgel was formulated by incorporating CuNPs into a gel matrix stabilized with surfactants. The formulation was optimized for physical stability, particle size, and drug release. Burn wound healing efficacy was evaluated in vivo using animal models, and antibacterial activity was tested against pathogens using the agar diffusion method.

Results:

Characterization confirmed the successful synthesis of stable, spherical CuNPs with an average size of 50–80 nm. The nanoemulgel exhibited excellent spreadability, stability, and controlled release of CuNPs. Burn wound studies demonstrated accelerated healing with reduced inflammation and infection. The antibacterial assays revealed significant inhibition zones against Staphylococcus aureus and Escherichia coli, highlighting the formulation's antimicrobial potential.

Conclusion:

The biosynthesized CuNP-based Aloe vera nanoemulgel showed promise as an effective therapeutic for burn wound management. Its dual action in wound healing and antimicrobial activity highlights its potential in addressing infection and enhancing recovery.

Keywords: Copper nanoparticles, Aloe vera, burn wounds, antibacterial activity.

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POSTER PRESENTATION

PT15

Dual-action formulation of Metoclopramide HCl and Metformin HCl: a novel approach for managing diabetic gastroparesis

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Introduction:

Diabetic gastroparesis is a chronic complication of diabetes marked by delayed gastric emptying, which disrupts glycemic control and medication absorption. This study focuses on formulating and evaluating bilayer tablets containing metoclopramide hydrochloride (a prokinetic agent) and metformin hydrochloride (an antihyperglycemic drug) using rate retarding polymer like HPMC K100 M and guar gum and super-disintegrants like sodium starch glycolate and Croscarmellose sodium for their effective management.

Methods:

Metoclopramide (Immediate release layer M1-M5) were prepared by direct compression method and Metformin hydrochloride (Sustained release layer F1-F5) were prepared by wet granulation method. The bilayer tablets were subjected to pre-compression and post-compression evaluations, including hardness, weight variation, disintegration time, and in-vitro drug release.

Results: Evaluation of bilayer tablet

STUDY	**Metoclopramide hydrochloride(M5) + Metformin hydrochloride(F4) bilayer tablet**
Weight variation (%)	3.85
Hardness (kg/cm^2)	6.5
Friability (%)	0.97
Drug content (%)	Metformin hydrochloride (97.82%) at 7 hrs, Metoclopramide hydrochloride (98.25%) at 30 mins
Disintegration time (sec)	32 SEC

Conclusion:

The study reveals that the bilayer tablet offers a promising dual-layer approach addressing the therapeutic needs of diabetic gastroparesis patients by combining glycemic control with gastrointestinal symptom quick relief in a single dosage form.

Keywords: Bilayer tablet, Metformin hydrochloride, Metoclopramide hydrochloride, Diabetic gastroparesis

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POSTER PRESENTATION

PT16

Amoxicillin Loaded Silver Nanoparticles for Advanced Wound Care: A Novel Antibacterial Dressing Approach

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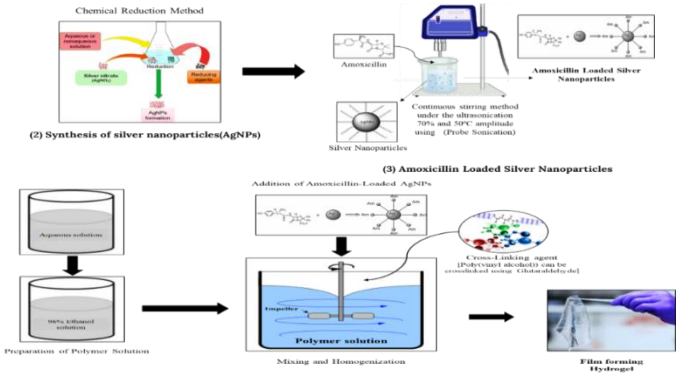
Introduction:

Wound infections remain a critical healthcare challenge, particularly with the global rise of antimicrobial resistance, which complicates the treatment of such infections. This study focuses on the formulation and evaluation of a **Topical film-forming hydrogel** incorporating **Amoxicillin-loaded silver nanoparticles** (AgNPs). Amoxicillin, a widely used broad-spectrum antibiotic, offers effective antimicrobial activity, while silver nanoparticles enhance bactericidal effects and exhibit intrinsic wound-healing properties.

Methodology:



RESULTS:

Preformulation studies confirmed drug-excipient compatibility, with FTIR analysis ensuring formulation stability. The hydrogel displayed ideal properties such as pH 7, viscosity, and spreadability, ensuring ease of application and adhesion. *In vitro*, the hydrogel demonstrated **sustained drug release over 24 hours** and superior antimicrobial activity against ***S. aureus, E. coli,*** and others, with the 10 mg/mL formulation outperforming conventional agents. Cytotoxicity studies confirmed safety, while *In vivo* studies showed enhanced wound healing in rats, supported by histopathology. This hydrogel offers a transformative, biocompatible solution for wound infections, addressing critical healthcare needs.

Conclusion:

The groundbreaking study on the development and evaluation of a topical film-forming hydrogel containing Amoxicillin-loaded silver nanoparticles seems to be a promising approach. This novel approach not only addresses wound infections but also addresses the issue of antimicrobial resistance. This novel approach provides the promise of anticipation in the fight against antimicrobial resistance.

Keywords: Wound infections, Amoxicillin loaded silver nanoparticles, Topical film forming hydrogel, Sustained drug release.

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POSTER PRESENTATION

PT18

Design & Characterization of Olanzapine in Situ Forming Implant for The Management Of schizophrenia

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Introduction:

In-Situ Forming Implants (ISFIs) have garnered significant attention as innovative drug delivery systems, offering sustained and localized therapeutic effects. Prophylactic anticoagulant therapy, crucial in preventing thromboembolic disorders, can benefit from ISFIs to enhance efficacy and patient compliance. Quality by Design (QbD) methodology ensures a systematic approach to designing ISFIs, focusing on predefined objectives and critical quality attributes.

Methods:

ISFIs were developed using biocompatible polymers and model anticoagulant drugs. QbD principles guided the study, identifying critical material attributes (CMAs) and critical process parameters (CPPs) through risk assessment and design of experiments (DoE). Key factors such as polymer concentration, solvent type, and drug loading were optimized for drug release kinetics, implant integrity, and biocompatibility. Analytical tools, including differential scanning calorimetry and scanning electron microscopy, characterized the formulations.

Results:

Optimized ISFI formulations demonstrated controlled drug release profiles over an extended period, maintaining therapeutic anticoagulant levels. The DoE approach highlighted polymer concentration and solvent ratio as significant factors affecting drug release and implant formation. In vitro and in vivo studies confirmed biocompatibility and efficacy, with reduced clot formation and minimal side effects compared to conventional therapies.

Optimized formula**:**

- 40% PLGA, 75% LA, DMSO:BB ratio = 1:1.67
- Burst release: 7.15%, 30-day release: 25.71%

Conclusion:

QbD-driven development of ISFIs for prophylactic anticoagulant therapy successfully achieved sustained drug release and improved therapeutic outcomes. This approach ensures robust, reproducible, and patient-centric formulations, paving the way for advanced drug delivery systems in anticoagulation therapy.

Keywords: Schizophrenia, O-ISFI, Quality by Design, Olanzapine.

PT19

Formulation and Evaluation of Eletriptan Hydrobromide Mucoadhesive Nanoemulsion for the Treatment of Migraine

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Introduction:

Nanoemulsions offer a promising drug delivery system due to their small droplet size, high surface area, and stability. They enhance drug solubility, improve bioavailability, enable targeted delivery, and can be tailored for various routes of administration, making them a versatile platform for pharmaceutical applications.

Methods:

This study aimed to develop Eletriptan hydrobromide mucoadhesive nanoemulsion (EHMNE) utilizing chitosan as a polymer for migraine treatment via nasal delivery, aiming for sustained release, reduced dosing frequency, and rapid onset of action. Preformulation studies confirmed the physical characteristics and compatibility of the drug and excipients.

Results:

Formulation optimization resulted in an optimal blank mucoadhesive nanoemulsion, further used for EHMNE formulation. The formulated EHMNE exhibited desirable properties including small globule size (98 nm), low polydispersity index (0.214), suitable viscosity (226 cP), high drug content (89%), favourable pH (5.9), and positive zeta potential (+15.27 mV). Scanning electron microscopy revealed spherical morphology of the nanoemulsion globules. In vitro release studies demonstrated sustained drug release (62% in 7 hrs), primarily controlled by diffusion. Stability studies showed no significant changes in physical appearance over three months under various storage conditions.

Conclusions:

Overall, EHMNE demonstrated promising characteristics for nasal delivery, potentially enhancing drug residence time, reducing dosing frequency and dose, improving bioavailability, and ensuring rapid onset and sustained release. This formulation represents a valuable candidate for migraine management, although further studies are warranted to assess its efficacy and safety comprehensively.

Keywords: Mucoadhesive nanoemulsion, Nasal delivery, sustained release, Migraine.

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POSTER PRESENTATION

PT20

Development And Evaluation of Glycine Max Mucoadhesive Bioflexi Film Containing Valsartan Translabial Drug Delivery System

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Introduction:

Valsartan, a tetrazole derivative and angiotensin II receptor blocker, is widely used alone or in combination with other agents to treat hypertension and reduce cardiovascular mortality after myocardial infarction. Classified as a BCS Class II drug, its oral bioavailability is limited due to extensive first-pass metabolism and solubility issues. This study aimed to develop fast-dissolving thin films of Valsartan using different polymers and bio-adhesive excipients to facilitate immediate drug release via the translabial route, ensuring efficient and direct absorption into the systemiccirculation.

Method:

Preformulation studies confirmed the physical characteristics and compatibility of the drug excipients. Valsartan bio-flexi film was formulated with *Glycine max* and hydroxyl propyl methyl cellulose as polymers by solvent casting method and drug release was evaluated by egg shell membrane method.

Result:

The drug release pattern exhibited a good fit to the Korsmeyer-Peppas model, with an r^2 value of 0.9955, indicating a reliable and predictable release profile. The release mechanism was identified as super case II transport, highlighting a polymer relaxation-driven and diffusion-controlled process. Among the tested formulations, GL1, comprising synthetic polymers, demonstrated the highest drug release of 81.12% at the end of 8 hours, making it the most effective and optimized formulation**.**

Conclusion:

These findings suggest that Valsartan-loaded thin films for translabial drug delivery hold significant promise as a novel and effective approach for the treatment of hypertension.

Keywords: Valsartan, Glycine max, HPMC E50, Bio-flexi film, Translabial route.

POSTER PRESENTATION

PT21

Fabrication and Evaluation of Febuxostat Loaded Transdermal Patches

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[2]Togari Veeramallappa Memorial College of Pharmacy

Introduction:

The main objective of the study was to fabricate and evaluate the transdermal patch containing Febuxostat drug as a controlled delivery through the skin for the effective management of gout by matrix diffusion system. The method employed for the preparation of transdermal patches loaded with the drug febuxostat was solvent evaporation method. As Febuxostat is an antigout agent which acts as a non-purine selective xanthine oxidase inhibitor that results in decreasing the uric acid level in the body.

Methods:

Pre-formulation studies of Febuxostat included organoleptic evaluation, solubility testing (soluble in DMF), and melting point determination (209°C-212°C). λmax was found to be 275nm using DMF, ethanol, and phosphate buffer (Ph 7.2). Drug-excipient compatibility was assessed by FT-IR (4000-400 cm^{-1}), and the transdermal patch was formulated by solvent evaporation.

Results:

Pre-formulation results showed Febuxostat's organoleptic properties matched standards. Solubility tests revealed it dissolves in N, N, Dimethylformamide. The melting point was 210°C. UV spectra showed absorbance maxima at 319nm (DMF), 314nm (Ethanol), and 316nm (phosphate buffer). FT-IR peaks for the transdermal patch appeared at 1434cm^{-1} - 3583.95cm^{-1}. Formulations (F1-F5) with HPMC and EC polymers were evaluated for thickness, folding endurance, flatness, moisture loss, weight uniformity, drug content, and in-vitro diffusion**.**

Conclusion:

Febuxostat, through controlled delivery, effectively treats gout while reducing dosing frequency and enhancing bioavailability. Among the five formulations, F3 showed optimal thickness, folding endurance, weight uniformity, moisture loss, and drug content. In-vitro release studies confirmed F3's superior controlled release, making it the ideal transdermal patch for gout management.

Keywords: Transdermal patch, febuxostat, gout, xanthine oxidase, matrix diffusion system.

PT22* (Poster Pitch)

Formulation And Evaluation of Ultrafast Dissolving Oxcarbazepine Nanofibre

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EMERGING TOOLS AND TECHNIQUES

POSTER PRESENTATION

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Introduction:

Oxcarbazepine, an anti-epileptic medication suffers from poor aqueous solubility, resulting in erratic absorption and reduced bioavailability. The aim of this research was to develop a medicated ultrafast dissolving nanofiber using oxcarbazepine.

Method:

It was formulated using Electrospinning technique. A potential orally dissolving nanofiber was developed to achieve immediate release of the drug from the nanofiber in a controlled manner. Poly (vinyl-alcohol) and chitosan were chosen in different ratios (F1-F9 formulations) to obtain electrospun ultrafast dissolving nanofiber. The solvent optimization was done and the desired solvent was obtained at F5 (PVA + chitosan=70:30 ratio). The electrospun nanofiber was introduced to perform evaluation studies namely physical evaluation, % drug content, % entrapment efficiency, folding endurance and surface Ph study. Morphology of the prepared nano-fibers characterized by scanning electron microscope. Particle size, zeta potential and disintegration study was performed for F5.

Particle size	**Drug content**	**% entrapment efficiency**	**Surface Ph**	**Folding endurance**	**Disintegration time**	**Dissolution (CDR%)**
95.53nm-170nm	97.65%	96.21	6.85	120	10 s	91.35 %

Results:

The optimized formulation F5 was spun and the rest of the evaluation studies was performed.

Conclusion:

The ultrafast dissolving Oxcarbazepine fast dissolving nanofibers was successfully developed, exhibiting rapid dissolution and enhanced bioavailability. This novel ideology of formulating Ultra-fast dissolving films in a nano structure holds promise for improving the therapeutic efficacy of oxcarbazepine in epilepsy management.

Keywords: Medicated nanofibre, Nano drug delivery system, Electrospinning technique, Ultra-fast dissolving, UFDDS.

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POSTER PRESENTATION

PT23*(Poster Pitch)

Montmorillonite Alginate/Chitosan Matrix Encapsulated Finerenone: An *In Silico* Approach To Sustained Release Formulation

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Introduction:

This study aims to deliver Finerenone, a drug targeting the Mineralocorticoid Receptor (MR) for slowing chronic kidney disease (CKD) progression. Biocompatible materials such as Montmorillonite, sodium alginate, and chitosan are used for sustained drug delivery of finerenone.

Methods:

Preformulation studies confirmed the drug-excipient compatibility and physical properties, while Computer-Aided Formulation Design (CAFD) and Molecular Dynamics (MD) simulations provided insights into molecular behavior. Microparticles were prepared using the ionotropic gelation method with polymers like sodium alginate and chitosan, then encapsulated into capsules.

Results:

Chitosan microparticles showed a drug entrapment efficiency of 33.25% and a drug content of 83.13%, while sodium alginate microparticles exhibited 29.13% efficiency and 72.83% drug content. Both formulations met weight variation and content uniformity standards. In vitro dissolution studies revealed slightly higher cumulative drug release from sodium alginate microparticles (52.09%) compared to chitosan microparticles (51.75%) in capsules. Release kinetics indicated a mechanism involving both diffusion and relaxation processes, highlighting the influence of polymer matrix composition, cationic exchange, and Van der Waals interactions on drug release modulation**.**

Conclusions:

In conclusion, this study demonstrates the development of Alginate-based microparticles for sustained release of Finerenone, offering a promising therapeutic approach for CKD patients.

Keywords: Montmorillonite Alginate/Chitosan Matrix, An *In-silico* Approach, sustained release, chronic kidney disease.

PT24

FORMULATION AND EVALUATION OF METFORMIN HYDROCHLORIDE SOLID-LIPID NANOPARTICLES LOADED TRANSDERMAL PATCH FOR (PCOS) POLYCYSTIC OVARY SYNDROME

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Introduction: T

This study aimed to formulate and evaluate a transdermal patch loaded with Metformin hydrochloride solid-lipid nanoparticles (SLNs) for the treatment of polycystic ovary syndrome (PCOS). The objectives included pre-formulation studies, SLNPs formulation, characterization, transdermal patch preparation, and evaluation.

Methods:

Metformin-loaded SLNs were prepared using the hot melt encapsulation technique, optimizing lipid and surfactant concentrations. Entrapment efficiency and drug content varied between 58.70% - 92.51% and 60.76% - 93.57%, respectively, with higher concentrations showing better encapsulation. Particle size analysis revealed sizes suitable for transdermal delivery, with smaller particles in formulations with higher surfactant concentrations. Preparation of the transdermal patch was successful using a solvent evaporation technique.

Results:

Physical evaluations showed uniformity, suitable surface pH (5.4), and controlled moisture content (4.20%). The patch demonstrated flexibility (folding endurance >200 times) and high drug content (90.2%). *In vitro* drug release studies indicated controlled and sustained release kinetics over 25 hours, with cumulative drug release reaching 56.29%. Mathematical modeling suggested a polynomial kinetic pattern, indicating complex release mechanisms.

Conclusion:

Overall, this study demonstrates the successful formulation and evaluation of a Metformin hydrochloride SLNPs-loaded transdermal patch, offering a promising *in-vitro* approach for PCOS treatment with potential advantages in controlled and sustained drug release and improved patient compliance.

Keywords: Metformin hydrochloride, SLNPs, Transdermal patch, Controlled and Sustain release.

PT25

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EMERGING TOOLS AND TECHNIQUES

POSTER PRESENTATION

AI and Machine Learning in Precision Medicine: Enhancing diagnostics and treatment personalization.

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Introduction:

AI and machine learning are transforming precision medicine by analyzing vast datasets to uncover patterns in genetics, biomarkers, and patient histories. These technologies enable early diagnosis, personalized treatments, and predictive insights, optimizing healthcare outcomes. By integrating AI with medical advancements, precision medicine is evolving into a data-driven approach, offering targeted solutions tailored to individual patient needs.

Methodology:

To explore AI and Machine Learning in Precision Medicine, the methodology involves a systematic literature review to identify AI-driven approaches in diagnostics and treatment personalization. Data sources include research databases and clinical studies. Key focus areas are algorithms for genomic analysis, predictive modeling, and patient stratification. Comparative analysis of AI models evaluates accuracy, efficiency, and clinical relevance. Ethical considerations and future advancements are also discussed to propose impactful applications in healthcare.

Results:

AI and machine learning significantly enhance precision medicine by improving diagnostics through genomic data analysis and enabling personalized treatment plans. Predictive models accurately stratify patients, optimizing therapeutic outcomes. Studies reveal improved efficiency and accuracy in disease detection, prognosis, and treatment selection, highlighting AI's transformative potential in advancing individualized healthcare solutions.

Conclusion:

AI and machine learning are pivotal in advancing precision medicine, offering improved diagnostic accuracy and personalized treatment plans through genomic insights and predictive modeling. These technologies enhance healthcare efficiency and patient outcomes. Emphasizing ethical integration and innovation, AI holds the promise to redefine individualized care, driving the future of data-driven, patient-centric healthcare systems worldwide.

Keywords: Precision Medicine, Artificial Intelligence, Machine Learning , Personalized Treatment, Predictive Modeling

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POSTER PRESENTATION

PT26

FORMULATION AND EVALUATION OF EFINACONAZOLE LOADED NANOSPONGES BASED GEL

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Introduction:

Nanosponges are tiny, mesh-like structures that encapsulate a wide range of compounds and enhance the solubility and bioavailability of poorly water-soluble drugs. They are used in drug delivery to delay release, increase stability, and protect drugs from degradation. The structure includes a long polyester backbone with crosslinkers. These features make nanosponges effective for various therapies.

Methods:

The aqueous phase was prepared by dissolving the specified quantity of PVA in 25ml of water. 20mg of the drug was dissolved in ethanol or dichloromethane for the organic phase. The organic phase was added to the aqueous phase dropwise while stirring at 600-800 rpm. The suspension was filtered and dried in a hot air oven to obtain dried nanosponges**.**

Results:

Efinaconazole, with a melting point of 85±1 °C, is insoluble in water but soluble in methanol, acetone, and ethanol. Its partition coefficient is 3.296, indicating lipophilicity. Six batches of Efinaconazole-loaded nanosponges were prepared, demonstrating good process yield and drug content (67%-78%). The ideal batch (F3) showed sustained in-vitro drug release (87%-95%), optimal particle size (532.6 nm), and suitable homogeneity, pH compatibility, spreadability, and viscosity for topical application. FTIR studies confirmed the compatibility of the drug with excipients, making this formulation promising for therapeutic use.

Conclusion:

Six nanosponges formulations varied in stabilizer and polymer concentrations, yielding 32%-67% and drug content ranging from 67% to 94%. The F3 batch showed promising results and was incorporated into gel formulations. G3 gel formulation demonstrated controlled drug release of 81% at 24 hours, proving potential for effective transungual antifungal therapy.

Keywords: Nanosponges, Efinaconazole, Antifungal activity, Transungual delivery

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PT27

Current Strategies and Emerging Drug Delivery Systems in the Management of Psoriasis: A Comprehensive Review

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Introduction:

Psoriasis, a chronic inflammatory skin condition characterized by excessive keratinocyte proliferation and immune dysregulation, poses significant challenges for effective management. Recent advancements in nanotechnology have paved the way for innovative drug delivery systems that enhance the therapeutic efficacy of psoriasis treatments.

Methods:

This review highlights recent studies focusing on nanotechnology-based approaches such as nanoparticles, liposomes, and nanogels, which are designed to improve the delivery of both traditional and novel therapeutic agents. These nanocarrier systems offer several benefits, including enhanced bioavailability, targeted delivery to affected skin areas, and reduced systemic side effects. Recent clinical and preclinical studies have shown promising results, demonstrating improved treatment outcomes, faster onset of action, and increased patient compliance compared to conventional therapies. The use of biocompatible and biodegradable materials in these nanocarrier formulations further emphasizes their potential for long-term therapeutic applications in psoriasis management. Moreover, the incorporation of such materials ensures that these delivery systems are safe for prolonged use, minimizing adverse reactions and enhancing patient adherence.

Results:

By providing a comprehensive summary of the latest research findings, this review aims to shed light on the effectiveness of nanotechnology-based drug delivery systems in psoriasis treatment. These advancements hold the promise of transforming the therapeutic landscape for psoriasis, offering improved efficacy, safety, and patient compliance in topical therapies.

Conclusion:

Future research should continue to refine these delivery systems and explore their clinical applications across diverse patient populations to enhance further treatment outcomes and quality of life for those affected by this challenging skin condition.

Keywords: Psoriasis, Nanocarriers, Liposomes, Nanogel, Nanoemulsions

PT29

Existing and emerging approaches for improved monitoring and evaluation.

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The pharmaceutical industry is undergoing rapid transformation driven by technological innovations and evolving research paradigms. Among the notable advancements are digital health technologies, including wearable devices and telemedicine, which enable real-time patient monitoring and decentralized clinical trials. These approaches improve patient accessibility and trial diversity, revolutionizing drug development processes by incorporating real-world evidence and patient-centric designs. Generative AI and big data analytics are pivotal in enhancing drug discovery and clinical trials. AI models streamline molecular screening, optimize trial designs, and predict therapeutic outcomes, significantly reducing costs and time-to-market. These tools integrate diverse datasets, from genomic profiles to electronic health records, enabling personalized medicine and precision drug development. Nanotechnology has opened new avenues in targeted drug delivery systems, particularly in oncology. By employing nanoscale carriers, researchers can achieve precision in treatment while minimizing side effects. Similarly, the rise of 3D printing in pharmaceuticals allows for the creation of customized drug formulations, offering tailored therapeutic solutions. Advanced manufacturing techniques like continuous processing are improving the scalability and sustainability of biologics production. Concurrently, blockchain technology is being leveraged for secure supply chain management and data integrity in clinical trials. Additionally, the emphasis on environmental sustainability in pharmaceutical manufacturing addresses the industry's ecological footprint through eco-friendly packaging and green processes. The convergence of these innovations is reshaping the pharmaceutical landscape, fostering collaborations between academia, industry, and regulatory bodies to enhance global healthcare delivery. These advancements not only streamline drug development but also align therapeutic approaches with patient needs, promising a future of more efficient, equitable, and sustainable healthcare solutions.

Keywords: Artificial Intelligence, Nanotechnology, 3D Printing, Decentralized Clinical Trials, Big Data Analytics.

PT30

Advances in Pelletization Techniques for Novel and Effective Approach for Hypertension Drug Delivery: A Comprehensive review.

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Introduction:

Hypertension, or high blood pressure, is a prevalent global health issue that significantly increases the risk of severe complications like heart disease and stroke. Proper management of hypertension is crucial for reducing these risks and improving overall patient outcomes.

Methods:

This review examines recent advancements in pelletization techniques for the delivery of antihypertensive drugs. Pellet-based formulations offer several benefits, such as controlled and sustained drug release, enhanced bioavailability, and improved patient compliance. Additionally, the integration of emerging technologies, including nanotechnology and 3D printing, is explored as a means to further optimize drug delivery systems.

Results:

Pellet-based drug delivery systems are designed to provide a steady release of the antihypertensive drug, allowing for better absorption and more stable blood pressure control over time. These systems can significantly improve patient adherence by reducing the frequency of doses and minimizing side effects. Furthermore, combination therapy pellets, which incorporate multiple antihypertensive agents into a single dosage form, enhance treatment efficacy and simplify medication regimens for patients. The potential use of artificial intelligence (AI) to personalize treatment plans based on real-time patient data is an exciting frontier in improving hypertension management.

Conclusion:

Recent advancements in pelletization techniques show great potential in enhancing the management of hypertension. By optimizing drug delivery systems and incorporating novel technologies, these innovations can provide better therapeutic outcomes and significantly improve the quality of life for patients with high blood pressure. Future research should focus on further refining these systems and exploring the role of AI in creating personalized, patient-specific treatment regimens.

Keywords: Hypertension, Pelletization, bioavailability, patient compliance, nanotechnology.

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PT31

Understanding Drug Release: A Comprehensive Review of Dissolution and Diffusion Testing Methodologies

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Introduction:

Dissolution and diffusion are essential processes in pharmacology that determine how drugs are released from their formulations and absorbed into systemic circulation. Understanding these processes is crucial for optimizing therapeutic effectiveness. Dissolution testing evaluates the rate and extent to which a drug dissolves in a specific medium, simulating physiological conditions. This testing is vital for predicting how quickly a drug will become available for absorption. Diffusion testing assesses how drugs move through biological membranes, influenced by concentration gradients and membrane permeability. This process is critical for understanding the absorption of drugs in various formulations.

Methodology:

Dissolution testing typically employs a paddle apparatus to maintain consistent conditions, with samples collected at predetermined intervals for analysis. In diffusion studies, formulations are placed in a donor compartment, and permeation through a membrane into a receptor compartment is measured using devices like Franz diffusion cells.

Results:

Research indicates that formulation characteristics significantly impact dissolution and diffusion rates. For example, ibuprofen suspension shows faster dissolution compared to tablet formulations, enhancing its therapeutic effectiveness. Additionally, permeation studies reveal that emulsions can achieve higher absorption rates through the skin than gels, highlighting the importance of formulation design. Particle size reduction and excipient mixing also improve dissolution profiles.

Conclusion:

This review underscores the critical role of dissolution and diffusion testing in the pharmaceutical industry. Understanding these processes is vital for optimizing drug formulations and ensuring effective delivery. Future research should continue to explore formulation variables to enhance therapeutic effectiveness and support the development of innovative pharmaceutical products.

Keywords: Dissolution, diffusion, drug delivery, pharmaceutical formulations and therapeutic efficacy

PT32

Precision Medicine: Transforming Healthcare through Personalisation

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The Precision Medicine Initiative defines precision medicine as an approach to disease treatment and prevention that considers individual variability in genes, environment, and lifestyle. This personalized strategy enables doctors and researchers to predict effective treatment and prevention methods for specific patient groups, differing from the traditional one-size-fits-all approach.

Advances in genomics, proteomics, metabolomics, and artificial intelligence (AI) drive the evolution of personalized medicine. Genetic profiling identifies biomarkers predicting patient responses to specific drugs, reducing adverse effects and enhancing treatment efficacy. Pharmacogenomics ensures accurate drug dosing and selection based on individual genetic variations.

Applications in oncology, cardiology, neurology, and rare diseases demonstrate precision medicine's potential. Targeted therapies like HER2 inhibitors in breast cancer and EGFR inhibitors in lung cancer exemplify its impact. Despite its promise, challenges include high costs, data privacy concerns, and limited access to genomic testing. Addressing these barriers is crucial for equitable adoption.

This poster explores precision medicine's principles, technologies, and applications, highlighting its role in improving patient outcomes, reducing healthcare costs, and enabling proactive, personalized care.

Keywords: Precision Medicine, Personalized Medicine, Genomics, Biomarkers, Pharmacogenomics

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PT33

Preparation and evaluation of Self-Emulsified Drug Delivery Systems containing herbal drugs

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Introduction:

Herbal drugs offer therapeutic benefits for skin ailments but face challenges in solubility, stability, and bioavailability. Self-Emulsifying Drug Delivery Systems (SEDDS) encapsulate herbal extracts like neem and *Acalypha indica* into nano-sized droplets, enhancing solubility, permeability, and stability, thereby improving skin penetration and efficacy.

Methodology:

The SEDDS formulation developed for the treatment of scabies, incorporating *Azadirachta indica*, *Acalypha indica*, and coconut oil, along with other excipients such as olive oil, PEG 600, and Tween 20, demonstrated significant efficacy against both bacteria associated with scabies lesions. Key parameters such as droplet size, polydispersity index (PDI), and rheological behavior were analyzed to ensure stability and effectiveness. *In vitro*, antibacterial studies were conducted to assess the efficacy of SEDDS-loaded herbal extracts. Zones of inhibition were measured against bacterial strains commonly associated with skin infections, comparing the results with standard formulations to evaluate enhanced activity.

Results:

The formulation exhibits promising characteristics for topical application, with a pH range of 5.4 to 5.8 ensuring skin compatibility and tolerability. Its viscosity and particle size measurements are ideal for topical use and spreadability. Mechanistic insights reveal potential synergistic effects between active components (*Azadirachta indica*, *Acalypha indica*) and excipients (coconut oil, olive oil, PEG 600, Tween 20), enhancing drug penetration, disrupting mite activity, modulating immune responses, and exhibiting antimicrobial effects. These synergistic mechanisms may include enhanced drug penetration into mite burrows, disruption of mite feeding and reproduction, modulation of host immune responses, and direct antimicrobial effects against bacteria.

Conclusion:

The results obtained from studies on the SEDDS formulation bacteria present a compelling case for its potential as an innovative and effective therapeutic approach for treating scabies and associated bacterial infections. SEDDSs have shown promise as topical vehicles for lipophilic herbal formulations, enhancing skin penetration and treating scabies and bacterial infections. Further research is needed to optimize formulations and evaluate clinical efficacy.

Keywords: Herbal drugs, Emulsified formulation, *Acalypha indica*, SEEDS loaded neem

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PT34

FRONTIER IN HARNESSING LIPID NANOPARTICLES FOR BREAKTHROUGH VACCINES: A NEW IMMUNOLOGY

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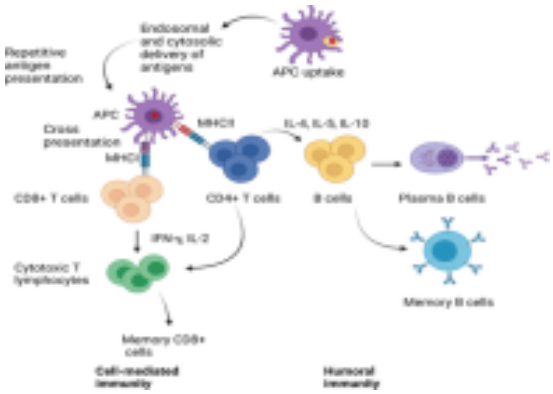
Introduction:

Lipid nanoparticles (LNPs) have revolutionized the field of vaccine development by providing efficient and targeted delivery systems for nucleic acids, peptides, and antigens. Their role in the success of mRNA-based COVID-19 vaccines highlights their potential in addressing global health challenges. This study explores the advancements in LNP design and their immunological applications, focusing on their structural optimization, delivery efficiency, and ability to elicit robust immune responses.

Method:

A comprehensive analysis of the literature was conducted to evaluate the design and functionalization of LNPs for vaccine applications. Key factors such as ionizable lipids, PEGylation, particle size, and charge were assessed for their impact on delivery efficiency and immunogenicity. Studies on LNP-mediated vaccine delivery in infectious diseases and cancer immunotherapy were reviewed to identify emerging trends and challenges.



Results:

LNPs demonstrated remarkable versatility in delivering mRNA, DNA, and protein antigens with high stability and targeted delivery. Advances in lipid chemistry, such as the development of ionizable lipids, significantly enhanced cellular uptake and antigen expression. In preclinical and clinical studies, LNP-based vaccines elicited strong immune responses, offering protection against a range of infectious diseases and cancers.

Conclusion:

Lipid-based nanoparticles offer a promising pathway for developing multicomponent vaccines, addressing critical gaps in challenging vaccine targets. By integrating adjuvant and delivery functionalities, LNPs can enhance immunogenicity and provide tailored solutions for diverse antigens.

Keywords: Lipid Nanoparticles (LNPs); Vaccine Delivery; mRNA Vaccines; Nanotechnology

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PT35

A Comparative Study On Fast Dissolving Films Using Natural And Synthetic Polymers Containing Domperidone

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Introduction:

Domperidone, an antiemetic and prokinetic drug used to treat stomach-related issues, such as nausea and vomiting. To enhance solubility and bio availability fast-dissolving films are considered. When placed in the oral cavity and quickly gets dissolved in the saliva without the use of water. The aim of this study was to develop and comparative study of a fast-dissolving films of domperidone using natural and synthetic polymers. The results obtained were presented in this work.

Method:

Fast dissolving films are formulated by dissolving polymers (HPMC, PVA, xanthan gum, sodium alginate) in water overnight. Domperidone is then dissolved in purified water and mixed with the polymeric dispersion. PEG 400, citric acid, DMSO, and sodium saccharin are added, and the mixture is stirred for 15 minutes. After sonication to remove air bubbles, the mixture is cast onto petri plates and dried in a hot air oven (60°C for 24 hours). Finally, the films are stored in butter paper covered with aluminum foil.

Result:

The in vitro dissolution study revealed that synthetic polymer formulation H2 exhibited a significantly higher drug release rate of 96.15% in 5 minutes compared to natural polymer formulation S2, which showed a drug release rate of 94.24% in 5 minutes, thereby establishing synthetic polymers as the preferred choice for optimizing domperidone fast dissolving film formulations.

Conclusion:

The study demonstrates that fast-dissolving films of domperidone, specifically the H2 formulation containing HPMC, offer a promising approach to enhance the solubility and bioavailability of domperidone.

Keywords: Domperidone, HPMC, Sodium alginate, Fast dissolving films.

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PT36

Formulation and evaluation of polyherbal orodispersible tablets for mouth ulcer treatment

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Introduction:

Patient compliance can be increased, and adulteration can be decreased in Ayurvedic powders by formulating them into tablets. The present study was aimed at formulating and evaluating orodispersible tablet containing polyherbal extracts to achieve local and comparatively fast actions for mouth ulcer treatment.

Method:

A combination of five herbal drugs **(*Terminalia chebula, Glycyrrhiza glabra, Cyperus rotundus, Psidium guajava, Psidium guajava*,)** were extracted by cold maceration method. About 300g of the dried powder of each herb was taken and cold macerated with hydromethanolic solvent (Ethanol: water (1:1) ratio) with occasional stirring for 3 days. After 3 days, the extracts were filtered through a fine muslin cloth and the filtrate is evaporated at low temperature (<40º) under reduced pressure in a rotary evaporator and dried. The dried powder was stored in a desiccator.

In the pre formulation studies all formulations exhibited good flow property and compressibility which is very essential for direct compression and hence tablets were prepared by direct compression method.

Result:

The compressed tablets were evaluated for their weight variation, hardness, thickness and friability as per Indian pharmacopoeia and the results were found to be within the prescribed limits. *In vitro* release of F-9 batch was found to be 99.1 % which was better as compared to other batches. Hence, it was concluded that Cross cormellose sodium at 9% was the best super-disintegrants for this polyherbal formulations.

Conclusion:

The Cross cormellose sodium at 9% was the best superdisintegrants for this polyherbal formulations. The HPTLC analysis confirmed the presence of representative's peaks of each herbal ingredient in the product fingerprint. HPTLC graph of extracts found to contain rutin, gallic acid and quercetin as standard. These flavonoids were simultaneously detected in both the extracts and formulation. So, the combination of extracts do not show any undesirable activity.

Key words: Oro-dispersible tablet, super-disintegrants, poly herbal, Cross-cormellose sodium

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PT37

Formulation And Evaluation of Floating Oral *In Situ* Gel Of Amlodipine Besylate

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Introduction:

Amlodipine can be classified into group of calcium channel blockers. Thus, it is frequently used to treat different heart diseases like angina pectoris and hypertension. Hypertension affects 1 in 3 adults worldwide. This leads to stroke, heart attack, heart failure, kidney damage. Hypertension (high blood pressure) is when the blood pressure is too high (>140/90 mm Hg).

Methodology:

A solution of sodium alginate in deionized water sodium citrate should be prepared. Xanthan gum should be added to the sodium alginate solution, and the mixture should be heated to 40°C while being stirred with a magnetic stirrer for 30 minutes. 30 mL of deionized water should be combined in a separate beaker with calcium carbonate and calcium chloride. The mixture should be mixed with a magnetic stirrer for 30 minutes. Both the gum solution and the calcium carbonate mixture should be mixed. The API should be added to the mixture and mixed for another 30 minutes. The preservatives were added. The mixture should be adjusted to 100 ml.

Results:

The prepared formulations(F1-F8) were evaluated for p^H, viscosity, *in vitro* gelation study, *in vitro* buoyancy study, density, percentage water uptake, drug content and *in vitro* drug release. All the *in situ* gel formulations had a floating lag time of <1 min. The release kinetics studies confirmed a Higuchi plot for F8 formulation.

Conclusion:

The results indicates that the formulation of Amlodipine Besylate as oral floating *in-situ* gel helps to improve drug absorption & bioavailability. This also helps to improve the patient compliance which eases of administration and reduction in dosing frequency.

Keywords: Amlodipine besylate, *In situ* gel, Floating time.

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PT38

Development And Characterisation of Luliconazole Loaded Ethosomal Gel for The Treatment of Fungal Infection

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Introduction:

Fungal infection are a major health concern globally, often requiring effective topical treatments. Luliconazole, a potent azole antifungal, is effective against various dermatophytes and yeast, but ensuring its optimal delivery and sustained release remains challenging. Ethosomal, lipid-based vesicle with phospholipid and ethanol concentration, offer enhanced skin penetration and stability over traditional liposomes. Their unique structure aids in deeper skin penetration, improving drug bioavailability.

Method:

This method is prepared by "HOT MELT EXTRUSION METHOD". Phospholipids dispersed in water by heating in water bath at 40°C. Ethanol, Propylene glycol and Drug mixed. Organic phase added to aqueous phase. Stir for 5 min using magnetic stirrer. Sonicate for 30mins Ethosomes formed.

Result:

In-vitro drug release study was carried out using a ended-cylinder model. The ended of the cylinder were covered with eggshell membrane and the cylinder was loaded with 10 ml of ethosomal formulation. This was then placed in 500 ml phosphate buffer (pH 7.4) . The beaker was stirred continuously using a magnetic bead stirrer at rate at 50 rpm. Sample were withdrawn at 1,2,3,4,5,6,7,8 hrs. interval and analysed using UV spectrophotometer at 297 nm. The varying drug release profiles were observed in each formulation. The release in high at F5 formulation.

Conclusion:

Luliconazole used for treating fungal infection like ringworm, was formulated into ethosomal into ethosomes to enhance drug delivery into skin. This is based on BCS class II with antifungal drug enhance the permeability. Nine ethosomal formulation were prepare at F5 formulation shows highest drug release rate 79.56%.

Keywords: Ethosomes, Topical delivery, fungal infection

PT39

Development And Optimization of Modified Transdermal Drug Delivery By Using 5 - Fluorouracil

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Introduction:

This study was focused on the development and optimization of a modified transdermal drug delivery system for 5-Fluorouracil (5-FU) and using biopolymers such as sodium alginate, carrageenan, and gelatin. The objective was to enhance the drug permeability and therapeutic efficacy while minimizing systemic side effects. Various formulations were created and characterized for their physical properties, drug release profiles, and drug content. The findings suggest that the optimized formulation demonstrates improved drug delivery compared to conventional methods, indicating a promising approach for skin cancer treatment.

Method:

Various formulations of transdermal patches were developed by using solvent casting method with different ratios of sodium alginate, carrageenan, and gelatin. The physical properties were characterized, including thickness, weight variation, moisture content and moisture uptake. Drug content was analyzed through UV spectrophotometry, while in vitro release studies were conducted using Franz diffusion cells. In addition, DSC was applied for optimization.

Results:

5-FU transdermal patch revealed that all the physicochemical parameters were found to be within standards. All the 5-FU transdermal patch maximum release at 12h, the % Cumulative Drug Release was found between 78.40% - 84.22%. The optimized formulation was found to be FU14 having the combination of Sodium alginate, Carrageenan, Gelatin, Glycerol, DMSO and water as which showed 80.25% of Drug Release at 12h. The optimized formulation 5-FU transdermal patch were subjected to short term stability studies and were found stable when stored at 40±2°C/75±5% RH for 45 days according to ICH guidelines.

Conclusion:

These findings suggest that the combination of sodium alginate, carrageenan, and gelatin significantly enhances the release and permeation of 5-Fluorouracil, indicating the potential of this transdermal delivery system for effective skin cancer therapy, warranting further investigation into its clinical applications and stability.

Keywords: 5-Fluorouracil, Skin cancer, Transdermal drug delivery, Solvent casting.

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PT40

Development of Tramadol Hydrochloride microparticles Loaded Topical Gel for Effective Pain Management

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Introduction:

The primary goal of this study was to develop a topical gel containing Tramadol hydrochloride microspheres as the vesicular carrier for site-specific delivery using chitosan as natural biopolymer.

Methods:

Microspheres (MS) of Tramadol Hydrochloride (TM) were prepared by ionic gelation method using sodium-tripolyphosphate (Na-TPP) as cross-linking agent. Chitosan was used as polymer. All formulations were examined for compatibility (FTIR), Scanning Electron Microscopy (SEM), frequency distribution, entrapment efficiency, Differential Scanning Calorimetry (DSC), X-ray Diffractometry (XRD), *in vitro* release and release kinetics studies. Tramadol gel (TG) and Tramadol micro-based gel (TMG) were prepared by dispersing in chitosan gel base using a simple dispersion process. The gels were tested for clarity, pH, drug content, spreadability, viscosity and *in vitro* diffusion.

Results:

FTIR studies indicated no drug-polymer incompatibility. Surface smoothness of MS was increased by increasing the polymer concentration, which was confirmed by SEM. A maximum of 89% of drug entrapment efficiency was obtained by the method employed. All the MS showed initial burst release followed by a Fickian diffusion mechanism. When compared to Tramadol gel (TG) and Micro-based gel (TMG) gels, TMG produced the greatest results.

Conclusion:

In general, these findings conclude that micro-based gel formulation can be successfully used to improve the clinical efficacy of tramadol. Furthermore, the transdermal therapy of tramadol could be more advantageous as it overcomes various issues associated with oral administration including opioid-like effects and first pass metabolism. Incorporation of chemical skin permeation agents may further improve the bioavailability of tramadol from this novel formulation via transdermal route.

Keywords: Tramadol Hydrochloride, Chitosan, Ionic gelation, Microspheres, Topical gel

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PT41

Formulation and Evaluation of Meloxicam Microcapsules for Colon Specific drug delivery

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Introduction:

The main objective of the current study was to formulate and evaluate meloxicam (MLX) loaded microcapsules for colon-specific drug delivery using pH-dependent polymers. The emerging need for developing sustained release NSAIDs to minimize the dosing frequency was the main concern. Consequently, creating an oral sustained release formulation for the treatment of arthritis may be one method to get around this.

Methods:

Eudragit RS/RL-100 polymers were used in emulsion solvent evaporation processes to prepare Meloxicam (MLX) microcapsules. Compatibility tests (FTIR), surface morphology by Scanning Electron Microscopy (SEM), yield, drug content, entrapment efficiency, and in vitro dissolution studies were performed on the produced MLX microcapsules.

Results:

There was no interaction between the polymer and MLX, according to the IR spectra. The microcapsules were spherical in nature, which was confirmed by SEM. The resulting microcapsules ranged in size from 500 to 950 µm. Normal frequency distribution MLX microcapsules were produced. The maximum drug entrapment efficiency of 94% was attained. The in vitro performance of MLX microcapsules demonstrated that the polymer concentration influenced sustained release. Furthermore, it was observed that the amount of polymer utilized regulated the release of the drug.

Conclusion:

Based on the findings, it was concluded that one of the most promising formulation methods for creating colon specific drug delivery systems for the treatment of arthritis is the production of MLX microcapsules.

Keywords: Microcapsules, Emulsion solvent evaporation, Meloxicam, Colon specific, Arthritis.

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PT42

Cubosomes: Nanotechnology's Cutting-Edge Solution For Drug Delivery

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Introduction: Cubosomes are a unique class of nanostructures formed from lipid-based materials that exhibit a cubic phase, making them a promising platform for advanced drug delivery systems. The integration of nanotechnology with cubosomes has led to significant improvements in drug encapsulation, stability, and controlled release. Due to their ability to efficiently encapsulate both hydrophilic and hydrophobic drugs, cubosomes offer enhanced therapeutic potential and reduced side effects compared to conventional drug delivery systems.

Method: Cubosomes can be prepared by several techniques, Including the top-down, bottom-up and all-in method.

Top-Down Method: Larger lipid structures are reduced to nanoscale particles using mechanical energy (e.g., sonication or high-pressure homogenization), leading to cubosome formation.

Bottom-Up Method: Lipids self-assemble into a cubic phase when water is added to a lipid solution, with the drug incorporated during phase formation.

All-In Method: Lipids, aqueous phase, and drug are mixed together in one step, allowing spontaneous self-assembly and efficient encapsulation.

Results: Studies have demonstrated that cubosomes can successfully encapsulate a wide range of therapeutic agents, including anticancer drugs, proteins, and vaccines. These nanostructures exhibit remarkable stability, enhanced bioavailability, and a controlled, sustained release profile. Additionally, cubosomes have shown potential in targeted drug delivery, where they improve the localization of drugs at disease sites, particularly in cancer therapy, leading to reduced toxicity and increased efficacy.

Conclusion: Cubosomes, empowered by nanotechnology, represent a cutting-edge solution in the evolution of drug delivery systems. Their ability to enhance the stability, loading capacity, and controlled release of drugs, alongside their potential for targeted delivery, makes them a promising tool in modern medicine. As research continues to explore their full potential, cubosomes are expected to play a key role in advancing therapeutic strategies, improving patient outcomes, and revolutionizing the future of nanomedicine.

Key Words: Cubosomes, Nanotechnology, Sonication, Drug delivery system

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POSTER PRESENTATION

QUALITY CONTROL AND QUALITY ASSURANCE

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POSTER PRESENTATION

QA01

Impact of Corrective Action & Preventive Action (Capa) In Pharma: A Review

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Introduction:

In the pharmaceutical industry, safety, efficacy, and regulatory compliance are critical for protecting public health. A strong Quality Management System (QMS), with Corrective and Preventive Action (CAPA) at its core, is essential for continuous improvement and regulatory adherence. CAPA enables the identification, correction, and prevention of issues, ensuring customer satisfaction and operational efficiency. This study explores CAPA's role in pharmaceutical quality assurance, drawing insights from regulatory frameworks and case studies.

Methods:

This study combines a review of regulatory CAPA requirements from agencies such as the FDA and EMA with a case study analysis. Real-world CAPA implementations from pharmaceutical companies provide insights into best practices, common challenges, and effective strategies. Comparative analysis of corrective and preventive actions demonstrates how CAPA mitigates current and future risks.

Results:

Findings reveal that CAPA significantly improves compliance, operational efficiency, and product safety. Case studies show CAPA's role in reducing deviation rates and enhancing issue resolution times. Effective CAPA processes decreased quality failures and increased customer satisfaction, while challenges such as resource limitations and training gaps were identified. Emerging trends, like digital tools, are forecasted to enhance CAPA's future efficacy.

Conclusion:

CAPA is fundamental to quality management in pharmaceuticals, ensuring safety, compliance, and efficiency. Addressing implementation challenges and adopting technological advancements can further optimize CAPA's impact on sustainable quality management.

Keywords: CAPA, Quality Management System, regulatory compliance, continuous improvement, operational efficiency.

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POSTER PRESENTATION

QA03

Dual Method Development: UV and HPLC techniques for tacrolimus analysis

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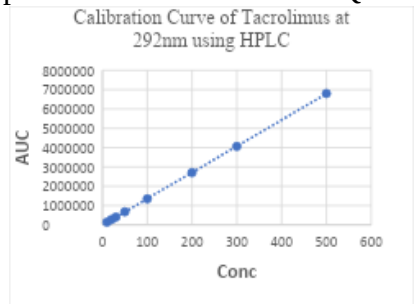
Introduction:

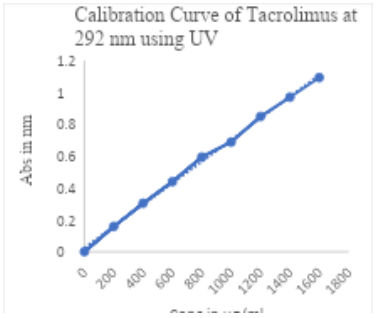
Sophisticated analytical procedures like UV spectroscopy and HPLC are required for precise, accurate, dependable, and repeatable measurements in pharmaceutical formulations. Tacrolimus has a limited capacity to absorb UV light, resulting in poor UV detection at lower concentrations, due to its weak chromophore. Its weak stability and solubility make the formulation criteria strenuous. In this work, a comparative study of HPLC and UV is conducted to guarantee precise quantification, particularly in formulations that call for low drug concentrations.

Methods: UV and HPLC method using ethanol, methanol, and Phosphate buffer pH 7.4.

Results:

Measurements were linear, accurate, and precise using UV and HPLC techniques. A calibration curve with a slope of 0.0007 and R^2 = 0.9981 was plotted for Tacrolimus in ethanol and phosphate buffer pH 7.4 at 292 nm using a UV-visible spectrophotometer and a slope of 13583 and R^2 = 1 in methanol and phosphate buffer pH 7.4 at 292nm using HPLC. % RSD was done in triplicate and was found to be less than 2%, ensuring that the method developed was accurate and precise. The LOD and LOQ were found to be in acceptable limits.





Conclusion:

A validated HPLC and UV methods were developed. From this study, it is concluded that the advanced separation capabilities and sensitive detectors of HPLC provide, superior accuracy and reliability to quantify Tacrolimus at very low concentrations compared to the UV technique.

Keywords: Tacrolimus, Validation, HPLC, UV

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QA04

APPROACHES TO ANALYTICAL METHOD DEVELOPMENT IN PHARMACEUTICAL INDUSTRIES WITH A FOCUS ON HPLC TECHNIQUES

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High-Performance Liquid Chromatography (HPLC) is one of the most widely used and versatile analytical techniques in the pharmaceutical industry for the development and validation of methods to ensure the quality, safety, and efficacy of drug products. Analytical method development using HPLC involves the optimization of chromatographic conditions, such as mobile phase composition, column selection, flow rate, temperature, and detection methods, to achieve the desired separation and sensitivity for specific pharmaceutical compounds. The approach typically begins with a thorough understanding of the physicochemical properties of the drug substance, followed by the selection of appropriate stationary and mobile phases. Method development also involves a series of steps such as method validation, specificity, linearity, accuracy, precision, and robustness testing, in compliance with regulatory requirements like those set by the FDA and ICH. Moreover, modern HPLC techniques, including reverse-phase, ion-exchange, and size-exclusion chromatography, as well as advanced detection systems such as UV-Vis, PDA, RI, ECD, and mass spectrometry (MS), offer enhanced sensitivity and versatility for the analysis of complex formulations. This abstract explores the various approaches in HPLC-based analytical method development, focusing on the optimization strategies, challenges, and technological advancements that contribute to the efficient and accurate assessment of pharmaceutical products, ensuring regulatory compliance and high-quality standards in drug manufacturing.

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QA05

A new validated stability indicating UV spectrophotometric method for simultaneous estimation of Tamsulosin hydrochloride and Tadaladil in oral pharmaceutical dosage form.

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Introduction:

A new sensitive stability indicating UV spectrophotometric method was developed and validated for simultaneous estimation of tamsulosin hydrochloride and tadalafil in the drug substance (API) and pharmaceutical dosage form. ICH recommended stress degradation studies were performed on tamsulosin hydrochloride and tadalafil standard bulk drugs and further stressed samples were analysed by the proposed method.

Methods:

A series of five different working standard solutions in the concentration range of 4,6,8,10 and 12□g/ml for tamsulosin & 10,20,30,40 and 50□g/ml for tadalafil were prepared by using methanol as solvent and capsule formulation solution was prepared to obtain the concentration of 4µg/ml of tamsulosin and 50µg/ml of tadalafil. From the spectral analysis of drugs λ_{max} of 284nm for tadalafil and 225nm for tamsulosin were selected for analysis. Forced degradation studies were performed with 1N HCl, NaOH, hydrolytic, 3% H_2O_2, photolytic and thermal degradation. Optimized method was validated with the help of validation parameters.

Results:

The UV absorbance response for the both drugs were found to be linear in the five different concentrations range for tamsulosin and tadalafil. Precision value below 2% RSD indicating high level of precision. Accuracy was performed by recovery study & were found to be 99.59% and 99.61% for tamsulosin and tadalafil respectively. Major degradations for tamsulosin and tadalafil were observed under acidic, alkali & hydrolytic conditions.

Conclusion:

Newly developed stability indicating UV spectrophotometric method is suitable for quantitative estimation of tamsulosin and tadalafil in oral pharmaceutical dosage form.

Key Words: Tamsulosin hydrochloride, Tadalafil, Method Validation, Forced degradation.

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QA06

Minimizing Errors in Documentation Handling in CROs Using Lean Six Sigma

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Introduction:

Contract Research Organizations (CROs) are integral to clinical trials, where precise documentation is critical for regulatory compliance, patient safety, and operational success. Documentation errors, however persist as a major challenge, impacting timelines, compliance, and costs. Lean Six Sigma, a methodology combining waste reduction (Lean) and process control (Six Sigma), provides a systematic approach to minimize these errors and enhance efficiency.

Methods:

The Lean Six Sigma DMAIC (Define, Measure, Analyse, Improve, Control) framework was applied to evaluate and improve documentation processes in CROs. Cause-and-effect analysis, Pareto charts, and value stream mapping were utilized to identify inefficiencies and prioritize interventions. Key performance indicators (KPIs) were established to monitor improvements in error rates, cycle times, and cost-effectiveness.

Results:

Case studies from analogous industries demonstrated up to a 90% reduction in error rates following Lean Six Sigma interventions. Simulated applications in CRO documentation handling revealed a 30% improvement in cycle time and fewer compliance-related delays. Using Six Sigma's statistical tools for data-driven decision-making ensured sustainable process improvements, yielding measurable gains in quality and operational efficiency.

Conclusion:

Lean Six Sigma offers a robust framework to address documentation errors in CROs, ensuring compliance and efficiency. Its focus on data-driven problem-solving and continuous improvement is aligned with the high standards required in clinical research. Adopting this methodology can result in long-term cost savings, enhanced customer satisfaction, and improved regulatory outcomes.

Keywords: Lean Six Sigma, CRO, Documentation Errors, Process Improvement

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QA07

Development of a Non-Ionic Surfactant and Cholesterol-Based Niosomal Gel Formulation for Topical Delivery of Anti-Acne Drugs

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Introduction:
Adapalene (ADP) is a widely used anti-acne drug characterized by its high lipophilicity and low solubility, which can limit its therapeutic efficacy. Enhancing its skin permeation and retention while reducing irritation is crucial for improving its clinical outcomes. Niosomes, non-ionic surfactant-based vesicles, have emerged as promising carriers for enhancing drug delivery due to their ability to encapsulate both hydrophilic and lipophilic drugs, improve drug stability, and provide controlled release.

Materials and Methods:
ADP-loaded niosomes were prepared using Span 60 and cholesterol via a modified ethanol injection method for ideal entrapment efficiency and particle size. The niosomes, characterized for particle size, zeta potential, and entrapment efficiency, were incorporated into a Carbopol 934 gel base. Evaluations included vitro drug release, ex vivo skin permeation, skin irritation in Wistar rats, and in vivo ADP retention within the stratum corneum.

Result and Discussion:
The optimized ADP niosomes displayed a mean particle size of 278 nm, zeta potential of -17.99 mV, and entrapment efficiency of 86%, indicating stability and efficient drug loading. The niosomal gel provided controlled drug release for 24 hours, outperforming the niosomal suspension. It enhanced ADP penetration and deposition, achieving a 2.5-fold increase in the stratum corneum while significantly reducing skin irritation in Wistar rats, ensuring safety and improved therapeutic performance.

Conclusion:
The ADP niosomal gel offers enhanced therapeutic potential, prolonged release, reduced irritation, and improved compliance, warranting further clinical studies.

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POSTER PRESENTATION

RA01

Revolutionizing Drug Discovery with AI From Target Identification to Post-Marketing Surveillance

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Introduction:

AI is revolutionizing drug discovery by improving efficiency, accuracy, and cost-effectiveness across the development pipeline, from target identification to post-market surveillance. Since its early roots in the 1950s, AI has evolved into a critical tool in pharmaceuticals. Technologies like Machine Learning (ML) and Deep Learning (DL) are enhancing our understanding of disease mechanisms, pharmacokinetics, and clinical trial design.

Methodology:

This review investigates the use of AI in drug discovery by looking at how it functions in four essential stages: Target identification, preclinical development, clinical trials, and post-marketing surveillance. Health Canada, the US FDA, the European Medicines Agency, and other regulatory and ethical agencies are also obtained.

Results:

AI enhances drug discovery by rapidly identifying Target Identification, predicting ADMET properties, and optimizing clinical trial design, leading to increased precision and efficiency and post-marketing surveillance. These advancements help reduce development timelines and improve drug safety and efficacy.

Conclusion:

Drug discovery is being revolutionized by artificial intelligence, which is simplifying procedures from target identification to post-marketing surveillance. Researchers can speed up the process of identifying possible drug targets, improve virtual screening, and improve drug design with previously unheard-of precision by utilizing AI. As AI technology develops further, its contributions to drug discovery are probably going to result in safer and more effective treatments, which will ultimately improve patient outcomes and innovation in the pharmaceutical sector.

Keywords: Artificial Intelligence; Drug Discovery; Target Identification; Pharmaceutical Safety; Regulatory Compliance.

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RA02

Artificial Intelligence Transforming Drug Development from Discovery to Regulatory Approval

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Introduction:

Drug development is expensive and slow, often costing over $2 billion per drug. Artificial intelligence (AI) offers a transformative solution by mimicking human cognitive functions like problem-solving, especially useful with Big Data from health records and screenings. Integrating AI optimizes drug design, computations, and trial forecasts, cutting costs and speeding timelines. This AI-Big Data convergence promises to improve efficiency and success in drug development.

Methodology:

The drug development pipeline uses historical data, expert opinions, and statistical analysis to predict success, with Real-World Data (RWD) now crucial in early stages. Companies like IQVIA leverage RWD to streamline development, while Model-Informed Drug Development (MIDD) assesses risks. AI tools like Machine Learning (ML) and Natural Language Processing (NLP) help predict clinical outcomes. RWD and AI combined can enhance regulatory decisions but need standardization for optimal success.

Results:

AI technologies like Natural Language Processing (NLP), Machine Learning (ML), Deep Learning (DL), and Robotic Process Automation (RPA) improve drug development by processing unstructured data, enhancing predictions, analyzing large datasets, and automating tasks. Together, they increase efficiency and accuracy in drug development and regulatory management.

Conclusion:

AI is revolutionizing drug development and regulatory processes by improving decision-making and data management. Regulatory guidelines are needed to address safety, workflow, and cost concerns. Though AI holds potential for cost and time savings, more research is essential to assess its real-world impact.

Keywords: Real-World Data, Machine Learning, Model-Informed Drug Development, Regulatory Management, Clinical Outcomes

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POSTER PRESENTATION

RA03

Artificial Intelligence in Pharmaceutical Regulatory Affairs

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Introduction:

Artificial intelligence (AI) equips computers to perform tasks traditionally requiring human intelligence, such as learning, decision-making, and pattern recognition. In pharmaceutical regulatory affairs, AI has the potential to streamline complex processes by automating tasks like data extraction, administrative work, and quality management. AI integration can improve efficiency in regulatory submissions and approvals, offering a faster, more reliable path for decision-making and compliance in the pharmaceutical sector.

Methods:

This study reviews AI applications in regulatory affairs, focusing on data processing, dossier preparation, quality management, and regulatory compliance. AI-driven tools such as the electronic Common Technical Document (eCTD) and technologies like machine learning (ML), robotic process automation (RPA), and natural language processing (NLP) were assessed for their capabilities in predictive analytics, workflow automation, and real-time data monitoring. Cross-industry insights and case studies of AI in regulatory frameworks for medical devices and software were also analyzed.

Results:

Results revealed AI's ability to automate repetitive tasks, enhance data accuracy, and reduce errors, leading to faster and cost-effective regulatory processes. Applications like RPA and ML improved dossier management, compliance monitoring, and quality management systems (QMS), offering predictive analytics for risk assessment and proactive problem-solving. Challenges include the need for robust IT infrastructure, skilled professionals, and transparent algorithms to ensure interpretability and regulatory acceptance.

Conclusion:

AI shows transformative potential in regulatory affairs by improving the speed, accuracy, and cost-efficiency of key processes. Integrating AI into dossier preparation, compliance, and QMS can shift regulatory functions from reactive to proactive, with the potential to shorten regulatory timelines and support faster drug development. Successful implementation, however, will require industry-wide infrastructure and expertise upgrades to fully realize these benefits.

Keywords: Artificial intelligence, regulatory compliance, dossier preparation, quality management

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POSTER PRESENTATION

RA04

Exploring Challenges and Opportunities For Improving Phase 2 And Phase 3 Clinical Trials: A Review

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Introduction:
Drug development is a complex, costly process, with clinical trials being a pivotal yet expensive phase. Trials can cost up to $1.89 billion, with high failure rates primarily due to safety, efficacy, and other factors such as poor biomarker selection, suboptimal trial design, patient retention issues, and financial constraints. Decentralized Trials (DCTs) offer a solution by increasing participant enrolment and reducing costs, but face challenges in data integrity and regulatory compliance. Adaptive trials enhance efficiency by allowing real-time protocol modifications. Advances in digital endpoints, predictive biomarkers, and artificial intelligence (AI) are promising tools for improving trial outcomes.

Method:
Several strategies are being investigated to address clinical trial problems like adaptive trials designs, decentralized trials, various trial programs by regulatory authorities and use of AI/ML models that evaluate massive datasets to improve enrolment, improve designs, and forecast results.

Results:
Although there are still issues with data integrity, the integration of DCTs, adaptive trials, and digital endpoints has increased enrolment, speed, and precision in drug development. Studies are now more effective, especially when it comes to uncommon diseases, because to AI/ML's optimization of recruitment, trial designs, and outcome predictions.

Discussion:
Even though trial productivity and cost have significantly improved by advances like DCTs, adaptive trials and AI, issues like data management and regulatory compliance still exist. To overcome these obstacles, more developments in biomarkers, AI, and digital tools are essential. Progress is largely dependent on regulatory program support, particularly for rare disease trials.

Conclusion:
Innovations such as DCTs, adaptive trials, digital endpoints, predictive biomarkers, and AI are transforming clinical trials. While challenges remain, these approaches enhance trial efficiency, reduce costs, and improve the likelihood of successful drug development. Ongoing advancements and regulatory support are crucial for overcoming existing hurdles and achieving more effective outcomes in clinical research.

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RA05

Understanding the Impact of Patient Reported Outcomes on Regulatory Decisions in Clinical Trials

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Introduction:

Patient-reported outcomes (PROs) are revolutionizing clinical trials by prioritizing patient perspectives on treatment effects, quality of life, and symptoms. Regulatory agencies, such as the FDA and EMA, now consider PROs essential for evaluating therapeutic interventions, influencing approximately 30% of drug development decisions. This shift marks a significant move toward patient-centered research, addressing limitations of traditional clinical endpoints.

Methods:

This study reviews the evolution of PRO measures, regulatory guidelines, and the integration of patient perspectives into clinical trials. Key challenges, including data quality, resource requirements, and organizational resistance, were examined alongside strategies for effective implementation. Technological innovations such as electronic PROs (ePROs), digital biomarkers, and artificial intelligence (AI) were analyzed to evaluate their impact on data integrity and operational efficiency.

Results:

Findings highlight the increasing adoption of PROs, with significant contributions to regulatory decision-making and clinical trial design. PRO implementation faces challenges, such as technical barriers and limited resources, mitigated by stakeholder engagement and robust infrastructure. Technological advancements, including ePROs and AI, enhance data quality and streamline processes. Regulatory harmonization efforts are reducing compliance burdens, facilitating global adoption, and improving trial outcomes.

Conclusion:

PROs are critical to modernizing clinical research, offering comprehensive insights into patient experiences and improving regulatory and clinical decision-making. Despite ongoing challenges, strategic planning and emerging technologies hold promise for further integration of PROs into clinical trials. These developments pave the way for more patient-centered, efficient, and standardized drug development practices.

Keywords: Patient-reported outcomes, clinical trials, regulatory decisions, FDA, EMA, data quality, electronic PROs, digital biomarkers, patient-centered research, drug development.

POSTER PRESENTATION

RA06

Regulatory Perspectives in the Development of Paediatric Therapeutics

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Introduction:

The development of paediatric therapeutics presents unique challenges and opportunities significantly, Children often exhibit different pharmacokinetic and pharmacodynamic responses compared to adults, necessitating tailored approaches to drug development. Moreover, the historical lack of research in paediatric populations has resulted in reliance on off-label medications, raising ethical and safety concerns.

Methods:

This analysis involves a qualitative review of existing literature, regulatory guidelines, documents pertaining to paediatric drug development. Key regulatory acts, such as the Best Pharmaceuticals for Children Act (BPCA) and the Paediatric Research Equity Act (PREA) were reviewed to understand the role in enhancing paediatric research and the effectiveness of these regulations was assessed through comparisons of drug approval rates.

Results:

Although the challenges remain, including the underrepresentation of certain paediatric subpopulations, such as neonates and adolescents, in clinical trials. The introduction of paediatric investigation plans as a result of implementing BPCEA and PREA, the percentage of approved drugs with paediatric indications rose from approximately 33% to 70% over a decade. There is an ongoing need for harmonization of regulations between different regions, more robust support for studies targeting rare paediatric diseases. Innovative trial designs and the use of real-world data can also play critical roles in overcoming existing barriers in paediatric drug development.

Conclusion:

The regulatory landscape surrounding paediatric therapeutics is evolving with significant advancements and Continued focus on ethical considerations, and innovative methodologies will be essential to improve drug development processes and enhance treatment options.

Key words: Paediatric therapeutics, regulatory framework, drug development.

RA07

Regulatory Requirements for Recycled Cosmetic

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POSTER PRESENTATION

Packaging Compliance and Sustainable Packaging

Giridhar Kalappa GK1*, Sangita Mishra2, M. P. Venkatesh

Introduction:

The Cosmetic industry is adopting sustainable packaging practices, driven by increased consumer awareness about pertaining environmental issues and regulatory requirements. Such growth in public awareness compels the manufacture to become innovative and to implement the usage of eco-friendly packaging solutions. Involving new biodegradable, recycled materials and refilling containers, help in reducing the environment impact. Manufacturers should take a proactive stance in their efforts in ensuring regulatory compliance. It implies that packaging needs to be scrutinized across the entire product life cycle.

Methods:

Adoption of best practices in waste management and sustainable design shall ensure that packaging meets consume and Regulatory demands for safety and environmental responsibility, besides meeting the regulatory standards. It is through such collaborative efforts of various industry stakeholders' manufacturers, environmental organizations, and regulatory bodies that sustainable packaging solutions can be developed. The incorporation of innovative technologies and materials
is pivotal in improving the quality and safety of recycled materials, thus increasing consumer confidence.

Results:

Regulations and consumer demand are pushing the cosmetics sector to use more environmentally friendly packaging, which is resulting in advancements in recyclable and biodegradable materials. The necessity for international regulatory harmonization and stakeholder cooperation to lessen environmental effect and advance a circular economy is highlighted by this change.

Conclusion:

Cosmetic manufacturers need to consider consumer insights, adopt best practices, and build in sustainability in packaging across the life cycle management. This way, manufacturers can minimize environment Impact and emerge as leaders in Sustainable packaging. In the long term, this responsible Commitment in packaging will work toward creating a healthier planet and help to ensure the durability of the cosmetics segment in an eventually environmentally sensitive marketplace.

Key words: Cosmetic packing, sustainable packaging, product life cycle, life cycle management

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RA08

Navigating Environmental Impact Assessment at CDERr: A Comprehensive View

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Introduction:

The Centre for Drug Evaluation and Research (CDER) of the United States Food and Drug Administration (USFDA) prioritizes the environmental profile of drugs alongside their efficacy and safety to ensure sustainable therapeutics in the United States. Environmental Assessments (EAs), mandated by the National Environmental Policy Act (NEPA) and FDA regulations, evaluate the potential ecological impacts of new drug applications and related actions.

Methods:

CDER's Environmental Assessments focus on various environmental matrices, including terrestrial, aquatic, and gaseous systems. Key components include Persistent, Bio accumulative, and Toxic (PBT) evaluation, identification of active ingredients and metabolites, and ecotoxicity testing to assess impacts on aquatic life. Collaboration with the Environmental Protection Agency (EPA) and other federal bodies ensures accurate predictions using computer models and chemical projection methodologies for evaluating environmental toxicity.

Results:

EPA rules, such as emission limits and threshold concentrations, support Environmental Risk Assessments (ERAs). These tools enhance the precision of impact evaluations, identifying risks to ecosystems and human health. The program highlights the importance of understanding environmental consequences in pharmaceutical activities.

Conclusion:

CDER's comprehensive approach underscores the necessity of integrating environmental protection in drug development. Robust assessments mitigate potential ecological and health risks, promoting sustainable pharmaceutical practices in alignment with environmental laws.

Keywords: Environmental assessments, Ecosystem, Bioaccumulation.

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RA09

Real World Evidence (RWE) in regulatory decision making: Current status and future prospects in the United States and the European Union

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Introduction:

Real-world evidence (RWE) plays a pivotal role in enhancing regulatory decision-making in healthcare. The integration of RWE within regulatory frameworks offers opportunities to optimize clinical research and streamline regulatory approvals. This review focuses on exploring the current state and future directions of RWE in the United States (US) and the European Union (EU). It emphasizes the significance of data infrastructure, methodological advancements, and the collaborative efforts of regulatory agencies to overcome challenges in using RWE for healthcare innovations.

Methods:

A comparative analysis of regulatory documents, guidelines, and literature from the United States Food and Drug Administration (USFDA) and the European Medicines Agency (EMA) was conducted. Key focus areas include evaluating healthcare data infrastructures (e.g., Electronic Health Records (EHRs), registries, and claims databases), methodological development, and capacity-building initiatives. Relevant data on policies and frameworks for RWE integration were analyzed to identify opportunities and challenges.

Results:

The US and EU have established comprehensive guidelines and policies for RWE integration. Key resources, such as advanced pharmacoepidemiology and data science infrastructure, support these efforts. The EU, through initiatives like the European Health Data Space (EHDS), is actively addressing data quality, standardization, privacy, and interoperability. Both regions leverage robust healthcare data infrastructures and have made significant investments in capacity building, transparency, and patient participation. However, challenges such as addressing causality and bias, fostering collaboration, and aligning stakeholder expectations remain prominent.

Conclusion: The US and EU are at the forefront of RWE integration, demonstrating significant progress through robust data infrastructure and methodological expertise. Future efforts must focus on advancing analytical methodologies, ensuring data accessibility, and fostering stakeholder collaboration. By addressing challenges and promoting global collaboration, RWE can significantly contribute to the development and regulation of safe and effective healthcare products.

Keywords: Real-World Data (RWD), Real-World Evidence (RWE), FDA, EMA, Regulatory Compliance, Data Standards.

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POSTER PRESENTATION

RA10

Artificial Intelligence in Medical Devices: Revolutionizing Personalized Healthcare Through Real-Time Recommendations

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Introduction:

In the age of big data, Artificial Intelligence (AI) algorithms have the capability to transform healthcare by improving patient outcomes, lowering costs, and advancing personalized care. Recommender systems (RS), powered by AI, analyses user behaviours to predict and suggest personalized recommendations. In healthcare, AI-based RS reports challenges and making them invaluable for personalized medical applications. However, current methodologies are primarily validated in simulated settings, limiting their real-world applicability.

Methods:

This review systematically examines existing AI-based RS in healthcare, focusing on their methodologies, implementation challenges, and performance evaluation metrics. It explores the application of advanced AI algorithms—and their ability to analyse complex datasets. The review further discusses the integration of RS into clinical decision support systems, ethical considerations, and clinician acceptance.

Results:

AI-based RS demonstrated significant potential in personalized healthcare, improving diagnostic accuracy, patient satisfaction, and treatment outcomes. Notable findings include the ability of DNNs to interpret complex data, active learning's enhancement of recommendation accuracy, and fuzzy logic's handling of user preference uncertainty. Key challenges identified include data privacy concerns, real-world applicability, and the need for standardized protocols.

Conclusion:

The integration of AI algorithms into healthcare RS offers a transformative approach to managing the growing volume of healthcare data. By addressing existing challenges and focusing on real-world implementation, AI-based RS can enhance clinical decision-making and personalized patient care.

Keywords: Artificial Intelligence, Recommender Systems, Personalized Healthcare, Clinical Decision Support, AI Algorithms, Deep Neural Networks, Data Privacy, Evaluation Metrics.

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POSTER PRESENTATION

RA11

Cosmetic Labeling Regulations: Towards A Unified Global Framwork

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Introduction:

The cosmetics industry operates on a global scale, with products crossing international borders daily. However, this global nature is accompanied by a patchwork of regulatory frameworks governing cosmetic labeling, leading to inconsistencies and challenges for manufacturers and consumers alike

Methods:

To investigate regulatory disparities in cosmetic labeling and the path toward global harmonization, an extensive review was conducted to gather current information on the guidelines and regulations in diverse geographical regions, including the US, EU, UAE.

Results:

Examining the implications of inconsistent labeling requirements, such as market barriers, consumer confusion, and compliance burdens. The initiatives and efforts by international organizations to promote global harmonization of cosmetic labeling regulations. By analyzing examples of pharmaceutical products and regulation of countries or regions, it identifies potential pathways and benefits of global harmonization with the help of harmonized mock-label, including facilitating trade, reducing compliance costs, and enhancing consumer safety and confidence.

Conclusion:

Finally, the study outlines the future outlook for achieving greater consistency and collaboration in cosmetic labeling regulation, emphasizing the need for continued dialogue and cooperation among stakeholders.

Keywords: Cosmetic labeling; cosmetic regulation; global harmonization; US; EU; UAE.

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POSTER PRESENTATION

RA12

Use of cosmetics and its adverse effects among adults in India: A cross-sectional study

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Introduction:

The use of cosmetics can significantly improve one's appearance and self-confidence. With such a diversified population, India has recently seen a significant increase in the cosmetics market. However, worries regarding the negative impacts connected with the usage of cosmetics in India have been raised due to the unregulated nature of the business and insufficient consumer awareness. The purpose of this abstract is to give a thorough overview of the harmful impacts of cosmetics in India. The negative consequences of cosmetics on several facets of human health are further explored. Acne, dermatitis, and allergic responses are among the skin-related problems that are frequently reported.

Method:

A cross-sectional study was conducted for six months among the general public living in Bangalore, India. The questions were prepared and distributed among them. They were requested to read the questions thoroughly and then fill it.

Results:

Among the 557 participants the major number of ADR was seen in participants of age group between 18-34 years. The major adverse reaction of cosmetic products recorded was pimple majorly at the face (43.3%). The adverse reaction of skin care reported was 32.9% and ADR of hair care is 23.3% and ADR for makeup is 24.2%. According to the survey taken, 73.8% of people reported mild ADR ,23% were moderate and 3.2% were severe.

Conclusion:

The use of cosmetics can enhance appearance and bring about various beneficial outcomes, but it is important to acknowledge that they can also pose risks to both the skin and overall health. In order to minimize these adverse effects and prioritize consumer welfare within the cosmetic industry, it is vital to gain a thorough understanding of potential hazards, adopt safe practices, and encourage the development of safer cosmetic formulas.

Keywords: cosmetics, adverse effects, cross-sectional study

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POSTER PRESENTATION

RA13

Patient-Centric Regulatory Strategies: Enhancing Drug Approval Processes for Rare Diseases

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Introduction:

Rare diseases, defined by their low prevalence, pose unique challenges in drug development and regulatory approval due to small patient populations, limited clinical data, and high unmet medical needs. Traditional regulatory frameworks often fall short in addressing these challenges, delaying the availability of essential therapies. To explore patient-centric regulatory strategies that enhance the drug approval process for rare diseases, focusing on integrating patient perspectives, leveraging innovative methodologies, and fostering multi-stakeholder collaboration.

Methods:

A comprehensive review of regulatory frameworks, patient-centric initiatives, and adaptive clinical trial designs was conducted. Case studies of successful drug approvals for rare diseases were analysed to identify best practices and opportunities for global harmonization.

Results:

Patient-centric strategies, including the incorporation of real-world evidence, adaptive trial designs, and active patient involvement in decision-making, have demonstrated significant potential in expediting drug approvals. Collaborative approaches among regulatory agencies, industry stakeholders, and patient advocacy groups further enhance the efficiency of these processes.

Conclusions:

Patient-centric regulatory strategies represent a paradigm shift in addressing the unmet needs of rare disease communities. By balancing innovation with scientific rigor, these approaches can accelerate access to life-saving therapies while maintaining safety and efficacy standards. Global harmonization of such strategies is essential to ensure equitable treatment access for rare disease patients worldwide.

Keywords: Rare diseases, patient-centric strategies, regulatory frameworks, drug approval, adaptive trial design.

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POSTER PRESENTATION

RA14

Regulatory Requirements for Medical Devices in India as Per CDSCO Comparison with South Africa

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Introduction:

A medical device (MD) is an instrument, apparatus, implant, in-vitro, reagent or similar or related article that is used to diagnose, prevent, or treat disease or other conditions medical devices have been used to treat and diagnose disease since antiquity. There is evidence of trephination having been performed in Neolithic times and instruments have been excavated in Jericho from 2000BC.

- It does not have its purpose through chemical action within or on the body.
- Medical devices vary greatly in complexity and application and its design constitutes a major segment of the field of biomedical engineering.
- Today devices are widely used in all branches of medicine, surgery and community care.
- Global medical devices market size was valued at USD 62.6 billion in 2021 and is poised to grow from USD 63.4 billion in 2022 to USD 134.56 billion by 2030, growing at a CAGR of 11.35% in the forecast period (2023-2030).

A medical device is defined according to schedule M-III creates a specific definition of medical devices as separate from drugs, unlike a drug, a medical device is defined as a medical tool “which does not have achieve its primary intended action in or on the human body by pharmacological, immunological, or metabolic means”.

Conclusion:

Medical device industry of India is projecting towards an edge of growth. The growth of pharmaceutical, medical tourism and the medical device sector are somewhat correlated. Though, the share of this sector is just 15% in the overall industry but that small contribution is valuable for the growth of whole industry. Understanding the regulatory reforms is imminent in India will be crucial for foreign companies looking to enter or expand the business in India’s medical markets. It is hoped that the guidelines are implemented and regulated properly with effective outcome. This article highlights current regulations pertaining to applications for medical device registration certificates, medical device clinical trials, and medical device manufacturing /importation licenses.

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POSTER PRESENTATION

RA15

Comparative Analysis of Orphan and New Drug Development: Global Regulatory Insights

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Introduction:

Rare diseases affect over 300 million people worldwide, yet only 5% have FDA-approved treatments. Orphan drugs are designed to address this significant unmet need but encounter various economic and clinical challenges. This study presents a comparative analysis of orphan drug approval frameworks across the CDSCO (India), TGA (Australia), EMA (Europe), and FDA (USA), emphasizing the incentives, timelines, and key innovations involved.

Methods:

This study conducted a comparative analysis of drug approval processes across CDSCO (India), TGA (Australia), EMA (Europe), and FDA (USA). Data were extracted from official guidelines, focusing on application processes, timelines, incentives, and innovations. Case studies, including Itolizumab (India), Zolgensma (Australia), Spinraza (Europe), and Kymriah (USA), were analyzed. The study also assessed global harmonization efforts aimed at streamlining orphan drug development.

Results:

The analysis revealed significant variations in timelines for orphan drug approval, ranging from 8 to 12 months, as well as differences in incentives, such as 7 to 10 years of market exclusivity. The success stories of Biocon's Itolizumab (India), Zolgensma (Australia), Spinraza (Europe), and Kymriah (USA) highlight the impact of regulatory incentives. However, challenges remain, particularly in recruiting small patient populations and addressing data scarcity. Innovations like AI-driven trial optimization and global harmonization efforts are emerging as potential solutions.

Conclusion:

The development and approval of orphan drugs are essential to addressing the burden of rare diseases. Regulatory frameworks need to evolve further by leveraging innovations and harmonization efforts to ensure equitable global access. Collaborative initiatives are crucial for overcoming the economic and clinical trial barriers in this area.

Keywords: orphan drugs, rare diseases, regulatory frameworks, incentives, adaptive trials.

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POSTER PRESENTATION

RA16

Navigating Drug withdrawals – A Comparative Study of Standard and Orphan Drug Regulations in India.

Nekkanti Ramya Satya Sri*

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Introduction:

The drug withdrawal process for standard drugs [SD] and orphan drugs [OD] is a critical aspect of pharmaceutical regulation, particularly in India, where the Central Drugs Standard Control Organisation (CDSCO) oversees both standard and orphan drugs. Orphan drugs, defined as those intended to treat conditions affecting fewer than five lakh persons in India, often face unique regulatory challenges compared to standard drugs. Understanding these differences is essential for improving drug safety and patient access.

Methods:

This study conducted a comparative analysis of the drug withdrawal processes for standard and orphan drugs as outlined in the New Drugs and Clinical Trials Rules, 2019. Data were collected from regulatory documents, focusing on the criteria for withdrawal, the responsibilities of the CDSCO, and the reporting requirements for adverse drug reactions. A table was created to summarise the key differences in the withdrawal processes for both drug categories.

Results:

The findings highlight differences in the oversight of clinical trials and market surveillance. For standard drugs, extensive post-marketing data determine withdrawal decisions, while orphan drugs often rely on limited clinical trial data due to small patient populations. Safety concerns were a primary withdrawal trigger in both cases. Orphan drugs demonstrated a higher threshold for regulatory leniency due to unmet medical needs.

Conclusions:

The withdrawal processes for normal and orphan drugs reveals distinct challenges. Enhanced pharmacovigilance for orphan drugs is crucial, given their smaller datasets and reliance on patient-specific needs. Harmonizing withdrawal protocols while addressing the unique nature of orphan drugs can ensure equitable healthcare outcomes.

Keywords: orphan drugs [OD], standard drugs [SD], withdrawal process, India.

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POSTER PRESENTATION

RA17

Navigatig the Ethical and Legal Landscape of AI in Healthcare

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Introduction:

This review's primary goal was to present a thorough summary of the evidence that is now available about Artificial intelligence (AI) technology, taking into account both technological and regulatory factors. The main focus was the categorisation of clinical practice, with the goal of improving comprehension of the various technologies involved as well as the general framework of ethics and legal regulations controlling the use of AI in healthcare. AI has revolutionised the healthcare industry by changing how we identify, treat, and keep track of patients.

Methods:

The literature from a variety of sources, including books, published papers, newsletters, media stories, and electronic or paper-based journal articles, was carefully examined as part of a thorough narrative review. Using terms like "Artificial intelligence," "clinical decision," "ethics," "law," and "regulation," the review required extensive searches in databases like Scopus, ACM Digital Library, and PubMed. The collected data was methodically evaluated for applicability and utilised in the creation of the review.

Results:

AI improves diagnosis, virtual care, treatment adherence, and administrative efficiency and is essential to precision medicine. But there are obstacles to incorporation into clinical practice, including training needs, regulatory permission, and data security issues. Ensuring patient safety, privacy, and ethical considerations while incorporating AI responsibly requires a comprehensive approach encompassing all parties.

Conclusion:

Healthcare workers need education and training to effectively navigate the complexity of artificial intelligence. To stay up with AI's advances in healthcare, ethical and regulatory frameworks must be continuously improved.

Keywords: Artificial intelligence, regulatory factors, clinical practice and regulatory frameworks.

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Inspired by the principles of academic rigor and societal relevance, DSU is committed to advancing knowledge through impactful research and holistic education. The university's partnerships with leading global institutions and industries enable students and faculty to address real-world challenges and contribute to sustainable development.

At the heart of DSU's mission lies a relentless pursuit of innovation and excellence, making it a preferred destination for students and researchers aiming to make a meaningful impact in their fields.

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