INTERNATIONAL CONFERENCE

PHARMA EVOLUTION

NAVIGATING THE NEW ERA OF HEALTHCARE

SOUVENIR

BY

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PUBLISHED BY
PHARMACEUTICAL EDUCATIONAL SOCIETY

INTERNATIONAL CONFERENCE
PHARMA EVOLUTION 2025

Souvenir

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EDITORS:

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DR . SUDEEP SHUKLA

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INTERNATIONAL CONFERENCE

PHARMA EVOLUTION

NAVIGATING THE NEW ERA OF HEALTHCARE

MESSAGE
FROM THE DESK OF CHIEF PATRON
PHARMA EVOLUTION 2025

It is with great pleasure and anticipation that I extend my warmest welcome to all of you for the PHARMA EVOLUTION 2025 on "Navigating the New Era of Healthcare" on 26th April 2025 organized by MAA SHARDA PHARMACY COLLEGE, AYODHYA & Pharmaceutical Educational Society (PESOTS).

In the dynamic landscape of pharmaceuticals, the pursuit of innovation is not merelya goal, but a necessity. Our conference aim to serve as a platform for thought leaders, researchers, academicians, industry experts and practitioners to coverage and exchange ideas and collectively propel the pharmaceutical industry forward. This conference provides a unique opportunity to delve into the latest developments, share insight and explore the various benefits and opportunities that arise from these innovations.

I look forward to enthusiastic participation and success of the PHARMA EVOLUTION 2025, International conference on Digital Transformation in Pharmaceuticals: A New Era

Best Regards

Mr. Indra Pratap Tiwari
Founder Chairman
Maa Sharda Group of Institutions and Hospital

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PHARMA EVOLUTION

NAVIGATING THE NEW ERA OF HEALTHCARE

MESSAGE
FROM THE DESK OF CHIEF PATRON
PHARMA EVOLUTION 2025

I am delighted to share that the Faculty of Pharmacy at MAA SHARDA PHARMACY COLLEGE, AYODHYA, in association with the Pharmaceutical Educational Society (PESOTS), is hosting the International Conference PHARMA EVOLUTION 2025 on the theme "Navigating the New Era of Healthcare," scheduled for 26th April 2025 at MAA SHARDA PHARMACY COLLEGE, AYODHYA.

This conference serves as a remarkable platform for esteemed academicians, researchers, and professionals from the pharmaceutical industry to converge, share insights, and explore the latest developments and challenges in the field. I am confident that the discussions and exchanges during this event will pave the way for meaningful innovations and actionable recommendations that will drive progress in healthcare and pharmaceutical sciences.

My sincere congratulations to the organizers for choosing such a timely and visionary theme. Their commitment to fostering a collaborative environment for knowledge exchange is truly admirable.

Wishing PHARMA EVOLUTION 2025 great success and looking forward to the valuable contributions it will make toward shaping the future of healthcare.

Dr. S C Kulshreshtha
Founder Chairman
Shri Ram Group of Colleges, MZn

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PHARMA EVOLUTION

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MESSAGE
FROM THE DESK OF PATRON
PHARMA EVOLUTION 2025

It gives me great pleasure to acknowledge that the Faculty of Pharmacy, Maa Sharda Pharmacy College, Ayodhya, in association with the Pharmaceutical Educational Society (PESOTS), is organizing the International Conference PHARMA EVOLUTION 2025 on the theme "Navigating the New Era of Healthcare" on 26th April 2025 at Maa Sharda Pharmacy College, Ayodhya.

This significant event offers an exceptional platform for renowned academicians, researchers, and professionals from the pharmaceutical industry to convene, share their expertise, and engage in meaningful dialogue on the latest developments and challenges within the field of pharmaceutical sciences.

I am confident that the knowledge exchanged and the ideas explored during this prestigious conference will inspire innovative strategies and constructive solutions, thereby contributing substantially to the advancement of both healthcare and the pharmaceutical sector.

My heartfelt congratulations to the organizers for selecting such a relevant and forward-looking theme. Their commitment to encouraging collaboration and fostering the spirit of academic and professional exchange is truly admirable. I extend my best wishes for the grand success of PHARMA EVOLUTION 2025 and anticipate the positive and far-reaching impact it will make on the future of healthcare.

Mr. Bhupesh Tiwari
Vice Chairman
Maa Sharda Group of Institutions and Hospital

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NAVIGATING THE NEW ERA OF HEALTHCARE

MESSAGE
FROM THE DESK OF PATRON
PHARMA EVOLUTION 2025

It is with immense pride and great pleasure that I welcome you all to PHARMA EVOLUTION 2025 – International Conference on Navigating the New Era of Healthcare.

This conference marks a pivotal moment in our commitment to advancing pharmaceutical education, research, and innovation. In the face of emerging healthcare challenges, our ability to adapt, collaborate, and embrace new technologies such as artificial intelligence, precision medicine, and digital therapeutics is more vital than ever. This platform brings together brilliant minds to discuss these very themes — and to shape the future of pharmacy with purpose and passion.

As the Director of Maa Sharda Group of Institutions, I am deeply proud that our institute is hosting this prestigious gathering. Our mission has always been to provide a nurturing environment for academic growth and innovation, and this event is a testament to that vision.

I extend my heartfelt gratitude to our visionary leadership and their unwavering support . I also sincerely thank the Organizing Committee, faculty members, and staff for their tireless efforts in planning and executing this event to the highest standard.

A special word of appreciation goes to our students, whose enthusiasm, dedication, and active involvement have added vibrancy and vitality to this conference. You are the true torch bearers of the future of pharmacy.

May this conference inspire meaningful conversations, spark innovative ideas, and lead to collaborative efforts that will have a lasting impact on healthcare.

Dr. Rajesh Shukla
President
Maa Sharda Group of Institutions and Hospital

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PHARMA EVOLUTION

NAVIGATING THE NEW ERA OF HEALTHCARE

MESSAGE
FROM THE DESK OF CHIEF GUEST
PHARMA EVOLUTION 2025

It gives me immense pleasure to acknowledge that the Faculty of Pharmacy, MAA SHARDA PHARMACY COLLEGE, AYODHYA, in collaboration with the Pharmaceutical Educational Society (PESOTS), is organizing the International Conference PHARMA EVOLUTION 2025 on "Navigating the New Era of Healthcare" on 26th April 2025 at the MAA SHARDA PHARMACY COLLEGE, AYODHYA.

This conference presents an excellent opportunity for distinguished academicians, researchers, and industry professionals to come together, exchange knowledge, and engage in insightful discussions on emerging trends and challenges in pharmaceutical sciences. I am confident that the deliberations at this forum will lead to valuable recommendations and innovations that will significantly contribute to the advancement of healthcare and the pharmaceutical industry.

I extend my heartfelt congratulations to the organizers for their dedication in selecting such a vital and forward-looking theme. Their efforts in fostering collaboration and knowledge-sharing among experts are truly commendable.

I wish PHARMA EVOLUTION 2025 great success and look forward to the impactful outcomes it will generate for the future of healthcare.

With best regards,
Prof. (Dr.) Akash Ved
Member, Central Council
Pharmacy Council of India

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MESSAGE
FROM THE DESK OF GUEST OF HONOUR
PHARMA EVOLUTION 2025

I am delighted to acknowledge that the Faculty of Pharmacy, MAA SHARDA PHARMACY COLLEGE, AYODHYA, in collaboration with the Pharmaceutical Educational Society (PESOTS), is hosting the International Conference PHARMA EVOLUTION 2025 on "Navigating the New Era of Healthcare" on 26th April 2025 at the MAA SHARDA PHARMACY COLLEGE, AYODHYA.

This conference serves as a remarkable platform for esteemed academicians, researchers, and industry professionals to come together, exchange knowledge, and engage in thought-provoking discussions on emerging trends and challenges in pharmaceutical sciences. I firmly believe that the insights and deliberations at this prestigious gathering will pave the way for innovative solutions and valuable recommendations, ultimately contributing to the progress of healthcare and the pharmaceutical industry.

I extend my sincere congratulations to the organizers for choosing such a timely and significant theme. Their dedication to fostering collaboration and knowledge-sharing among experts is truly commendable.

I wish PHARMA EVOLUTION 2025 immense success and look forward to the transformative impact it will create for the future of healthcare.

Prof. (Dr.) Ranjit Singh
Advisor, pesots
Shobhit University, Saharanpur

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MESSAGE
FROM THE DESK OF GUEST OF HONOUR
PHARMA EVOLUTION 2025

I am delighted to acknowledge that the Faculty of Pharmacy at Maa Sharda Pharmacy College, Ayodhya, in association with the Pharmaceutical Educational Society (PESOTS), is hosting the International Conference PHARMA EVOLUTION 2025 on the theme "Navigating the New Era of Healthcare", scheduled for 26th April 2025 at Maa Sharda Pharmacy College, Ayodhya.

This esteemed conference offers a remarkable opportunity for renowned academicians, researchers, and industry leaders to come together, share insights, and engage in meaningful dialogues about the dynamic advancements in pharmaceutical sciences. I firmly believe that the exchange of ideas and discussions at this notable event will pave the way for innovative breakthroughs and actionable recommendations, significantly contributing to the progress of the healthcare and pharmaceutical sectors.

I sincerely commend the organizers for choosing such a timely and visionary theme. Their dedication to encouraging collaboration and promoting the sharing of knowledge among professionals is truly praiseworthy.

Wishing PHARMA EVOLUTION 2025 resounding success, and I eagerly anticipate the valuable outcomes it will bring to the healthcare domain.

Dr. Arun Pandey
Cunsulting Director
Ex Sr. Vice President R&D
Alkem Laboratories Ltd.

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MESSAGE
FROM THE DESK OF GUEST OF HONOUR
PHARMA EVOLUTION 2025

Dear Esteemed Participants of PHARMA EVOLUTION,

It is with great pleasure that I extend my warmest greetings to all gathered for this prestigious International Conference. As Pro-Vice Chancellor of Glocal University, Saharanpur, I commend the Pharmaceutical Educational Society (PESOTS) and the Faculty of Pharmacy at MAA SHARDA PHARMACY COLLEGE, AYODHYA for orchestrating this intellectual symphony.

Your presence contributes to the vibrancy of this forum, where ideas converge, innovations are born, and collaborations flourish. May PHARMA EVOLUTION 2025 be a catalyst for transformative breakthroughs in pharmaceutical sciences. Best wishesfor a fruitful exchange of knowledge and an impactful conference.

Warm Regards,

Prof. (Dr.) Satish K. Sharma
President, pesots
Pro Vice Chancellor
Glocal University, Saharanpur

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NAVIGATING THE NEW ERA OF HEALTHCARE

MESSAGE
FROM THE DESK OF GUEST OF HONOUR
PHARMA EVOLUTION 2025

It is with great honour and enthusiasm that I welcome you to the International Conference PHARMA EVOLUTION 2025, themed "Navigating the New Era of Healthcare", to be held on 26th April 2025 at Maa Sharda Pharmacy College, Ayodhya, in collaboration with the Pharmaceutical Educational Society (PESOTS).

This conference aims to serve as a dynamic platform for sharing the latest advancements and insights in the pharmaceutical sector. It presents a valuable opportunity for students, research scholars, and academicians to showcase their innovative ideas and research contributions on a national stage.

We anticipate a vibrant and enriching experience with two engaging sessions, scientific poster presentations, and a meaningful valedictory ceremony. The presence of distinguished speakers and renowned scientists is sure to elevate the event and leave a lasting impact on all participants.

As the Co-convener of this conference, I deeply appreciate the continuous support and dedication of the Organizing Secretary, Coordinators, and Steering Committee members. My heartfelt gratitude goes out to the entire organizing team for their tireless efforts.

We warmly invite and look forward to welcoming you all to Maa Sharda Pharmacy College, Ayodhya, for this remarkable and inspiring academic gathering.

Prof. (Dr) Anup Maiti
Director
Rajarshi Rananjay singh college of Pharmacy, Amethi

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MESSAGE
FROM THE DESK OF GUEST OF HONOUR
PHARMA EVOLUTION 2025

It gives me immense pleasure to acknowledge that the Faculty of Pharmacy, Maa Sharda Pharmacy College, Ayodhya, in collaboration with the Pharmaceutical Educational Society (PESOTS), is organizing the International Conference PHARMA EVOLUTION 2025 on the theme "Navigating the New Era of Healthcare", scheduled to be held on 26th April 2025 at Maa Sharda Pharmacy College, Ayodhya.

It is truly encouraging to see enthusiastic participation from various pharmacy institutions and industry professionals who will be coming together to exchange ideas and address key issues relevant to the evolving pharmaceutical landscape. I am confident that the discussions and deliberations held during the conference will yield insightful recommendations that can contribute meaningfully to the betterment of human health.

I extend my heartfelt appreciation to the organizing team for selecting such a significant and timely theme, and for their dedicated efforts in making this event a reality.

Wishing the international conference PHARMA EVOLUTION 2025 great success and impactful outcomes.

Prof. (Dr.) Alok Mukharjee
Director
United Institute of Pharmacy, Prayagraj

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MESSAGE
FROM THE DESK OF GUEST OF HONOUR
PHARMA EVOLUTION 2025

I am delighted to share that the Faculty of Pharmacy, Maa Sharda Pharmacy College, Ayodhya, in association with the Pharmaceutical Educational Society (PESOTS), is set to host the International Conference PHARMA EVOLUTION 2025 on the theme "Navigating the New Era of Healthcare" on 26th April 2025, at Maa Sharda Pharmacy College, Ayodhya.

It is truly inspiring to witness the active involvement of participants from esteemed pharmacy institutions and industry sectors who will come together to exchange perspectives and engage in discussions on the emerging challenges and opportunities in the pharmaceutical domain. I am optimistic that the dialogue and collaboration during this conference will lead to thoughtful insights and valuable recommendations aimed at enhancing human health and well-being.

My sincere congratulations to the organizing committee for choosing such a pertinent and forward-looking theme, and for their unwavering commitment in bringing this significant event to fruition.

Wishing PHARMA EVOLUTION 2025 a highly successful and enriching experience for all involved.

Prof. (Dr.) Ashutosh Mishra
Principal
A.N.D. College of Pharmacy, Babhnan

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PHARMA EVOLUTION

NAVIGATING THE NEW ERA OF HEALTHCARE

MESSAGE
FROM THE DESK OF GUEST OF HONOUR
PHARMA EVOLUTION 2025

It is with great pleasure that I announce the upcoming International Conference PHARMA EVOLUTION 2025, organized by the Faculty of Pharmacy, Maa Sharda Pharmacy College, Ayodhya, in collaboration with the Pharmaceutical Educational Society (PESOTS). The conference, centered around the theme "Navigating the New Era of Healthcare", will be held on 26th April 2025 at Maa Sharda Pharmacy College, Ayodhya.

The enthusiastic participation of professionals from renowned pharmaceutical institutions and industry leaders is truly commendable. This platform will serve as a valuable space for exchanging ideas, addressing current challenges, and exploring innovations that are shaping the future of the pharmaceutical sector. I am confident that the insights gained and the collaborations formed will make meaningful contributions to improving healthcare outcomes.

I extend my heartfelt congratulations to the organizing team for selecting such a timely and impactful theme, and for their dedicated efforts in orchestrating this important academic gathering.

May PHARMA EVOLUTION 2025 be a resounding success and a source of inspiration and knowledge for all attendees.

Prof. (Dr.) Mahesh Prasha
Principal (Pharmacy)
KNIT Sultanpur

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PHARMA EVOLUTION

NAVIGATING THE NEW ERA OF HEALTHCARE

MESSAGE
FROM THE DESK OF GUEST OF HONOUR
PHARMA EVOLUTION 2025

It is a matter of great pride to acknowledge that the Faculty of Pharmacy, Maa Sharda Pharmacy College, Ayodhya, in association with the Pharmaceutical Educational Society (PESOTS), is set to organize the International Conference PHARMA EVOLUTION 2025 on the theme "Navigating the New Era of Healthcare", scheduled for 26th April 2025 at Maa Sharda Pharmacy College, Ayodhya.

This distinguished conference will serve as an excellent forum for eminent academicians, researchers, and industry experts to come together, share their perspectives, and engage in thoughtful discussions on the dynamic developments shaping the pharmaceutical sciences. I am confident that the knowledge and insights exchanged during this event will spark impactful innovations and generate valuable recommendations that will advance healthcare and pharmaceutical practices.

I sincerely commend the organizers for choosing such a visionary and pertinent theme. Their dedication to encouraging intellectual collaboration and facilitating the exchange of expertise is truly admirable.

Wishing PHARMA EVOLUTION 2025 immense success and looking forward to the meaningful outcomes it will contribute to the global healthcare landscape.

Prof. (Dr.) Pawan Gautam
Principal (Pharmacy)
BRD Medical College, Gorakhpur

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PHARMA EVOLUTION

NAVIGATING THE NEW ERA OF HEALTHCARE

MESSAGE
FROM THE DESK OF GUEST OF HONOUR
PHARMA EVOLUTION 2025

It is with great enthusiasm and excitement that I extend a heartfelt welcome to all attendees of PHARMA EVOLUTION 2025, themed "Navigating the New Era of Healthcare", scheduled for 26th April 2025, organized by Maa Sharda Pharmacy College, Ayodhya, in collaboration with the Pharmaceutical Educational Society (PESOTS).

In today's rapidly evolving pharmaceutical landscape, the drive for innovation is not just an aspiration but an essential need. This conference aims to provide a platform where thought leaders, researchers, educators, industry experts, and professionals can come together to share knowledge, exchange ideas, and collaboratively advance the field of pharmaceuticals. It presents a rare opportunity to explore cutting-edge developments, gain valuable insights, and examine the potential opportunities and benefits stemming from these innovations.

I eagerly anticipate the active participation and success of PHARMA EVOLUTION 2025, and look forward to the insightful discussions and discoveries that will shape the future of the pharmaceutical industry.

Prof. (Dr.) K. Prabhu
Director
NNM College of Pharmacy, Gonda

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MESSAGE
FROM THE DESK OF ORGANISING CHAIRMAN
PHARMA EVOLUTION 2025

From my side : It is a moment of great honor and excitement to be part of PHARMA EVOLUTION 2025, an international conference that truly reflects the transformative spirit of our time. As we stand at the intersection of tradition and technology, the field of pharmaceutical sciences is undergoing a remarkable evolution — driven by innovation, entrepreneurship, and interdisciplinary synergy.

We are at the threshold of a new age in pharmaceutical sciences — an era defined by disruptive innovation, rapid technological advancement, and a growing ecosystem of visionary startups. The boundaries of what is possible are being reimagined every day. Artificial Intelligence (AI) and Machine Learning (ML) are no longer auxiliary tools; they are becoming central pillars in drug discovery, clinical research, and healthcare analytics. These technologies are helping us design smarter molecules, predict treatment outcomes with greater accuracy, and reduce the time from concept to cure.

Simultaneously, developments in stem cell research, genetic cloning, personalized medicine, and bioprinting are turning what were once futuristic concepts into tangible therapies — transforming lives and redefining the scope of modern medicine. The convergence of biology and digital science is not only reshaping how we treat diseases but also how we prevent them, monitor them, and engage with patients.

As we embrace these transformative advancements, it is equally important to ensure that our progress aligns with the broader goal of sustainability and ethical responsibility. The principles of green chemistry must be woven into the foundation of pharmaceutical development — promoting safer processes, reducing environmental impact, and fostering long-term health benefits for both people and the planet.

This conference is more than just an academic gathering — it is a platform for ideation, a launchpad for innovation, and a collective effort to tackle both opportunity and urgency. I encourage all participants to engage deeply, share boldly, and collaborate widely. Let this event spark transformative ideas, foster entrepreneurial spirit, and pave the way for impactful research and inclusive growth.

My heartfelt thanks to the organizing committee, our dedicated student volunteers, and the leadership of Maa Sharda Group of Institutions for their vision and commitment. Your tireless efforts have made this event a vibrant and meaningful space for dialogue and discovery.

Let us move forward together — with curiosity, courage, and commitment — to shape a healthier, smarter, and more sustainable future for all.

Dr . Sudeep Shukla
Secretary
Maa Sharda Group of Institutions Ayodhya

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MESSAGE
FROM THE DESK OF ORGANISING CHAIRMAN
PHARMA EVOLUTION 2025

Dear Esteemed Participants, Organizers, and Guests of PHARMA EVOLUTION 2025,

It is with great pleasure and enthusiasm that I extend my warmest greetings to all of you gathered for the International Conference PHARMA EVOLUTION 2025, organized by the Pharmaceutical Educational Society (PESOTS) and the MAA SHARDA PHARMACY COLLEGE, AYODHYA

This conference serves as a beacon for the exchange of knowledge, ideas, and advancements in the dynamic field of pharmaceuticals. The collaborative efforts put forth by PESOTS and Faculty of Pharmacy at Maa Sharda Pharmacy College to bring together experts, researchers, and professionals from across the globe is commendable. In the realm of pharmaceuticals, conferences like PHARMA EVOLUTION 2025 provide a platform for interdisciplinary discussions, fostering innovation and paving the way for groundbreaking discoveries. As we navigate the frontiers of science and healthcare, it is imperative that we share our experiences, challenges, and triumphs to collectively propel the industry forward.

I am confident that the diverse range of topics and the caliber of speakers at PHARMA EVOLUTION 2025 will contribute significantly to the growth and development of pharmaceutical sciences.

I extend my best wishes for a fruitful and inspiring conference. May PHARMA EVOLUTION 2025 be a melting pot of ideas, a catalyst for innovation, and a testament to the collective pursuit of excellence in pharmaceutical sciences.

Warm regards,

Prof. (Dr.) Girendra K. Gautam
Founder General Secretary, pesots
Director, SRCP Mzn

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PHARMA EVOLUTION

NAVIGATING THE NEW ERA OF HEALTHCARE

MESSAGE
FROM THE DESK OF CONVENOR
PHARMA EVOLUTION 2025

I am pleased to recognize that the Faculty of Pharmacy, MAA SHARDA PHARMACY COLLEGE, AYODHYA, in collaboration with the Pharmaceutical Educational Society (PESOTS), is organizing the International Conference PHARMA EVOLUTION 2025 on "Navigating the New Era of Healthcare" on 26th April 2025 at the MAA SHARDA PHARMACY COLLEGE, AYODHYA.

This conference provides an outstanding platform for distinguished academicians, researchers, and industry professionals to connect, exchange ideas, and engage in insightful discussions on the evolving landscape of pharmaceutical sciences. I am confident that the knowledge shared and deliberations held at this prestigious event will lead to groundbreaking innovations and meaningful recommendations, ultimately driving advancements in healthcare and the pharmaceutical sector.

I extend my heartfelt congratulations to the organizers for selecting such a relevant and forward-thinking theme. Their commitment to fostering collaboration and promoting knowledge exchange among experts is truly commendable.

I wish PHARMA EVOLUTION 2025 great success and look forward to the significant contributions it will make to the future of healthcare.

Dr. Jitendra Kumar
Head
Maa Sharda Pharmacy College Ayodhya

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NAVIGATING THE NEW ERA OF HEALTHCARE

MESSAGE
FROM THE DESK OF ORGANISING SECRETARY
PHARMA EVOLUTION 2025

I'm delighted to share that the Faculty of Pharmacy at Maa Sharda Pharmacy College, Ayodhya, in association with PESOTS, is hosting the International Conference PHARMA EVOLUTION 2025 on April 26, focused on "Navigating the New Era of Healthcare."

This event offers a valuable platform for academicians, researchers, and industry experts to exchange ideas and explore emerging trends in pharmaceutical sciences. I'm confident it will inspire impactful innovations and progress in healthcare.

Congratulations to the organizers for choosing such a timely and meaningful theme. Wishing PHARMA EVOLUTION 2025 great success and lasting impact!

Dr. Sandeep Jain
Principal
Maa Sharda Nursing and Paramedical College Ayodhya

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NAVIGATING THE NEW ERA OF HEALTHCARE

MESSAGE
FROM THE DESK OF ORGANISING SECRETARY
PHARMA EVOLUTION 2025

Excited to share that Maa Sharda Pharmacy College, Ayodhya, in collaboration with PESOTS, is hosting PHARMA EVOLUTION 2025—an international conference on April 26 focused on "Navigating the New Era of Healthcare."

A great opportunity for scholars, researchers, and professionals to explore new trends and innovations in pharma. Kudos to the organizers for such a relevant theme. Wishing the event huge success!

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Dr. Avinash Joriya
Founder & CEO Edupharmaexpert
Associate Professor, Maa Sharda Pharmacy College Ayodhya

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EMINENT SPEAKERS

SATYA SURESH
Chief of Staff
Strategy Lead for Europe
Biocon Biologics, Europe

MRS. NITHA VAYOTH
Pharmacy and Pharmacovigilance Professional
MHlthLd, University of Auckland, New Zealand

DR. P. RAMALINGAM
Associate Professor & Dean(i/c)
Dept. of Pharmaceutical Analysis, NIPER Hajipur

PROF. VIVEK DAVE
Head
Department of PharmacySchool of Health Science, Central University of South Bihar, Gaya

DR. ANSHUL SHAKYA
Assistant Professor
Department of Pharmaceutical Sciences
Dibrugarh University, Dibrugarh, Assam

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Abstract

International Conference, PHARMA EVOLUTION 2025 organized by Pharmaceutical Educational Society – pesots and Maa Sharda Pharmacy College Ayodhya, U.P.on 26April 2025.

S.N.	ABSTRACT ID	NAME OF AUTHOR	ABSTRACT TITLE
1	ICPEP001	AVINASH JORIYA	EXPLORING THE ANTIBIOTIC RESISTANCE IN PHARMACEUTICAL WASTEWATER AND THEIR BIO-MITIGATION: A KINETIC APPROACH
2	ICPEP002	DIVYA PANDEY	TARGETING CANCER STEM CELLS WITH PERSONALIZED MEDICINE: A NOVEL APPROACH TO CANCER THERAPY
3	ICPEP003	SHALINI YADAV	1. CURRENT STATUS OF DIABETES MANAGEMENT AND CARE IN INDIA: GAPS, CHALLENGES, AND OPPORTUNITIES
4	ICPEP004	ANKUR DUBEY	TARGETED DRUG DELIVERY SYSTEMS: DESIGN, DEVELOPMENT, AND EVALUATION OF NOVEL NANOCARRIERS
5	ICPEP005	GARIMA	HYPERTENSION-MANAGEMENT AND TREATMENT: A REVIEW OF NEW APPROACHES
6	ICPEP006	SHALINI YADAV	THERAPEUTIC POTENTIAL OF *CHRYSANTHEMUM INDICUM* IN HUMAN MEDICINE: A REVIEW OF ITS MEDICINAL PROPERTIES AND APPLICATIONS
7	ICPEP007	PRIYA TIWARI	ROUTE OF ADMINISTRATION :A REVIEW OF CURRENT TRENDS AND FUTURE DIRECTION
8	ICPEP008	VAIBHAV SINGH	CHRONIC KIDNEY DISEASE: A COMPREHENSIVE REVIEW
9	ICPEP009	KM SNEHA PANDEY	TELMISARTAN DRUG: A REVIEW OF TELMISARTAN DRUG IN THE TREATMENT OF HYPERTENSION (HIGH BLOOD PRESSURE)
10	ICPEP010	HIMANSHU DUBEY	FROM TRADITIONAL REMEDIES TO AI-DRIVEN THERAPIES: THE EVOLUTION OF PHARMACEUTICAL SCIENCES
11	ICPEP011	ANJALI YADAV	1. TRANSDERMAL DRUG DELIVERY SYSTEM: AN OVERVIEW, 2. THE IMPACT OF COMPLEX ION ON BIOLOGICAL SYSTEM: A REVIEW OF THERAPEUTIC AND TOXIC EFFECTS
12	ICPEP012	RAJENDRA YADAV	UNDERSTANDING EASTERN BLACK NIGHTSHADE: A COMPREHENSIVE GUIDE FOR PEOPLE
13	ICPEP013	RAJANI PANDEY	A REVIEW OF ELECTROCARDIOGRAM

14	ICPEP014	RAJENDRA MISHRA	PREPARTION AND EVALUATION OF HERBAL SHAMPOO
15	ICPEP015	SHUBHAM SINGH	MULTICOMPONENT REACTION- ASSISTED DRUG DISCOVERY
16	ICPEP016	SURJEET KUMAR	A REVIEW ON GASTRO-RETENTIVE DRUG DELIVERY SYSTEM (GRDDS)
17	ICPEP017	PAWAN KUMAR	ACUPRESSURE POINTS: CURRENT TRENDS AND FUTURE PROSPECTS
18	ICPEP018	ADITYA PRAKASH YADAV	DESIGN AND DEVELOPMENT OF DICLOFENAC-RANITIDINE SOLID DISPERSION BY USING CO-PROCESSED SUPERDISINTEGRANTS TO FORMULATE FAST DISSOLVING TABLETS
19	ICPEP019	AMAN VISHWAKARMA	PHARMACOLOGICAL PROFILE OF THUJA ORIENTALIS LINN
20	ICPEP020	NAGENDRA KUMAR PAL	FORMULATION AND EVALUATION OF AZITHROMYCIN-LOADED LIPOSOMES FOR TOPICAL DELIVERY"
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ICPEP001

EXPLORING THE ANTIBIOTIC RESISTANCE IN PHARMACEUTICAL WASTEWATER AND THEIR BIO-MITIGATION: A KINETIC APPROACH

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Abstract:

This study explores antibiotic resistance in pharmaceutical wastewater, their bio-mitigation for hospital wastewater pollutants, and their metabolite removal. During this study, microorganisms (Bacillus subtilis) were isolated from the contaminated sites. In continuation, the toxicity experiments were conducted for the Lettuce seeds (Lactuca sativa var. Buttercrunch; lot no. PTXT13413) and stored in the dark at 4 °C. The biodegradation of hospital-based wastewater was primarily significant during the batch studies followed by the growth kinetics of the Monod model. All the samples were renewed every 7 days to avoid photodegradation at 4^0C in dark places. Hence, this proposed work will help to know the nature and characteristics of the pharmaceutical pollutants (antibiotics, organic compounds) as well as pathogenic microbes in the pharmaceutical wastewater.

Keywords: Antibiotic Resistance; Bio-mitigation; Photodegradation; Growth Kinetics

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ICPEP002

TARGETING CANCER STEM CELLS WITH PERSONALIZED MEDICINE: A NOVEL APPROACH TO CANCER THERAPY

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Abstract:

Cancer stem cells (CSCs) are a subpopulation of cancer cells responsible for tumour initiation, progression, and recurrence. However, advancements in cancer therapy, CSCs remain a significant challenging, often evading conventional treatments. This study explores the potential of personalized medicine in targeting CSCs, offering a novel approach to cancer therapy. By integrating genomic, transcriptomic, and proteomic data, we identified specific

molecular signatures associated with CSCs in various cancer types. Personalized treatment plans, incorporating targeted therapies and immunotherapies, were developed and tested in vitro and in vivo. Our results demonstrate significant reductions in tumour growth and highlighting the efficacy of personalized medicine in targeting CSCs. This study provides a foundation for the development of novel, precision-based cancer therapies, offering new hope for patients with refractory or recurrent cancers.

Keywords: Cancer stem cells, Personalized medicine, Targeted therapies, Immunotherapies, Precision cancer therapy.

ICPEP003

CURRENT STATUS OF DIABETES MANAGEMENT AND CARE IN INDIA: GAPS, CHALLENGES, AND OPPORTUNITIES

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Abstract:

India is home to over 77 million individuals with diabetes, accounting for approximately 15% of the global diabetic population. Despite significant advancements in diabetes management and care, India still faces numerous challenges in providing optimal care to its diabetic population. This review aims to provide a comprehensive overview of the current status of diabetes management and care in India, highlighting existing gaps, challenges, and opportunities. Our analysis reveals significant disparities in healthcare access, affordability, and quality, particularly in rural and resource-poor settings. Additionally, we identify gaps in diabetes education, self-management, and complications prevention. However, we also highlight opportunities for improvement, including the integration of digital health technologies, strengthening of primary care services, and development of context-specific guidelines and policies. Addressing these gaps and challenges is crucial to improving diabetes outcomes and reducing the burden of diabetes in India.

Keywords: Diabetes management, Healthcare disparities, Diabetes education, Digital health technologies.

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ICPEP004

TARGETED DRUG DELIVERY SYSTEMS: DESIGN, DEVELOPMENT, AND EVALUATION OF NOVEL NANOCARRIERS

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Abstract:

Targeted drug delivery systems have revolutionized the field of pharmacology by enabling precise and efficient delivery of therapeutic agents to specific sites within the body. This study focuses on the design, development, and evaluation of novel nanocarriers for targeted drug delivery. Our research team has synthesized and characterized a series of polymeric nanoparticles with tailored surface properties and architectures. These nanocarriers were engineered to target specific cancer cells and deliver chemotherapeutic agents, resulting in enhanced antitumor efficacy and reduced systemic toxicity. In vitro and in vivo studies demonstrated the superior performance of our novel nanocarriers compared to conventional delivery systems. This research has significant implications for the development of personalized medicine and targeted cancer therapies**.**

Keywords: Targeted drug delivery, Nanocarriers, Cancer therapy, Polymeric nanoparticles Personalized medicine.

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ICPEP005
HYPERTENSION-MANAGEMENT AND TREATMENT: A REVIEW OF NEW APPROACHES

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Abstract:

Hypertension is an ordinary highly flexible but improvable health issue that usually causes cardiovascular disease. The hypertension risk is growing continuously worldwide. Drugs that reduce Blood pressure (antihypertensive drugs) decrease target organ damage, cardiovascular disease, peripheral vascular disease. In spite of the presence of a large number of antihypertensive drugs, the hypertension is continuously and uncontrollably increasing in people due to environmental, genetic, and socioeconomic factors. The necessity to control BP and related complications in public could be handled by developing new drugs, procedure,

therapy and devices. There, many researches are ongoing on the class of new drugs and their receptors (like- vasodilators, aldosterone receptors, adrenergic receptors, dopamine β hydroxylase, intestinal Na+/H+ exchanger, plasma kinins, angiotensin hormones etc), that are in their preclinical and clinical trial phases. Renal denervation therapy is a minimally invasive procedure targeting nerve in the renal arteries to treat various comorbidities. These novel interventional approaches in early development for treating conditions like hypertension, include interventions targeting the carotid body and creating artificial connections between arteries and veins. But there is no drug or device that prevents cardiovascular disease and death of severe hypertensive patients.

Key words: Hypertension, Cardiovascular disease, Antihypertensive drugs, Comorbidities, Intervention, Renal denervation.

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ICPEP006

THERAPEUTIC POTENTIAL OF CHRYSANTHEMUM INDICUM IN HUMAN MEDICINE: A REVIEW OF ITS MEDICINAL PROPERTIES AND APPLICATIONS

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Abstract:

Chrysanthemum indicum (Guldaudi), a widely cultivated flowering plant, has been traditionally used in herbal medicine across various cultures, particularly in China, Japan, and Korea. Rich in bioactive compounds such as flavonoids, phenolics, and essential oils, Chrysanthemum exhibits diverse pharmacological properties, including anti-inflammatory, antioxidant, antimicrobial, and neuroprotective effects. Understanding its medicinal potential is essential for integrating it into modern therapeutic applications. This review aims to explore the medicinal properties of Chrysanthemum, highlighting its pharmacological activities, therapeutic applications, and potential role in human health. The study specifically focuses on its efficacy in treating inflammatory diseases, metabolic disorders, cardiovascular conditions, and neurological ailments. A systematic literature review was conducted using scientific databases such as PubMed, Scopus, and Google Scholar. Research articles, clinical studies, and traditional medicine texts published between 2000 and 2024 were analysed to assess the pharmacological effects of Chrysanthemum. The key bioactive compounds and their mechanisms of action were evaluated to determine their relevance in modern medicine. The analysis revealed that Chrysanthemum extracts possess significant anti-inflammatory and antioxidant properties, contributing to their effectiveness in treating chronic diseases such as diabetes, hypertension, and neurodegenerative disorders. The flavonoids and phenolic

compounds in Chrysanthemum have been found to inhibit oxidative stress and modulate immune responses, potentially reducing the risk of cardiovascular diseases. Additionally, its antimicrobial activity suggests applications in infection control. The plant also exhibits neuroprotective effects, with studies indicating its potential in managing cognitive decline and Alzheimer's disease. Despite these benefits, further clinical research is needed to validate its efficacy and safety in human populations. Chrysanthemum holds promising therapeutic potential in human medicine, offering natural treatment alternatives for various chronic diseases. While traditional usage supports its medicinal value, scientific validation through clinical trials is necessary for its integration into mainstream healthcare. Future research should focus on standardized formulations, dosage optimization, and potential drug interactions to ensure safe and effective applications.

Keywords: Chrysanthemumindicum, herbal medicine, anti-inflammatory, antioxidant, neuroprotection, cardiovascular health, traditional medicine.

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ICPEP007

ROUTE OF ADMINISTRATION :A REVIEW OF CURRENT TRENDS AND FUTURE DIRECTION

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Abstract:

Route of administration is the way by which drug can be given into the body intravenous route intramuscular route subcutaneous route etc. All administration should be present with understanding of the chemical and physical quality of the material. The drug product and composition need to find not met medical needs of patients. The use of drug effect for different route of administration or the use of drug device mixture product present an chance to enable a product in situation. Where there is important oral task such as large abdominal metabolism low oral bioavailability minimal oral pk local gastrointestinal toxicity. There has been a stable current over the past ten years in which self-administration has suit more and more universal in patients. While it live in a small form based today stand as the insurrection of the future full of promise immense influence society. In modern day medicine nanotechnology and some of the necessary instrument in disease monitoring and therapy. The term nanoparticles explain material with nanoscale magnitude (<100 nm) and largely classified into natural and synthetic nanomaterial .the parenteral route of administration is the highly powerful route for the transport of the active pharmaceutical material with slim therapeutic index poor bioavailability mainly for those drugs written to unconscious patient. The are most future direction that Wark on the route of administration by working on the novel drug delivery system as controlled release drug delivery system. Sustained and targeted

related drug delivery system nanoparticles liposomes and neosomes. They would beneficial to the patient it may increase the administration efficiency.

Keywords: Bioavailability, nanoparticles, liposomes, neosomes,metabolism, nanotechnology.

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ICPEP008

CHRONIC KIDNEY DISEASE: A COMPREHENSIVE REVIEW

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Abstract:

Chronic Kidney Disease (CKD) is a progressive condition marked by the gradual loss of kidney function over time. The disease is a growing global health burden, affecting millions of individuals, particularly in aging populations. Diabetes, hypertension, obesity, and cardiovascular diseases are the leading causes of CKD in developed nations, while infectious diseases and environmental toxins contribute significantly in developing countries. CKD is classified into five stages based on glomerular filtration rate (GFR), with the final stage requiring dialysis or kidney transplantation. This paper provides an in-depth review of CKD, covering its definition, classification, causes, prevalence, complications, and treatment strategies. Early screening, lifestyle modifications, and pharmacological interventions are essential in slowing disease progression and improving patient outcomes.

Keywords: Chronic Kidney Disease (CKD), Diabetes, hypertension, obesity, and cardiovascular diseases.

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ICPEP009

TELMISARTAN DRUG: A REVIEW OF TELMISARTAN DRUG IN THE TREATMENT OF HYPERTENSION (HIGH BLOOD PRESSURE)

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Abstract:

Telmisartan drug brand name "Nicardis®,Pritor®" is a highly selective angiotensin 2nd type1 receptor antagonist, approved for the treatment of hypertension. Telmisartan is a potent long-

lasting non peptide antagonist. High blood pressure increases the workload on the heart and arteries. If left untreated for a long time, it can lead to impaired heart and arterial function, causing damage to blood vessels in the brain, heart and kidney, potentially resulting in stroke, heart failure, or kidney failure. In addition to treating hypertension, Telmisartan is also used to lower the risk of heart attack and stroke in patients aged 55 years and older. As an angiotensin receptor blocker, telmisartan works by blocking the action of angiotensin 2nd, a substance in the body that cause blood vessels to tighten. This leads to relaxation of the blood vessels, thereby increasing blood flow and oxygen supply to the heart. Telmisartan has a long elimination half-life of approximately 24 hours, allowing for once daily dosing. Independent of its blood pressure lowering effects, Telmisartan exhibits favourable effects on insulin resistance, lipid profiles, left ventricular hypertrophy, and renal function. It's very high lipophilicity -a unique feature of Telmisartan -combined with a high volume of distribution, allows for excellent tissue penetration, providing clinically significant advantages. When compared to the ACE inhibitor "Ramipril", Angiotensin receptor blocker "Telmisartan" and the combination of both drugs have been studied in patients with vascular disease or high-risk diabetes, showing potential benefits on improving cardiovascular outcomes.

Keywords: Hypertension, Blood Pressure, Diabetes, Angiotensin receptor blocker.

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ICPEP010

FROM TRADITIONAL REMEDIES TO AI-DRIVEN THERAPIES: THE EVOLUTION OF PHARMACEUTICAL SCIENCES

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Abstract:

The pharmaceutical industry has seen a remarkable transformation—from the days of ancient herbal remedies to the cutting-edge world of AI-powered drug discovery. This poster takes a closer look at significant milestones, tracing the journey from Ayurveda and Unani practices to advancements in synthetic biology and personalized medicine. It shines a light on groundbreaking technologies like AI-driven drug design, **CRISPR gene editing,** and nanotechnology, showcasing how they enhance efficiency and improve patient care. The discussion also tackles regulatory hurdles and highlights India's emerging status as the "Pharmacy of the World," known for its affordable generics and innovative vaccines like Covaxin. For future pharmacists, grasping this evolution is essential for merging traditional wisdom with the latest scientific

advancements. The poster wraps up by exploring exciting trends such as sustainable pharmaceuticals and digital therapeutics.

Key words:-CRISPR gene editing, Traditional Remedies, AI-Driven Therapies, AI Future Trends

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ICPEP011

TRANSDERMAL DRUG DELIVERY SYSTEM: AN OVERVIEW

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Abstract:

Transdermal drug delivery system (TDDS) is one of the systems lying under the category of controlled drug delivery, in which the aim is to deliver the drug through the skin in a predetermined and controlled rate. It has various advantages, like prolonged therapeutic effect, reduced side-effects, improved bioavailability, better patient compliance and easy termination of drug therapy. The stratum corneum is considered as the rate limiting barrier in transdermal permeation of most molecules. There are three main routes of drug penetration, which include the appendageal, transcellular and intercellular routes. Skin age, condition, physicochemical factors and environmental factors are some factors that are to be considered while delivering drug through this route. Basic components of TDDS include polymer matrix, membrane, drug, penetration enhancers, pressure-sensitive adhesives, backing laminates, release liner, etc. Transdermal patches can be divided into various systems like reservoir system, matrix system and micro-reservoir system, which are used to incorporate the active ingredients into the circulatory system via the skin . Design and strategies for transdermal vaccine delivery. After preparation of transdermal patches, consistent methodology is adopted to test the adhesion properties, physicochemical properties, skin irritation studies and stability studies. According to the duration of therapy, various drugs are commercially available in the form of transdermal patches.

Key words:-TDDS, stratum corneum, matrix system, micro reservoir system, topical drug delivery system.

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ICPEP012

UNDERSTANDING EASTERN BLACK NIGHTSHADE: A COMPREHENSIVE GUIDE FOR PEOPLE

Rajendra Yadav[1], Rajneesh Prajapati[1],Jitendra Kumar[1*], Avinash Joriya[1*]
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Abstract:
Black nightshade (Solanum nigrum)is a complex plant. It is very important for humans to be well aware of the direct impact of this plant. Black nightshade (Solanum nigrum) is a plant that belongs to the Solanaceae family. This plant is found all over the world and has many uses. Like Anti-inflammatory, Anti-microbial & Anti-fungal and Hepatoprotective, Black nightshade is an annual plant which can grow up to 30-60 cm long. Its leaves are simple, elliptical and 4-8 cm long. Its flowers are small, green and 5-10 mm in diameter. Its fruit is small,While it has been used in traditional medicine for centuries, its toxicity and potential health risks have also been well-documented.chemical composition, medicinal uses, toxicity, and potential health benefits. Solanine and glycoalkaloids, present in Black nightshade, can be toxic, particularly in high doses.Interference with Pregnancy Hormones The plant contains compounds that could interfere with hormonal balance, potentially affecting the pregnancy. Black nightshade may pose risks to the proper development of the fetus, especially in the early stages of pregnancy.

Keywords: Eastern Black Nightshade, Solanum ptychanthum, Traditional medicine, Toxicity, Health benefits, Phytochemistry, Pharmacology.

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ICPEP013
A REVIEW OF ELECTROCARDIOGRAM

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Abstract:
ECG(Electrocardiogram) represents an electrical tracing of the heart and is set down non-invasively from the outside of body. The ultra-fine change in the electric potential sample of repolarization & depolarization are typically of the disease cause trouble to the patient. We developed a machine learning procedure that take out features from ECG signals and organize them inti normal or abnormal grade. Our Outcome show that the procedure achieves high accuracy in find out arrhythmias, including atrial irregular and Ventricular tachycardia. The proposed method has the potential to

improve ECG explanation and authorize early detection of cardiac arrhythmias, leading to better patient outcomes. The amplitude peaks provide the key information about the conduction of the heart. Although these minutes changes in these peaks and their position cannot be clearly interpreted by the naked eye . In signal processing terminology, these time domain features cannot provide high distinction among various normal and abnormal beats. Public datasets for Electrocardiogram (ECGs)have existed since the 1980s and have been employed for very specific tasks in cardiology, such as arrhythmias, ischemia and cardiomyopathy detection. Recently private institutions have start selecting large ECG databases that are orders of magnitude larger than the public databases for consumption by deep learning models.

Keywords:-ECG, Cardiac arrhythmias, ischemia, repolarization & Depolarization, tachycardia & cardiomyopathy detection.

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ICPEP014

PREPARTION AND EVALUATION OF HERBAL SHAMPOO

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Abstract:

The word shampoo entered the English language from India during the colonial era. Its date to 1762 and derived from Hindi champo .Itself derived from the Sanskrit root chapayati. Shampoo is external use. Shampoo is cosmetics product. The goal of using shampoo is remove the unwanted build-up in the hair without stripping out so much sebum as to make hair unmanageable. Shampoo is the made of following dosages form like powder, liquid, lotion, cream, cream, jelly, aerosol. Shampoo is also contained of surfactant like sodium lauryl sulphate or sodium laureth sulphate with co-surfactant most often cocamidoropylbetaine in water. Herbal shampoo is the contain of ingredient Aloe vera, Hibiscus rosa sinensis (hair growth),Ocimumsantum(antiseptic),Baccopamonnieri (healthy hair),Sapindustrifoliatus(prevent hairlosses),Ecliptaalba,Acaciaconcina, curcuma longa ,Timosporacorylifolia. Herbal drug collacted is the long time and very less side effect of herbal shampoo. The formulaction of harble shampoo include that is exrtact were added to 10% gelation solution and where mixed by shaking to 20 minutes .Lamon juice 1 ml and methyl parban were also added with starring finaly the pH of the solution was adjusted by adding sufficient quantity of the citric acid solution and

added of perfume . The shampoo is evaluation by foam and foam stability test ,detergency and cleaning action ,eye irritancy test product character and pH test .

Keywords: Stripping, Co- surfactant, Antiseptic, Foam

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ICPEP015
MULTICOMPONENT REACTION-ASSISTED DRUG DISCOVERY

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Abstract:

Multicomponent reactions (MCRs) have emerged as a powerful strategy in synthetic organic chemistry due to their widespread applications in drug discovery and development. MCRs are flexible transformations in which three or more substrates react to form structurally complex products with high atomic efficiency. Multicomponent reactions (MCRs) are one-pot processes in which at least three reagents are combined to assemble a novel complex product with remarkable atom economy in good to excellent yields, while saving resources such as time and energy. They are being increasingly appreciated as a highly exploratory and evolutionary tool by the medicinal chemistry community, opening the door to more sustainable, cost-effective and rapid synthesis of biologically active molecules. In recent years, MCR-based synthetic strategies have found extensive application in the field of drug discovery, and several anticancer drugs have been synthesized through MCRs. In this review, we present an overview of representative and recent literature examples documenting different approaches and applications of MCRs in the development of new anticancer drugs.

Keywords: MCRs, Different approach, Applications, anticancer drug

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ICPEP016
A REVIEW ON GASTRO-RETENTIVE DRUG DELIVERY SYSTEM (GRDDS)

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Abstract:

Gastro retentive drug delivery systems (GRDDS) represent a promising approach to enhance the therapeutic efficacy of drugs by prolonging their residence time in the stomach. This review comprehensively examines the principles, technologies, and applications of GRDDS, focusing on their role in improving bioavailability, optimizing pharmacokinetics, and enhancing patient compliance. Various strategies, including floating, bio adhesive, swelling, and high-density systems, are employed to achieve gastric retention, each tailored to overcome physiological challenges such as gastric emptying and motility. The review highlights the suitability of GRDDS for drugs with a narrow absorption window, local gastric action, or those requiring controlled release to minimize systemic side effects. Recent advancements in polymer science, formulation techniques, and evaluation methods have driven the development of more efficient and reliable GRDDS. However, challenges such as inter-individual variability, food effects, and complex manufacturing processes remain. This review also discusses current trends, clinical applications, and future perspectives, emphasizing the need for innovative designs and robust in vivo studies to fully realize the potential of GRDDS in modern pharmacotherapy.

Keywords: Bioavailability, bio/mucoadhesive system, therapeutic window, gastric emptying

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ICPEP017

ACUPRESSURE POINTS: CURRENT TRENDS AND FUTURE PROSPECTS

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Abstract:

Acupressure, a traditional healing method from Chinese medicine, involves the application of pressure to specific points on the body to stimulate health benefits. This abstract examines the current trends shaping acupressure and speculates on its future prospects. Presently, there is a noticeable trend towards integrating acupressure into mainstream healthcare as a complementary therapy, particularly for managing pain, nausea, and stress. The rise of self-care has popularized acupressure tools for home use, making this ancient technique more accessible to the public. Research efforts are intensifying to substantiate the therapeutic effects of acupressure points through

scientific studies, aiming to bridge traditional knowledge with evidence-based medicine. Technologically, we are witnessing an integration of acupressure with digital health, where apps and devices guide users in applying correct pressure to acupoints. Culturally, acupressure is transcending its Eastern origins, gaining traction globally, which fosters a rich exchange of health practices. Looking forward, the future of acupressure seems promising with potential advancements in personalized health applications, where treatments could be customized to individual health profiles. There's also anticipation for more sophisticated technology like wearables that could enhance the precision of acupressure application. The expansion of educational programs and potential standardization of practices could professionalize acupressure, making it a recognized component of integrative health. However, the trajectory of acupressure will depend significantly on ongoing research, regulatory acceptance, and the merging of traditional techniques with modern science and technology.

Keywords: Acupressure, Acupoints, trajectory of Acupressure, Traditional medicine system.

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ICPEP018

DESIGN AND DEVELOPMENT OF DICLOFENAC-RANITIDINE SOLID DISPERSION BY USING CO-PROCESSED SUPERDISINTEGRANTS TO FORMULATE FAST DISSOLVING TABLETS

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Abstract:

In the current research work, the outcome of a novel- drug-drug solid dispersion approach on the dissolution of poorly soluble Diclofenac sodium (DS) with soluble Ranitidine (RAN) was studied. Solid dispersion of DS with RAN (100:150) was prepared by solvent evaporation technique. Solid dispersions were characterized by FTIR study. Solid dispersions were then compressed into fast dissolving tablets (FDTs) and evaluated for quality control tests. Long-term treatment with NSAIDs may produce gastrointestinal symptoms for which histamine H2-receptor antagonists may be prescribed. Thus, there is a need for a formulation that is not only providing improvement in solubility but at the same time reduces GI adverse effects of DS. The

solubility of DS was increased in solid dispersion as observed from phase solubility study by using co-processed superdisintegrants (Sodium Starch Glycolate &Crosspovidone). A decrease in disintegration time, % friability and wetting time was noted with tablet prepared by co-processed superdisintegrants when compared with tablet formulated using Sodium Starch Glycolate, Crosspovidone alone or as compared to their physical mixtures, when compressed directly . This gastric-sparing effect could be attributed to the beneficial action of RAN present in the formulation.

Keywords: Diclofenac, Ranitidine, drug-drug solid dispersion, co-processed superdisintegrants

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ICPEP019

PHARMACOLOGICAL PROFILE OF THUJA ORIENTALIS LINN

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Abstract:

Thuja orientalis Commonly known as Morpankhi, Family- Cupressaceae, common name of thuja is arbor vitae. Its Latin meaning “tree of life”. It is an evergreen, monoecious trees or shrubs used in various forms of traditional medicines and homeopathy systems. In traditional practices Thuja is used for treatment of bronchial catarrh, enuresis, cystitis, psoriasis, uterine carcinomas, amenorrhea and rheumatism. Leaves part are use against microbial/worm infection, antioxidant, anti-cancer and anti-inflammatory agent. It is native to north western China and widely naturalized elsewhere in Asia east to Korea and Japan, south to northern India, and west to northern Iran. It grows best in moist soil. Thuja leaves contain volatile oil, sugar, gelatinous matter, wax, resin and thujin. The main constituents of essential oils of fresh leaves contain 65% Thujone, 8% isothujone , 8% fenchone, 5% Sabines and 2% α-pinene as the main monoterpenes. Other monoterpenes, namely cenvotanacetone, origenes, origanol, myrcene and camphene, glycoproteins /polysaccharides are highly relevant for the different activity of the plant and d –sesquiterpenes, carbohydrates, phenols, alcohols, ethers, aldehydes and ketone. It also oil contain d-thujone, which is poisonous. That disrupted neurological signals in the brain. Ingestion can cause death. Thuja polysaccharides inhibited human immunodeficiency virus (HIV). Americans drink a tea of the inner bark to promote menstruation.

Keywords: Thuja orientalis, Cupressaceae, pharmacognostical, physic-chemical parameter.
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ICPEP020
FORMULATION AND EVALUATION OF AZITHROMYCIN-LOADED LIPOSOMES FOR TOPICAL DELIVERY

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Abstract:
This study aimed to develop Azithromycin-loaded liposomes for topical delivery, enhancing skin penetration and therapeutic efficacy. Liposomes were prepared using thin-film hydration and optimized using Box-Behnken design. The optimized formulation exhibited a particle size of [size], entrapment efficiency of [percentage], and zeta potential of [value]. In vitro skin permeation studies demonstrated significant Azithromycin penetration through rat skin. The liposomal formulation showed improved stability, biocompatibility, and no significant toxicity. These findings suggest Azithromycin-loaded liposomes may be a promising approach for topical delivery, offering enhanced skin penetration and therapeutic efficacy.
Keywords : Azithromycin, Liposomes, Topical delivery, Skin penetration, Box-Behnken design.
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ICPEP021
A REVIEW REGULATORY CHALLENGES IN NOVEL DRUG DELIVERY SYSTEMS

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Abstract:
The evolution of novel drug delivery systems (NDDS) has revolutionized the field of pharmaceutics by enhancing drug bioavailability, targeting precision, and patient compliance. These systems, including liposomes, nanoparticles, transdermal patches, and implantable devices, offer innovative solutions for complex therapeutic

challenges. However, their complex design, advanced technology, and unique mechanisms of action pose significant regulatory hurdles during development, approval, and commercialization. This review aims to identify and analyze the key regulatory challenges associated with NDDS, including compliance with quality standards, safety assessment, efficacy validation, and harmonization of global regulatory frameworks. It also explores the impact of these challenges on the clinical translation and market accessibility of novel therapeutics.

Keywords :NDDS, bioavailability, transdermal patches

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ICPEP022

PERSONAL TUTOR FOR STUDENTS, SMART ASSISTANT FOR TEACHERS

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Abstract:

This proposal suggests that Artificial Intelligence (AI) should be taught as a subject in every course at Dr. A.P.J. Abdul Kalam Technical University (AKTU). AI is changing every field — from Pharmacy and Engineering to Management and Healthcare — and students must learn how to use it to stay future-ready. With AI, students can have their own personal tutor that helps them study better, solve doubts, and build skills anytime. Teachers can also use AI to save time, make lessons more interesting, and understand students' needs better. This idea supports the National Education Policy (NEP 2020) and helps students prepare for jobs, startups, and global challenges. The course will be flexible and designed for every stream, so every student learns how AI fits in their career. With this, AKTU can become a leader in smart, modern education.

Keywords: AI in Education, Personal Tutor, Smart Teaching, NEP 2020, Future Skills, AKTU Innovation.

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ICPEP023

AN ENERGY SAVING GREEN SOLVENT LESS METHOD FOR EXTRACTION OF PHENOLIC COMPOUNDS

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Abstract:

The current work describes a unique solvent free and gravity assisted method for the extraction of phenolic compounds from Lactuca sativa (Lettuce leaves). The solvent free protocol was executed using commercial microwave extraction facilitating microwave hydro diffusion and gravity mode. Fifty gram of fresh lettuce leaves cut into small pieces was loaded into the extraction vessel and microwave extraction was carried out using different power such as 255 W, 340W, 425W and 510W with fresh loading for each microwave power. The extraction was carried out in five-minute cycle with two minutes of intermittent cooling phase till no visible appearance of extract was seen. It is noteworthy to mention that during the whole process, no solvent was used. The extract from different microwave power was collected at the bottom of the microwave cavity and subjected to various phytochemical analysis. Weight of extract amounting to 0.56 gm was obtained from 340W microwave power in 30 min. The extraction yield was found to be 36.5% more than 24hr Soxhlet extraction. Phenolic profiling, total phenolic content, Thermogravimetric analysis, HPTLC fingerprinting and antioxidant are under way to a certain effectiveness to a proposed extraction method. Electron microscopic study indicates the messy surface and cellular disruption for microwave treated sample which indicates development of thermal stress within the biomass resulting in rupture of cellular structure The temperature of the biomass was recorded during microwaving and the highest temperature attained by the biomass at 340W was found to be 91.12℃.

Key Words: - Microwave hydro-diffusion and gravity (MHG), Lettuce, Phenolic, Anti-oxidant and Soxhlet extraction

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ICPEP024

ROLE OF CENTRAL HISTAMINERGIC TRANSMISSION ON PAIN PERCEPTION

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Abstract:

International Conference, PHARMA EVOLUTION 2025 organized by Pharmaceutical Educational Society – pesots and Maa Sharda Pharmacy College Ayodhya, U.P.on 26April 2025.

Since the late 1960s, there has been a significant expansion in pain research, leading to a deeper understanding of the neurophysiological, biochemical, and psychological mechanisms underlying pain. Current evidence indicates that analgesia is mediated through multiple pathways, including cholinergic, adrenergic, tryptaminergic, and histaminergic systems. Antihistamines, beyond their traditional use in allergic conditions, motion sickness, and sedation, have demonstrated potential as analgesic agents or adjuvants in both experimental and clinical settings. Animal studies show that several antihistamines—such as chlorpheniramine, diphenhydramine, hydroxyzine, and promethazine—exhibit direct analgesic activity, while others do not. Additionally, antihistamines may enhance the effects of opioids and non-opioid analgesics. Although serotonin appears to play a notable role in pain modulation, the involvement of norepinephrine and dopamine remains less clear. Cyclic nucleotide activation has been proposed as a possible mechanism of antihistaminic analgesia, though these hypotheses remain speculative. Further investigation into the interaction of antihistamines with central nervous system receptors is needed. Overall, antihistamines hold promise as analgesics or adjuncts, warranting continued research to optimize their therapeutic potential in pain management.

Keywords:

Pain modulation, analgesia, antihistamines, histaminergic pathways, neurotransmitters, cholinergic receptors, adrenergic receptors, tryptaminergic receptors, serotonin, cyclic nucleotides, analgesic adjuvant, chlorpheniramine, diphenhydramine, hydroxyzine, promethazine, opioid interaction, central nervous system, nociception, receptor mechanisms, pain management.

ICPEP025

CONDUCTIVITY TEST OF AN EMULSION

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Abstract:

The emulsion conductivity test is a critical analytical method used to determine the type and stability of emulsions, particularly in the oil and gas, pharmaceutical, and food industries. This test distinguishes between oil-in-water (O/W) and water-in-oil (W/O) emulsions by measuring their ability to conduct electrical current. Since water is a better conductor of electricity than oil, emulsions with a continuous aqueous phase exhibit higher conductivity, whereas those with a continuous oil phase show low or negligible conductivity. In this experiment, various emulsion samples were

prepared with differing oil-to-water ratios and tested for conductivity using a standard conductivity meter. The results confirmed that emulsions with a predominant water phase showed significantly higher conductivity readings, validating the test's effectiveness in emulsion type identification. The conductivity test is thus a simple, rapid, and non-destructive method for emulsion analysis, aiding in quality control and formulation development.

Keyword: Emulsion, Conductivity.

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ICPEP026

THE IMPACT OF COMPLEX ION ON BIOLOGICAL SYSTEM: A REVIEW OF THERAPEUTIC AND TOXIC EFFECTS

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Abstract:

Complex ions are ubiquitous in biological systems. It plays crucial role in various physiological process such as (enzyme function, hormone regulations, Neurotransmitters) disease state (cancer, neurodegenerative disorder). Interaction with biomolecules (binding proteins, interaction with DNA modulation, membrane transport),Cellular signalling pathways (activation,deactivation) oxidative stress,damage (generate ROS, desrupting redox balance) diagnosing imaging along with Potential risk.This review aim to summarise current understanding complex interplay between complex ion and biological system crucial for harnessing their therapeutic benefits (anticancer antimicrobial diagnosis metalloenzyme hormone regulation, impact on solubility, stability) mitigation toxic effect (heavymetal poisoning, oxidative stress,destrupt cellular harmonesetc).

Keyword: Complex ions, biological systems, therapeutic effects, toxic effects, neurotransmission, cancer treatment, antimicrobial therapy.

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ICPEP027

UNDERSTANDING THE CARDIAC CYCLE

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Abstract:

The cardiac cycle is a series of pressure changes within the heart. These pressure changes result in blood movement through different chambers of the heart and the body as a whole. These pressure changes originate as conductive electrochemical changes within the myocardium that result in the concentric contraction of cardiac muscle. The heart consists of four chambers that are connected in such a way that contraction of them causes the heart to act as a pump, the right half of the heart passing blood from the venae cavae to the pulmonary circulation for oxygenation and the left half of the heart pumping oxygenated blood from the pulmonary veins into the aorta and systemic circulation. The heart beats rhythmically due to spontaneous firing of cells in the sino-atrial node and passage of the electrical activity throughout the heart via cell-to-cell contacts and specialized conducting tissue. Systole causes the pressure inside the four chambers of the heart to rise which, coupled with the activity of valves, forces blood to move through the heart in one direction. Even though the heart is spontaneously active, its rate of beating can be altered by outputs from the autonomic nervous system. There is a relationship between the length of a cardiac muscle fibre at the end of diastole and its force of contraction (the 'Law of the Heart'), but this can be changed by altered inotropism of the cardiomyocytes due to their sympathetic innervation and circulating catecholamines. Whilst physical exercise promotes an individual's health, there is evidence that extended prolonged exercise can cause transient 'cardiac fatigue'. Recent work has begun to investigate this phenomenon using the technique of echocardiography.

Keywords: Cardiac cycle, Atrial systole, Ventricular systole, Cardiac diastole

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ICPEP028

LIPOSOME AS DRUG DELIVERY SYSTEM FOR ENCAPSULATION OF HYDROPHILIC AND LIPOPHILIC DRUGS

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Abstract:

Liposome is acceptable and superior carrier and has ability to encapsulate hydrophilic and lipophilic drugs and protect them from degradation. Liposomes are vesicles

having concentric phospholipids bilayer molecules from low molecular weight to higher molecular weight have been incorporated in liposomes. The discovery of liposome or lipid vesicle emerged from self-forming enclosed lipid bi-layer upon hydration. liposome drug delivery systems have played a significant role in formulation of potent drug to improve therapeutics. Recently the liposome formulations are targeted to reduce toxicity and increase accumulation at the target site. Research on liposome technology has progressed from conventional vesicles ("first-generation liposomes") to "second-generation liposomes", in which long-circulating liposomes are obtained by modulating the lipid composition, size, and charge of the vesicle. The ratio of phosphatidyl choline, cholesterol and span80 is important for the preparation of fine liposomes. A significant step in the development of long-circulating liposomes came with inclusion of the synthetic polymer poly-(ethylene glycol) (PEG) in liposome composition. There are several new methods of liposome preparation based on lipid drug interaction and liposome disposition mechanism including the inhibition of rapid clearance of liposome by controlling particle size, charge and surface hydration. Most clinical applications of liposomal drug delivery are targeting to tissue with or without expression of target recognition molecules on lipid membrane.

Keywords: Liposome, phospatidylcholine,drug delivery, clinical application.

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ICPEP029
GENISTEIN ROLE FOR THE INHIBITION OF UNCONTROLLED GROWTH OF CANCER

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Abstract:

Genistein (C15H10O5) is a naturally occurring compound that structurally belongs to a class of compounds known as isoflavones. It is described as an angiogenesis inhibitor and a phytoestrogen. It was first isolated in 1899 from the dyer's broom, Genista tinctoria; hence, the chemical name. The compound structure was established in 1926, when it was found to be identical with that of prunetol. It was chemically synthesized in 1928. It has been shown to be the primary secondary metabolite of the Trifolium species and Glycine max. Genistein found to inhibit the uncontrolled cell growth of cancer, most likely by inhibiting the activity of substances in the body that

regulate cell division and cell survival (growth factors). Various studies have found that moderate doses of genistein have inhibitory effects on cancers of the prostate, cervix, brain, breast and colon. It has also been shown that genistein makes some cells more sensitive to radio-therapy.; although, timing of phytoestrogen use is also important. Genistein's chief method of activity is as a tyrosine kinase inhibitor. Inhibition of DNA topoisomerase II also plays an important role in the cytotoxic activity of genistein. The observation that transitions of normal lymphocytes from quiescence (G0) to the G1 phase of the cell cycle is particularly sensitive to genistein prompted the authors to suggest that this isoflavone may be potential immunosuppressant. Although numerous in vitro studies indicated that genistein has potential anticancer properties. Genistein significantly inhibits ultraviolet (UV) light-induced oxidative DNA damage in purified DNA and cultured cells, and blocks UVB-induced c-fos and c-jun protooncogene expression in mouse skin. Genistein inhibited epidermal growth factor receptor (EGF-R) phosphorylation and metalloproteinase in human skin independent of the sunscreen effect. Genistein, either topically applied or orally supplemented, sufficiently inhibits UVB-induced skin carcinogenesis.

Keywords- Genistein, angiogenesis inhibitor, Tyrosine kinase Inhibitor, UVB-induced skin carcinogenesis.

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ICPEP030

FORMULATION AND EVALUATION OF MUCOADHESIVE MICROSPHERES OF ANTIHISTAMINIC AGENT FOR NASAL DELIVERY

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Abstract:

Drug delivery methods that allow for prolonged, close contact between the drug and the mucosa are known as mucoadhesive drug delivery systems. In order to prevent hepatic first-pass metabolism, increase residence time, and improve therapeutic efficacy, the current study aimed to produce mucoadhesive microspheres for nasal delivery. In our work, we used the Emulsification cross linking approach to create Chlorpheniramine maleate mucoadhesive microspheres with conjugation of chitosan. The microspheres were assessed in terms of their stability, in vitro drug release, in vitro mucoadhesion, yield, particle size, entrapment efficiency, and swelling property. Using SEM and FTIR technologies, microspheres were characterised. Each batch's

average microsphere's particle size found compiling with in the desired/recommended range, ensuring that every batch had appropriate handling qualities. It was discovered that the range of drug encapsulation efficiency, yield percentage & percentage for mucoadhesion for all formulations were observed to justify the recommended range. When all of the formulations were tested for In-vitro drug release using phosphate buffer pH 6.8, microspheres showed regulated drug release for up to six hours. According to the results gathered, mucoadhesive microsphere preparation procedures represent a very promising nasal delivery technology for improving patient compliance and delivering medication over an extended period of time.

KEYWORDS: Nasal Delivery, Mucoadhesion, Microsphere, Chlorpheniramine maleate, Chitosan, Emulsion cross linking.

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ICPEP031

MEDICINAL USE OF WHOLE SPANISH CHERRY (MIMUSOPSELENGI) PLANT ON TRADITIONAL DISEASE

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Abstract:

The Spanish cherry (Mimusopselengi) is a medium-sized evergreen tree belonging to the Sapotaceae family. The native of this herb are India, Indo-china, Sri Lanka, Myanmar, Andaman Island, and Peninsular Malaysia, and the scientific name of this plant is Mimusopselengi. The plant is traditionally used to treat toothache, headaches, poisonous cases, oral cavity problems, diarrhea, and other health problems in Ayurveda. The seed coat and bark of this herb are used to strengthen the tooth gum. The tree bark helps to improve women's fertility. The bark is astringent, bitter and tonic. It is used in the treatment of diarrhoea and dysentery. A decoction of the bark, sometimes mixed with the flowers, is used as a gargle to treat gum inflammation, toothache etc. It is also used to treat gonorrhoea, snakebites, fevers, wounds, scabies and eczema. It is often combined with tamarind bark (Tamarindus indica) then used as a lotion on skin complaints. The leaves are used to treat headache, toothache, wounds and sore eyes, and are smoked to cure infections of the nose and mouth. The flowers have been used as a remedy against diarrhoea. The pounded seeds are used to cure obstinate constipation. Several triterpenes have been isolated from the plant, as well

as steroidal glycosides. The major chemical compounds in the flowers are aromatic alcohols and esters. The ethyl-acetate-soluble fraction of an alcoholic extract of the bark showed anti-ulcer activity against experimental gastric ulcers; this activity was attributed to a decrease in gastric acid secretory activity along with strengthening of mucosal defensive mechanisms. A methanolic extract caused hypotensive activity; it may possess calcium-blocking activity. A brown dye is obtained from the bark. Spanish Cherry have potent activity on Anti-Anxiety, Anti-Bacterial, Antioxidant & Anti-Urolithiatic. Spanish Cherry medicinally used as treating Diabetes, Promotes Better Sleep, Reduces the Risk of Stroke, Lowers the Risk of Gut Attacks, Helps in Weight Loss, Lowers Hypertension, Anti-aging Properties, maintains pH Balance, Reduces Muscle Pain, Prevents Colon Cancer and Helps to Osteoarthritis Relief.

Keywords: Mimusopselengi, Sapotaceae, Medicinal use, Traditional Disease.

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ICPEP032

A REVIEW ON PHARMACOGNOSTIC STUDY OF ELEPHANTOPUSSCABER LINN EXTRACT

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Abstract:

The discovery of cancer drugs has been significantly influenced by plants. Plants' phytochemicals have particular physiological effects on humans, enable them to exhibit their therapeutic qualities. Plants contain substances called phytochemicals that are used as food and medicinal. This plant used in against the various disease and to maintain human well-being. Only two species, E. scaber and E. tomentosus, are found in Southwest China out of the approximately 30 species that make up the genus Elephantopus. It is primarily dispersed in South America and belongs to the Asteraceae family. Elephant's Foot is the most often used English term for Elephantopusscaber, however it is frequently referred to more specifically Rough-leaved elephant's foot or elephant's foot with prickly leaves. Indian tribes have long used various preparations of it to cure a range of illnesses. The organic solvent extracts of the entire plant and its components, primarily the leaves, report a variety of phytochemicals. The results of phytochemical tests show a remarkable variety of phytomedicines, including iso deoxyelephantopin, deoxyelephantopin, elescaberin , and elephantopin. Antibiosis, antiviral, cytotoxicity, anticancer, antimicrobial, hepatoprotective, antioxidant, antidiabetic, anti-inflammatory, analgesic, anti-asthmatics, antiplatelet, and wound healing properties have all been shown for E. scaber extracts or compounds.

Keywords: Elephantopusscaber, E.scaber, chemical compounds, plants, phytochemicals.

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ICPEP033

BILOSOMAL GEL: A NOVEL APPROACH FOR PSORIASIS TREATMENT

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Abstract:

Topical drug delivery refers to the administration of drugs through the skin ,as well as via vaginal, ophthalmic and rectal routes. These drugs can be intended for either localized or systemic effects. Topical formulations can exist in solid, semisolid or liquid forms. **Psoriasis** is a chronic autoimmune skin condition characterized by the rapid turnover of skin cells, leading to the formation of thickened, red patches covered with silvery scales.for this disease , a bilosome-based formulation is prepared and incorporating it into a nanogel for enhanced delivery. **Bilosomes** are closed vesicles containing non-ionic surfactants and bile salts, ranging in size from 5 to 200 nm. They are composed of phospholipids and bile salts, forming a bilayer structure similar to biological membranes. Bilosomes are effective in delivering hydrophobic or poorly soluble drugs, and they can protect encapsulated drugs from degradation. The development of bilosome-based transdermal formulations has shown promise in improving drug delivery efficiency and therapeutic outcomes. By leveraging the unique properties of bilosomes, researchers aim to optimize the delivery of various medications, including anti-inflammatory agents, analgesics, antibiotics, and other therapeutic compounds. The patient adherence to topical formulations is significant in relation psoriasis. Further research and development in this area may lead to the commercialization of bilosome-based transdermal products with enhanced efficacy and patient convenience. Conclusion: This formulation offers several advantages that make it more effective than others. Such as: Increases water solubility with low water-soluble drugs, improves drug permeability, Bioavailability of drug from bilosome is greater than liposome and micronized form of drug.

Keywords :Bilosomes , Topical drug delivery ,Psoriasis, Nano gel

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ICPEP034

INNOVATIVE APPROACHES IN PHARMACEUTICAL RESEARCH: ADVANCING DRUG DEVELOPMENT AND PRECISION MEDICINE

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Abstract:

The pharmaceutical industry is rapidly evolving with the integration of advanced technologies such as artificial intelligence (AI), machine learning, 3D printing, and nanomedicine. These innovations are transforming drug discovery, formulation development, and personalized medicine. This study explores cutting-edge advancements in pharmaceutical research, focusing on emerging technologies in drug delivery systems, biomarker identification for precision medicine, and regulatory challenges in innovative therapies. The integration of AI-driven predictive modeling has significantly enhanced the efficiency of drug screening, reducing costs and accelerating development timelines. Additionally, 3D printing and nanotechnology are enabling the fabrication of personalized dosage forms and targeted drug delivery systems, improving therapeutic outcomes. Microbial predictors and data-driven biomarker identification have further revolutionized precision medicine by enabling early disease detection and individualized treatment approaches. However, regulatory challenges remain a significant hurdle, necessitating harmonization of guidelines to ensure safety and efficacy. This presentation will discuss recent breakthroughs, real-world applications, and future prospects of these emerging technologies in pharmaceutical sciences. By addressing key challenges and potential solutions, this research aims to contribute to the advancement of innovative pharmaceutical strategies, ultimately improving patient outcomes. This study is particularly relevant to researchers, pharmaceutical professionals, and regulatory authorities working towards the future of healthcare.

Keywords: Pharmaceutical innovation, 3D printing, nanomedicine, AI in drug discovery,
biomarker identification, personalized medicine, regulatory challenges.

ICPEP035

COGNITIVE DRUG DISCOVERY AND DEVELOPMENT

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International Conference, PHARMA EVOLUTION 2025 organized by Pharmaceutical Educational Society – pesots and Maa Sharda Pharmacy College Ayodhya, U.P.on 26April 2025.

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Abstract:

Introduction: Artificial Intelligence is moderizing traditional drug discovery and development models by seamlessly integrating data, processing capacity, and algorithms. This synergy enhances the efficiency, exacteness, and success rates of drug research, shortens development timelines, and reduces costs. Coupled with machine learning (ML) and deep learning (DL), AI has demonstrated significant advancements across various domains, including drug characterization, target discovery and validation, small molecule drug design, and the acceleration of clinical trials.

AIM: De novo drug design, AI facilitates the creation of novel drug molecules, predicting their properties and activities, while virual screening optimizes drug candidates.

METHODS: A high-quality dataset is the key to applying AI to drug discovery. Advances in high-throughput sequencing and IT have boosted thegeneration of a series of free and open-access databases for drug discovery.

1.ChEMBL is a manually curated database that currently contains more than 2 million compounds that exhibit drug-like properties.7 ChEMBL gathers information regarding the action mechanisms, molecular properties, absorption, distribution, metabolism, excretion, toxicity, therapeutic indications, and target interactions of the deposited compounds.

2.ChemDB is a freely accessible database that contains nearly 5 million commercially available small molecules and their physicochemical properties, such as molecular weight, solubility, and rotatable bonds.8 In addition, a series of cheminformatics tools, such as Smi2Depict, MOLpro, AquaSol, and Reaction Predictor, are embedded into ChemDB, making this database user-friendly for drug discovery.

RESULT: AI algorithms can analyze large datasets, quantitative structure-property relationship, and even personalize treatment strategies.

CONCLUSION: AI techniques are revolutionizing drug discovery and development, offering significant advancements in efficiency, cost reduction and success rates.

KEYWORDS: Machine learning, reinforcement learning, deep learning.

ICPEP036

AI FOR BEAUTY: REVOLUTIONIZING THE COSMETIC INDUSTRY

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Abstract:

The cosmetic industry is experiencing a digital transformation powered by advancements in artificial intelligence (AI), reshaping skincare, makeup, and hair care by offering tailored solutions and innovative consumer experiences. Key applications of AI in the beauty sector include virtual try-on tools, personalized skincare recommendations, cosmetic dermatology, facial cosmetic surgery, sensory evaluation, and anti-aging treatments. AI-driven tools enable precise diagnostics, product formulation optimization, and trend forecasting, providing consumers with personalized experiences and brands with efficient production processes. However, the integration of AI in beauty also presents ethical and practical challenges. Concerns around data privacy, algorithmic bias, and the reinforcement of narrow beauty standards underscore the need for responsible AI practices. Additionally, AI systems in beauty often lack transparency, and high implementation costs create barriers for smaller businesses. As AI adoption expands, addressing these challenges will be critical to balancing technological innovation with ethical responsibility. The future of AI in beauty holds promise for enhancing operational efficiency, customer satisfaction, and inclusivity, provided that brands prioritize transparency, diversity in data training, and secure data handling. This chapter offers a comprehensive overview of AI's applications, benefits, challenges, and future directions in the beauty industry, highlighting its potential to revolutionize consumer engagement and product innovation.

Keywords: Artificial intelligence, beauty industry, personalized skincare, virtual try-on, ethical AI, cosmetic dermatology

ICPEP037

TRANSDERMAL DRUG DELIVERY SYSTEMS: A BOON FOR CHRONIC HYPERTENSION PATIENTS

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Abstract:

Hypertension is the most common cardiovascular disease in the world. It can damage the heart, brain, kidneys, and eyes. There are several reasons behind this high peak of cases is lack of medical adherence, poor lifestyle (including smoking, consumption of high alcohol). Also, there is one more major reason which is availability of medication for this disease. Most of the medicines available for this disease can only be given through oral route which have high hepatic first pass metabolism which results in poor bioavailability. To overcome this problem of poor drug absorption, Transdermal drug delivery system (TDDS) is introduced that offers various advantages over conventional drug delivery system that includes delivery the drug at predetermined rate to particular targeted site of action for local or systemic effect, bypass the hepatic first pass metabolism, site specificity, dose accuracy (because less dose is required). Due to these features, this drug delivery system proves to be beneficial in the treatment of hypertension by incorporating antihypertensive drugs have poor solubility and low bioavailability. Because it is simple mode of drug administration and can be terminate easily in the case of occurrence of any adverse effect, these features make TDDS as the best option for treatment of many chronic diseases including hypertension.

ICPEP038

EVALUATION OF ABRUS PRECATORIUS AS A NATURAL HEPATOPROTECTIVE AGENT AGAINST CCl_4-INDUCED TOXICITY IN MICE

Neha kumara

Abstract:

The present study explores the hepatoprotective potential of Abrus precatorius against carbon tetrachloride (CCl_4)-induced liver toxicity in mice. CCl_4 is a well-established hepatotoxin known to cause oxidative stress and liver injury by generating free radicals and lipid peroxidation. Abrus precatorius, a plant used in traditional medicine systems, is rich in bioactive compounds including flavonoids, alkaloids, and phenolics, which are believed to possess strong antioxidant and anti-inflammatory properties. In this experimental model, Swiss albino mice were divided into five groups: normal control, CCl_4 control, and three treatment groups receiving ethanolic extract of Abrus precatorius at varying doses. The extract was administered orally for

14 days, while CCl_4 was given intraperitoneally to induce liver damage. Evaluation was based on biochemical markers (AST, ALT, ALP, bilirubin), antioxidant enzyme levels (SOD, CAT, GSH), and histopathological examination of liver tissues. The results demonstrated significant protection in treated groups, indicated by a reduction in serum liver enzymes and improved antioxidant status compared to the CCl_4-only group. Histological analysis supported these findings, showing restoration of normal liver architecture and reduced necrosis and inflammation. The study concludes that Abrus precatorius exhibits notable hepatoprotective effects, likely mediated through its antioxidant mechanisms, and holds promise for development as a natural liver-protecting agent.

Introduction

The liver is a critical organ responsible for detoxification, metabolism, and regulation of various biochemical pathways. Exposure to toxins like carbon tetrachloride (CCl_4) can lead to severe liver injury, primarily through the generation of reactive oxygen species (ROS) and lipid peroxidation. In the quest for effective hepatoprotective therapies, natural plant-based remedies have gained attention due to their safety and therapeutic potential. Abrus precatorius, a medicinal plant traditionally used in Ayurveda, has been reported to exhibit antioxidant, anti-inflammatory, and hepatoprotective properties.

Aim and Objectives

To evaluate the hepatoprotective effect of Abrus precatorius ethanolic extract against CCl_4-induced liver toxicity in mice.

- To assess the impact of Abrus precatorius on liver function biomarkers (ALT, AST, ALP, and bilirubin).
- To analyze changes in antioxidant enzyme levels (SOD, CAT, GSH) in liver tissue.
- To observe histopathological changes in liver tissue after treatment.
- To compare the hepatoprotective effect of different doses of Abrus precatorius extract.

Method

Experimental Animals:

Healthy Swiss albino mice (20–25 g) were used and divided into five groups (n=6):

1. Control group
2. CCl_4-only group
3. CCl_4 + Abrus precatorius (100 mg/kg)
4. CCl_4 + Abrus precatorius (200 mg/kg)
5. CCl_4 + Abrus precatorius (400 mg/kg)

CCl_4 Administration:

CCl_4 was administered intraperitoneally (1 ml/kg, diluted in olive oil 1:1) twice weekly.

Plant Extract:

The ethanolic extract of Abrus precatorius was administered orally for 14 days.

Evaluation Parameters:

- Serum biomarkers: ALT, AST, ALP, total bilirubin
- Antioxidant markers in liver homogenate: SOD, CAT, GSH
- Histological examination of liver tissues under light microscopy

Result

The CCl_4-only group showed elevated levels of ALT, AST, ALP, and bilirubin, indicating liver damage.

The groups treated with Abrus precatorius showed significant improvement in liver enzyme levels and restored antioxidant enzyme activity.

Histopathological analysis revealed hepatic necrosis and inflammation in the CCl_4 group, while the treated groups showed preservation of normal liver histoarchitecture, especially at higher doses.

Summary

The study confirmed that Abrus precatorius extract possesses hepatoprotective properties against CCl_4-induced liver damage in mice. This effect is likely mediated through the plant's potent antioxidant and membrane-stabilizing activities. The extract significantly restored liver function biomarkers and protected hepatocytes from oxidative stress and structural damage. These findings support the traditional use of Abrus precatorius and suggest its potential for further development into a natural hepatoprotective formulation.

ICPEP039

DEVELOPMENT AND VALIDATION OF A STABILITY-INDICATING HPLC AND HPTLC METHOD FOR MARIBAVIR

Divya Mode

Abstract:

Stability-indicating High-Performance Liquid Chromatography (HPLC) and High-Performance Thin-Layer Chromatography (HPTLC) methods were developed and validated for the quantification of Maribavir, a cytomegalovirus pUL97 kinase inhibitor. Forced degradation studies, conducted in accordance with ICH Q1A(R2) and Q1B guidelines, subjected Maribavir to controlled stress conditions, including acidic, alkaline, oxidative, neutral, photolytic, and thermal degradation. The HPTLC method utilized silica gel 60 F254

plates with a mobile phase consisting of Ethyl acetate: toluene: glacial acetic acid (9.5:0.5:0.1 v/v), and detection was performed at 307 nm. The HPLC method employed an acetonitrile: water (pH 3, 40:60 v/v) mobile phase at a flow rate of 1 mL/min, with detection by a photodiode array (PDA) detector. Both analytical methods were validated according to ICH Q2(R2) guidelines. Forced degradation studies demonstrated Maribavir's vulnerability to acidic hydrolysis, while exhibiting relative stability under alkaline, oxidative, neutral, photolytic, and thermal stress conditions. These validated analytical methods provide reliable tools for the accurate assessment of maribavir's stability and purity.

ICPEP040

AN OUTLOOK ON PHARMACOLOGICAL ACTIVITY OF HERBAL PLANT ARTEMISIA VULGARIS

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Abstract:

In 2015, the Nobel Prize in Medicine was awarded for the discovery of artemisinin, a plant-derived compound found in Artemisia annua (annual mugwort), which motivated researchers to explore the phytochemical and pharmacological properties of other Artemisia species. Recently, attention has shifted to this species for its potential activity against the SARS-CoV-2 virus and COVID-19 disease. The essential oil present in A. vulgaris enhances the importance of this species as a culinary herb in various culinary traditions around the globe. At present, this species is also being increasingly utilized in the cosmetic industry in Europe, Asia, and North America.

The annual herb Artemisia vulgaris Linn is also referred to as Wormwood or Mugwort in English, Nagadouna in Hindi, Mashibattiri in Tamil, or Machipatri in Tamil. Alaska, Europe, Northern Africa, and temperate Asia are the native environments. In traditional medicine, it is used to treat stress, sleeplessness, irritability, depression, and epilepsy. In the Philippines, this plant is known as Herbaka, and it is used to treat high blood pressure. In Asia, it is frequently used to flavor tea and rice dishes, while in Western countries, it is used as a culinary herb.

The essential oil obtained from the above-ground parts of A. vulgaris is beneficial in the food sector due to its antiseptic, antioxidant, and antimicrobial properties. Moreover, the oil demonstrates larvicidal, nematicidal, and pesticidal effects.

The species A. vulgaris is appreciated as a spice due to the fragrant aroma and bitter flavor of the herb as well as the sweet and spicy flavor of the roots. The leaves and

buds gathered prior to blooming serve as a bitter enhancement for flavoring rice dishes and tea in Asia. The species is likewise utilized as an additive for meat, poultry, fish, and salads, in making vodkas and herbal wines, and in baking sweet and savory cakes (notably in Japan). Prior to the use of hops, A. vulgaris was employed to enhance the flavor of beer.

Keywords- Artemisia annua ,Herbaka, larvicidal, nematicidal, and pesticidal effects.

ICPEP041

AN OUTLOOK ON PHARMACOLOGICAL ACTIVITY OF HERBAL PLANT JASMINUM OFFICINALE

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Abstract:

The use of herbs for treating diseases dates back to ancient times. Over time, these herbs emerged as the foundation for numerous essential medications due to their diverse pharmacological and therapeutic properties.The fragrant blooming vine known as Jasminum officinale, or common jasmine, is indigenous to the Himalayas, the Caucasus, and some regions of China and India. It is well-known for its summertime blooms of fragrant white or pale yellow star-shaped flowers. The plant prefers full sun and well-drained soil, and it grows best in temperate to subtropical areas. In addition to its traditional therapeutic purposes, common jasmine is prized in the perfume business for its fragrant blossoms and is thought to have relaxing and anti-inflammatory qualities. Although the plant is simple to grow, it needs to be watered frequently and pruned once a year to keep its shape.

This attractive and adaptable plant is frequently used in gardens, trellises, and pots and may be reproduced from cuttings. It's crucial to distinguish it from other jasmine species that could be hazardous if ingested in excessive amounts, even though it is not toxic to people or dogs. Jasmine is a decorative plant that can be found across Asia and is commonly utilized in aromatherapy. The leaves exhibit pharmacological properties such as antiseptic, anti-spasmodic, and wound healing, as documented in ancient Indian texts (Wealth of India, 2003). The entire plant has been traditionally employed for healing chronic ulcers, tumors, and skin conditions. It serves as a treatment for hepatitis and duodenitis. J. officinale is also used to alleviate fever, diabetes, diarrhea, ringworm, ulcers, and oral eruptions . The flowers of Jasminum

officinale are conventionally used as a central nervous system sedative, a gentle anesthetic, and an astringent.

Keywords- Caucasus, duodenitis, eruptions, antiseptic, anti-spasmodic, sedative, a gentle anesthetic.

ICPEP042

WEARABLE SENSOR BASED NANOCOMPOSITE HYDROGEL: RECENT FINDINGS AND FUTURE HORIZONS

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Abstract:

Wearable sensors have been a novel innovation that has found its usage in healthcare, fitness and tracking and as interfaces between humans and technology. Among all sorts of materials incorporated into these sensors, nanocomposite hydrogels have emerged into prominence because of the above-stated properties such as flexibility, biocompatibility and sensitivity to environmental stimuli. Due to development in the field of nano technology many types of nanomaterial can be integrated into hydrogel matrix to improve the mechanical, electrical and sensing characteristics. This review is devoted to the state-of-the-art in wearable sensors employing nanocomposite hydrogels, and discussing their design, fabrication, and functional characteristics. These include incorporation of conductive nanomaterials; the carbon nanotubes and graphene that have enhanced the sensitivity as well as endurance of these sensors. In addition, the use of stimuli-responsive nanocomposite has added the opportunity to detect different signals thus making the capabilities of the sensors multiple. Some of the possibilities for future work in this field are self-healing and self-powered hydrogel sensors for wearables as this technology has the ability of improving the duration of its usage and the level of integration. Moreover, if the machine learning algorithms are combined with the wearable hydrogel sensors, there will be a lot of opportunities in creating individual health monitoring devices that will provide constant analysis of the data collected and prognosis of the health state. Here is the summarized guidance for the continuation of the research on wearable sensor-based nanocomposite hydrogels which is going to be the focus of this review.

Keywords: Hydrogels, Personalized, Nanocomposites, Technology

ICPEP043

GUGGUL MEETS MODERN MEDICINE: A SYNERGISTIC NANOCARRIER FOR MELOXICAM IN JOINT INFLAMMATION MANAGEMENT

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Abstract:

Introduction: Guggul, a gum resin derived from Commiphora mukul, has been traditionally used in ayurvedic medicine for managing inflammation and related disorders. This study explores the potential of Guggul lipid as a natural nanocarrier to enhance the topical delivery of meloxicam for joint inflammation. Aim & Objectives: The aim is to develop a meloxicam-loaded guggul lipid vesicle gel, with objectives focused on compatibility assessment, physicochemical characterization, in vitro drug release, and in vivo anti-inflammatory evaluation. Methods: Meloxicam-loaded Guggul lipid vesicles were prepared via thin-film hydration and incorporated into a carbopol-based gel. The formulation was characterized using ATR-FTIR, UV-Vis, XRD, SEM, particle size analysis, and zeta potential measurements. In vitro drug release studies and in vivo anti-inflammatory testing using the carrageenan-induced pawedema modelwere performed. Results: Meloxicam-loaded Guggul lipid vesicles showed a particle size below 150 nm, confirmed by SEM and zeta analysis, with smooth, spherical, and homogeneous morphology. ATR-FTIR and UV-Vis verified drug incorporation, while XRD revealed reduced crystallinity, indicating amorphization. The optimized gel showed ideal pH, viscosity, spreadability, and 99.24% drug content. In vitro release was 37% in 14 h, and In vivo studies showed 85% inflammation protection, confirming enhanced anti-inflammatory efficacy. Summary & Conclusion: Guggul lipid-based vesicles effectively enhanced the topical delivery of meloxicam, showing improved drug dispersion and sustained release. The optimized gel formulation demonstrated significant anti-inflammatory activity, indicating its potential as a novel topical drug delivery system.

Keywords: Guggul; Meloxicam; ATR-FTIR; XRD; SEM.

ICPEP044

STRATEGIES, NEXT-GENERATION ANTIMICROBIALS, AND THE MECHANISM OF ANTIBACTERIAL RESISTANCE TO CONTAIN IT

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Abstract:

Modern healthcare systems face a serious problem with antibacterial drug resistance, which jeopardizes our capacity to treat bacterial illnesses. The purpose of this abstract is to give a thorough summary of the different kinds and mechanisms of drug resistance in antibiotics. In order to accomplish this goal, a comprehensive literature search was carried out to find important research on the mechanisms, tactics, and next-generation antimicrobials used to contain antimicrobial resistance. Types of resistance and key mechanisms of antibacterial resistance have been covered in this review, with examples including enzymatic inactivation of antibacterials, reduced influx, enhanced efflux pumps, and target site changes. Additionally, techniques for horizontal gene transfer and biofilm production have been added. Additionally, there has been a thorough discussion of the steps (interventions) implemented to manage antibiotic resistance and next-generation antibiotics. In general, this abstract helps guide antimicrobial stewardship initiatives and enrich future research by offering insightful information on the various strategies used by bacteria to withstand the impact of antibacterial medications.

Keywords: Modification of target, decreased accumulation, enzymatic inactivation, biofilm formation, horizontal gene transfer, next-generation antimicrobials

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ICPEP045

PH-RESPONSIVE, SELF-HEALING GRAPHENE-ENHANCED HYDROGEL DRESSINGS FOR EFFECTIVE DIABETIC FOOT ULCER MANAGEMENT

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Abstract:
Introduction: Diabetic foot ulcers (DFUs) pose a major healthcare challenge, often resulting in severe complications such as infections and amputations if not properly managed. Among modern wound care materials, polymeric hydrogels have garnered attention for their ability to maintain a moist environment conducive to tissue repair. However, challenges remain in developing hydrogels that exhibit mechanical stability, pH-responsiveness, and biocompatibility while also delivering therapeutic agents effectively. Aim & Objectives: This study aims to develop a biocompatible, pH-responsive, and mechanically stable hydrogel for the effective treatment of DFUs. The main objective is to fabricate a polyvinyl alcohol (PVA)/chitosan blended hydrogel, integrated with graphene oxide (GO), and loaded with methanolic extracts of Datura metel leaves and Moringa oleifera roots. Further, the study seeks to evaluate the hydrogel's mechanical, structural, and biological properties, followed by an assessment of its wound-healing efficacy in vivo using Wistar rat models. Methods: Chitosan was selected for its antimicrobial, mucoadhesive, and wound-healing properties, while PVA contributed to mechanical strength. The addition of graphene oxide significantly enhanced the stretchability and durability of the hydrogel without affecting its biocompatibility. Methanolic extracts of D. metel and M. oleifera were incorporated for their potential phytochemical benefits. The resulting graphene oxide-mediated hydrogel (GODM) was characterized using high-resolution microscopy, hemolysis assay, and evaluated in vivo. Results: Microscopy confirmed successful incorporation of GO and plant extracts. The GODM hydrogel exhibited improved mechanical strength and structural integrity. A low hemolytic percentage (3.91%) confirmed excellent biocompatibility. In vivo studies on Wistar rats demonstrated enhanced wound contraction, faster tissue regeneration, and better skin reformation. Summary & Conclusion: The GODM hydrogel demonstrated excellent therapeutic potential through its pH-responsive, self-healing, and biocompatible characteristics, indicating its suitability as an effective dressing for diabetic wound management.
Keywords: Chitosan, Polyvinyl alcohol, Graphene oxide, pH-responsive hydrogel, Datura metel, Moringa oleifera

ICPEP046

ANTIMICROBIAL RESISTANCE: A GROWING SERIOUS THREAT FOR GLOBAL PUBLIC HEALTH

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International Conference, PHARMA EVOLUTION 2025 organized by Pharmaceutical Educational Society – pesots and Maa Sharda Pharmacy College Ayodhya, U.P.on 26April 2025.

Abstract:

Antimicrobial resistance (AMR) is a critical issue in health care in terms of mortality, quality of services, and financial damage. In the battle against AMR, it is crucial to recognize the impacts of all four domains, namely, mankind, livestock, agriculture, and the ecosystem. Many sociocultural and financial practices that are widespread in the world have made resistance management extremely complicated. Several pathways, including hospital effluent, agricultural waste, and wastewater treatment facilities, have been identified as potential routes for the spread of resistant bacteria and their resistance genes in soil and surrounding ecosystems. The overuse of uncontrolled antibiotics and improper treatment and recycled wastewater are among the contributors to AMR. Health-care organizations have begun to address AMR, although they are currently in the early stages. In this presentation, we provide a brief overview of AMR development processes, the worldwide burden and drivers of AMR, current knowledge gaps, monitoring methodologies, and global mitigation measures in the development and spread of AMR in the environment.

Keywords :AMR, Pathways, monitoring methodology, mitigation etc.

ICPEP047

QUANTUM DOTS IN PHARMACEUTICAL AND BIOMEDICAL FIELDS FOR DRUG DELIVERY: RECENT FINDINGS AND FUTURE DIRECTIONS

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Abstract:

Quantum dots (QDs) are nanometer-sized semiconductor particles with unique optical and electronic properties, making them valuable in various fields, including pharmaceuticals. They are made of semiconductor or metallic materials and are typically a few nanometers in size (2 to 10 nm). They have become a powerful tool for live imaging due to their size-tunable light emission, high brightness, and stability. QDs are particularly useful in drug delivery, imaging, diagnostics, and biomedical applications. QDs can be used to modify drug release patterns, ensuring sustained or controlled release. Their ability to emit light at specific wavelengths, high

photostability, and tunable properties have enabled a wide range of applications in bioimaging, diagnostics, drug delivery, and biosensing. QDs are efficient fluorescent labels used in drug delivery systems for monitoring drug metabolism in the body. They can also be developed for disease detection and fluorescent assays for drug discovery. QDs can be functionalized with biomolecules (e.g., antibodies, peptides) for targeted delivery of drugs to specific tissues or cells, enhancing therapeutic efficiency while minimizing side effects. Quantum dots hold great impact in the pharmaceutical field, offering new possibilities for targeted therapy, advanced diagnostics, and real-time imaging. However, their full potential is yet to be realized due to several challenges. They can be used in theranostics, which combines therapy and diagnostics in a single platform, and in clinical applications, such as labeling organic and inorganic materials, releasing drugs, tracking drug metabolism, and using biosensors for disease detection.

Keywords:
Quantum dots (Qds), Bioimaging, Biosensing, Real-time Imaging, High photostability.

ICPEP048
LIPOSOMAL FORMULATION ENHANCES THE ANTI-INFLAMMATION EFFECT

Tanya

Abstract:

Inflammation is a protective response of the body to injury or infection, but chronic inflammation can lead to various diseases such as arthritis, cardiovascular disorders, and neurodegenerative conditions. Conventional anti-inflammatory therapies often suffer from limitations such as low bioavailability, systemic side effects, and non-specific drug distribution. Liposomal drug delivery systems provide a novel approach to overcome these challenges and enhance therapeutic outcomes.

Aim and Objectives

The primary aim of this study is to evaluate how liposomal formulations can enhance the anti-inflammatory effect of therapeutic agents. Objectives include:

1. To understand the mechanism of action of liposomes in drug delivery.
2. To compare the effectiveness of liposomal and conventional formulations.
3. To analyze the reduction in systemic toxicity and side effects with liposomal use.

Method

A comparative analysis was conducted through a literature review and experimental data obtained from in vivo and in vitro studies. Liposomal formulations of commonly used anti-inflammatory drugs, such as NSAIDs and corticosteroids, were studied for their pharmacokinetic and pharmacodynamic profiles.

Result - Liposomal formulations demonstrated a significant improvement in drug bioavailability, prolonged circulation time, and enhanced accumulation at the site of inflammation. A marked reduction in systemic toxicity and adverse effects was observed in comparison to non-liposomal forms. Furthermore, liposomes facilitated sustained release and targeted delivery, increasing the therapeutic efficacy of anti-inflammatory agents.

Summary and Conclusion- Liposomal drug delivery systems offer a promising approach to improving the treatment of inflammatory conditions. By enhancing drug stability, targeting inflamed tissues, and minimizing side effects, liposomes significantly improve the anti-inflammatory effects of both synthetic and natural therapeutic agents. This strategy holds potential for future clinical applications in managing chronic inflammation-related diseases.

ICPEP049

FORMULATION AND CHARACTERIZATION OF TARGETED DRUG DELIVERY SYSTEM FORTUMOR TREATMENT

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Abstract:

A Targeted drug delivery systems represent a significant advancement in the treatment of tumors, aiming to enhance therapeutic efficacy while minimizing systemic toxicity. These systems utilize innovative formulations,of liposomes, to deliver anticancer agents directly to tumor tissues. Key approaches include passive targeting through the enhanced permeability and retention (EPR) effect and active targeting using ligands like antibodies, peptides, or small molecules that bind to specific tumor-associated receptors.Formulation strategies involve optimizing the physicochemical properties of carriers, such as particle size, surface charge, and stability, to improve biodistribution and cellular uptake. Advanced techniques like stimuli-responsive systems and theranostic platforms further enable site-specific drug release and real-time monitoring of therapeutic responses.Characterization of these systems includes assessing their physicochemical attributes, drug loading efficiency, release kinetics, and biological performance using in vitro and in vivo models.

Techniques such as dynamic light scattering, electron microscopy, and spectroscopy are crucial for evaluating particle morphology and stability, while cell culture studies and animal models validate their targeting efficiency and antitumor activity.The integration of nanotechnology and molecular biology in targeted drug delivery offers promising avenues for overcoming the limitations of conventional chemotherapy. Ongoing research focuses on improving the specificity, safety, and clinical translation of these systems to achieve personalized cancer therapy.

Keywords: Drug delivery; Functional modification; Liposome; Medical application.

ICPEP050

USE OF BIODEGRADABLE POLYMERS IN FLOATING SUSTAINED RELEASE INTERPENETRATING POLYMERIC NETWORK (IPN) BEADS OF LISINOPRIL

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Abstract:

This study aimed to create interpenetrating polymer network (IPN) beads of Lisinopril using sodium alginate (NaAlg) combined with either pectin (Pe) or gellan gum (Gg) in varying ratios, along with different amounts of sodium bicarbonate ($NaHCO_3$) as a floating agent. IPN beads were prepared by ionotropic gelation with calcium chloride ($CaCl_2$) as a cross-linker and underwent in-vitro and in-vivo characterization. Optimization was achieved using response surface methodology based on a 3^2 factorial design, analysing the impact on drug entrapment efficiency (Y_1), floating lag time (Y_2), total floating time (Y_3), mucoadhesion (Y_4), and drug release in Q_2hr (Y_5), Q_6hr (Y_6), Q_{24}hr (Y_7). Gellan gum formulations showed superior drug entrapment efficiency (97.82±1.21%) compared to pectin (96.81 +1.12%). They also had a shorter floating lag time (1.10 minutes) and a longer floating duration (24 hours) with higher mucoadhesion (86.64 ±6.4%). Drug release at 24 hours was optimal for gellan gum (98.69 ±0.345%). Both polymer combinations followed zero-order release kinetics and the Higuchi model, indicating diffusion-controlled release, with non-Fickianbehavior as per the Korsmeyer-Peppas model. Short term stability of

optimized batch NaAL- Pe and NaAl- Gg was performed in three different conditions such as ambient storage condition (30±2◦C; 65±5% RH) (8±2◦C; 40±5% RH) and in desiccator (25±2◦C; 35±5% RH). Pharmacokinetic studies revealed improved absorption rate, bioavailability, and extended plasma half-life for encapsulated Lisinopril.

ICPEP051

FORMULATION AND EVALUATION OF MUCOADHESIVE MICROSPHERES OF ANTIHISTAMINIC AGENT FOR NASAL DELIVERY

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Abstract:

Drug delivery methods that allow for prolonged, close contact between the drug and the mucosa are known as mucoadhesive drug delivery systems. In order to prevent hepatic first-pass metabolism, increase residence time, and improve therapeutic efficacy, the current study aimed to produce mucoadhesive microspheres for nasal delivery. In our work, we used the Emulsification cross linking approach to create Chlorpheniramine maleate mucoadhesive microspheres with conjugation of chitosan. The microspheres were assessed in terms of their stability, in vitro drug release, in vitro mucoadhesion, yield, particle size, entrapment efficiency, and swelling property. Using SEM and FTIR technologies, microspheres were characterised. Each batch's average microsphere's particle size found compiling with in the desired/recommended range, ensuring that every batch had appropriate handling qualities. It was discovered that the range of drug encapsulation efficiency, yield percentage & percentage for mucoadhesion for all formulations were observed to justify the recommended range. When all of the formulations were tested for In-vitro drug release using phosphate buffer pH 6.8, microspheres showed regulated drug release for up to six hours. According to the results gathered, mucoadhesive microsphere preparation procedures represent a very promising nasal delivery technology for improving patient compliance and delivering medication over an extended period of time.

KEYWORDS: Nasal Delivery, Mucoadhesion, Microsphere, Chlorpheniramine maleate, Chitosan, Emulsion cross linking.

ICPEP052

ALZHEIMER'S DISEASE: UNDERSTANDING, CHALLENGES, AND THE PATH FORWARD

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Abstract:

Alzheimer's disease (AD) is a progressive neurodegenerative disorder primarily affecting memory, cognition, and behavior. It is the most common cause of dementia in older adults, with symptoms including memory loss, confusion, difficulty in problem-solving, and personality changes. AD is characterized by the accumulation of amyloid plaques and tau tangles in the brain, which disrupt neuronal function and lead to cell death. Although the exact cause is not fully understood, genetic, environmental, and lifestyle factors contribute to its development. The most significant risk factor is age, with the majority of cases occurring in individuals over 65. Early onset Alzheimer's, which occurs before age 65, is less common but typically progresses more rapidly.

Currently, there is no cure for Alzheimer's disease, and treatments primarily aim to alleviate symptoms and slow disease progression. Cholinesterase inhibitors and glutamate regulators are commonly used, but their effects are often limited. Ongoing research is focused on understanding the disease's pathophysiology and developing more effective therapies, including immunotherapy and targeted drug treatments. Preventative strategies such as maintaining a healthy lifestyle, managing cardiovascular risk factors, and engaging in cognitive activities are being explored. Given the aging global population, Alzheimer's poses significant medical, social, and economic challenges, emphasizing the need for early diagnosis, comprehensive care, and continued research.

ICPEP053

ESTIMATION OF SITAGLIPTIN AND DAPAGLIFLOZIN IN THEIR BULK AND COMBINED MARKETED DOSAGE FORM BY USING UV SPECTROSCOPY

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Abstract:

A simple, efficient, precise and accurate analytical method has been developed for the estimation of Sitagliptin and Dapagliflozin in their bulk and marketed dosage form. In this method UV spectrum of Sitagliptin and Dapagliflozin were scanned to get λ max at 268 nm and 224 nm respectively. One of the several trials which showed maximum absorbance at the respective wavelength of both the drugs was selected for the development and validation of this method. In this method, Methanol: ACN: 0.1% acetic acid (40: 30: 30) was determined as the finalized mobile phase. The maximum absorbance of Dapagliflozin at 224 nm was observed to be 0.564 and that of Sitagliptin at 268 nm was 0.421 by using this mobile phase. The method was validated as per ICH guidelines using the parameters as linearity, accuracy, recovery, precision and robustness. All the validation parameters yielded good results which were within the limits. This shows that the developed analytical method can be applied to the routine simultaneous estimation of Sitagliptin and Dapagliflozin in their bulk and marketed dosage form.

Keywords: Sitagliptin, Dapagliflozin, UV Spectroscopy, Analytical method, Validation, Anti-diabetic.

ICPEP054

THERAPEUTIC POTENTIAL OF AMINO ACID SCHIFF BASES: PHARMACOLOGICAL ACTIVITIES AND PROSPECTS

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Abstract:

Amino acid-derived Schiff bases have emerged as an important class of biologically active compounds in recent years due to their structural versatility, synthetic flexibility, and wide range of pharmacological properties. The presence of both amine and carboxylic functional groups in amino acids offers unique binding sites that facilitate the formation of Schiff base ligands through condensation reactions with various aldehydes or ketones. These ligands are known for their remarkable biological activities, including antibacterial, anticancer, antioxidant, and anti-inflammatory

properties. Furthermore, the ability of Schiff base ligands to coordinate with different metal ions often leads to the formation of metal complexes with enhanced biological efficacy compared to their parent ligands. Metal complexes derived from amino acid Schiff bases exhibit improved stability, bioavailability, and target specificity, making them promising candidates for therapeutic applications. This review provides a comprehensive overview of recent advancements in the synthesis and biological evaluation of amino acid-based Schiff bases and their metal complexes. Particular emphasis has been placed on their mechanism of action, structure-activity relationship (SAR), and their potential role in drug discovery and development. The influence of different metal ions on the biological activity of these complexes has also been discussed in detail. This article aims to highlight the significant progress made in this field and to provide a useful platform for future research focused on the design and development of novel amino acid Schiff base derivatives and their metal complexes with potential pharmacological applications.

ICPEP055

INNOVATIONS IN PHARMACEUTICAL TECHNOLOGY AND DRUG DELIVERY: A NEW ERA IN THERAPEUTICS

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Abstract:

In the contemporary, rapidly advancing healthcare environment, pharmaceutical technology and pharmaceutics are assuming an increasingly crucial role in the development of modern medicine. These fields have catalysed substantial advancements in the design, formulation, and administration of pharmaceuticals, directly influencing therapy efficacy and patient outcomes. This talk analyses the increasing significance of these domains in the pharmaceutical industry, focusing specifically on the advancement and utilisation of sophisticated drug delivery carrier systems. Contemporary drug delivery systems- such as liposomes, nanoparticles, microspheres, dendrimers, and transdermal systems, etc- facilitate more accurate, targeted, and regulated release of active pharmacological compounds. These advancements augment bioavailability, decrease dose frequency, mitigate side effects,

and boost patient compliance, particularly in the management of chronic and complex disorders. By emphasising prolonged and localised medication efficacy, these systems signify a transition from traditional to advanced delivery mechanisms. The fusion of pharmaceutical technology with pharmaceutics has facilitated the emergence of personalised medicine, utilising data and formulation science to develop patient-specific medicines. This has significant consequences for both therapeutic outcomes and the efficiency and scalability of pharmaceutical manufacture. This poster provides insights into transformative developments, emphasising their significance in impoverished nations and global health contexts. It seeks to inform pharmaceutical scientists, formulation experts, and industry stakeholders about the strategic significance of these advancements in modern drug development and the evolving pharmaceutical landscape.

Keywords: Pharmaceutical Technology, Drug Delivery Systems, Controlled Release, Pharmaceutics, Therapeutic Innovation

ICPEP056

QUALITY BASED DEVELOPMENT AND CHARACTERIZATION OF POLYMERIC NANOFIBER-BASED DUAL DRUG DELIVERY SYSTEM FOR ENHANCED DIABETIC WOUND HEALING

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Abstract:

This study details the development and evaluation of a dual-drug delivery system designed to enhance diabetic wound healing by utilizing polymeric nanofibers loaded with polyphenolic drugs. Prior to formulation developmentin silico studies were conducted to predict the drug-protein interactions. Computational modelling, including molecular docking and simulation techniques, guided the selection drugs. Following this, the nanofibers were fabricated via electrospinning, with careful optimization of parameters such as polymer concentration, voltage, and flow rate to produce uniform fibers with high drug encapsulation efficiency with quality-based design approach. Comprehensive characterization was performed using scanning electron microscopy (SEM) to examine fiber morphology and diameter, Fourier-transform infrared spectroscopy (FTIR) and X ray diffraction (XRD) to confirm chemical compatibility and drug-polymer interactions. The polyphenolic drugs were incorporated into the polymer matrix to enable sustained and controlled release. Followed byin vitro drug release studies to evaluate release kinetics. The results demonstrated that the nanofiber system provided a stable platform for dual drug delivery, and reducing oxidative stress, which are

critical for effective wound healing in diabetic patients. This methodology offers a promising, scalable approach for improving the treatment of chronic diabetic wounds through enhanced delivery of polyphenolic therapeutics.

Keywords: Nanofiber, Electrospinning, Wound, Diabetes, Polyphenols

ICPEP057

FORMULATION AND CHARACTERIZATION OF LIPOSOMAL BASED HAIR SERUM FOR TREATING ALOPECIA

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Abstract:

This paper delves into the biological, cultural, and social significance of hair in human life, while also thoroughly reviewing the role of phytoconstituents in the treatment of baldness. It examines the pathophysiology of various types of alopecia, including scarring alopecia, alopecia areata, and androgenetic alopecia, highlighting the psychological and emotional challenges faced by individuals experiencing hair loss. These challenges often extend beyond cosmetic concerns, impacting mental well-being, self-esteem, and contributing to social stigma. The study further discusses the comparative effectiveness of synthetic drugs versus herbal remedies in hair loss management, emphasizing the rising preference for plant-based therapies due to their biocompatibility, safety, and holistic benefits. Phytoconstituents such as capsaicin, caffeine, procyanidins, and essential oils are explored for their potential to stimulate hair growth, nourish the scalp, and offer a more sustainable alternative to conventional medications. Building on this foundation, the present work focuses on the formulation and characterization of a novel hair serum incorporating bilberry extract using the liposomal method. Bilberry, rich in potent antioxidants like anthocyanins, holds promise in enhancing scalp microcirculation and supporting follicular health. The use of liposomal delivery aims to improve the bioavailability, stability, and targeted action of the active compounds. This formulation offers a customized, natural approach to hair care, positioning herbal-based liposomal serums

as a promising long-term strategy for promoting thicker, healthier hair and managing alopecia more effectively.

Key words: Alopecia, Phytoconstituents, Herbal Remedies, Capsaicin, Bilberry Extract, Liposomal Method, Hair Serum, Scalp Health, Hair Growth

ICPEP058

BIOPHYTUM SENSITIVUM – A HIDDEN GEM IN HERBAL MEDICINE: UNVEILING ITS UNTAPPED THERAPEUTIC POTENTIAL

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Abstract:

Biophytumsensitivum, a small yet remarkable herb native to the Western Ghats and traditionally used in Ayurvedic medicine, holds immense untapped potential in modern pharmacology. Despite centuries of ethnomedicinal use, it remains largely overlooked in mainstream scientific research. Phytochemical investigations reveal that the plant is rich in flavonoids, amentoflavone, polysaccharides, and various antioxidants—compounds known to exhibit anti-inflammatory, immunomodulatory, wound-healing, and possible anticancer properties. Its touch-sensitive nature adds to its uniqueness, possibly indicating active signaling pathways and stress-response mechanisms that warrant further investigation. The current lack of extensive pharmacological validation and clinical trials leaves a gap between traditional use and evidence-based integration. This abstract seeks to highlight the significance of Biophytumsensitivum as a promising candidate for future drug discovery and encourages in-depth research into its therapeutic applications. As the global demand for safe and effective natural remedies increases, this plant may emerge as a valuable resource in the evolving landscape of herbal medicine and integrative healthcare.

Keywords: Biophytumsensitivum, Ayurvedic medicine, Antioxidants, Immunomodulatory, Flavanoids, Anticancer potential

ICPEP059
THE EVOLVING ROLE OF THE PHARMACIST IN MODERN HEALTHCARE

Sakshi dubey * Gyanendra dubey

Abstract:

The role of the pharmacist has evolved significantly over the past few decades, expanding far beyond traditional dispensing functions to encompass a dynamic and integral position within modern healthcare systems. Pharmacists are now recognized as essential healthcare providers who contribute to clinical decision-making, patient education, disease management, and preventive healthcare. Their accessibility and expertise in pharmacotherapy place them at the forefront of initiatives aimed at improving medication adherence, minimizing adverse drug reactions, and optimizing therapeutic outcomes.

Modern pharmacists actively participate in interdisciplinary healthcare teams, collaborate with physicians and other healthcare professionals, and provide specialized services such as medication therapy management, immunizations, and chronic disease monitoring. Additionally, pharmacists are playing a pivotal role in areas such as pharmacovigilance, personalized medicine, and public health advocacy.

As the global healthcare landscape continues to change with advancements in technology, increased patient expectations, and emerging health challenges, pharmacists must continuously adapt through lifelong learning and practice innovation. This evolving role not only enhances patient care but also strengthens the efficiency and sustainability of healthcare systems worldwide. The recognition and utilization of pharmacists' full potential are critical for addressing current and future healthcare needs.

ICPEP060
GASTRO-RETENTIVE MODIFIED RELEASE BIODEGRADABLE FORMULATION OF NIZATIDINE

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Abstract:

The study aims to develop and characterize floating-mucoadhesive sustained-release Nizatidine-loaded Gellan gum beads. The objective is to reduce dosing frequency and enhance the therapeutic effectiveness by prolonging the retention of the dosage form in the stomach for up to 24 hours, using a dual floating-mucoadhesive approach. The drug Nizatidine used to treat peptic ulcer disease, was selected as a model drug due to its short half-life, site specific absorption and Therapeutic effect. Gellan gum beads were prepared by using the ionotropic gelation method. Preliminary batches were formulated to identify the appropriate amount of Gellan gum (X_1, mg) and amount of Calcium carbonate (X_2, mg) on desired responses like Drug release at $Q_{60\ min}$ (Y_1, %), $Q_{720\ min}$ (Y_2, %), and $Q_{1440\ min}$ (Y_3, %), Drug entrapment efficiency (Y_4, %), Floating lag time (Y_5, secs), Total floating time (Y_6, hrs.) and % Muco-adhesion (Y_7, %) were performed for characterization. 3^2 factorial design was applied for optimization of the formulation. The results revealed that increasing polymer concentration enhanced drug entrapment, while the addition of floating agents improved the buoyancy and mucoadhesion properties of the beads. NGB-5 (1050 mg Gellan gum, 300 mg Calcium carbonate), exhibited high drug entrapment efficiency, minimal floating lag time, and sustained buoyancy for 18–20 hours. Drug release extended up to 24 hours following a Higuchi diffusion-controlled mechanism, while the Korsmeyer-Peppas model indicated a non-Fickian release, combining drug diffusion and polymer relaxation. In conclusion, the floating-mucoadhesive beads formulated using Gellan gum offer a promising approach for sustained drug delivery, potentially improving the therapeutic management of peptic ulcer disease and enhancing patient compliance through reduced dosing frequency.

ICPEP061

NANOCELLULOSE LOADED ELECTROPUN NANOFIBERS OF BIOPOLYMER FOR RAPID HEMOSTASIS.

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Abstract:

Background: According to WHO, 1.5 million deaths occur worldwide due to excessive blood loss after traumatic injury. Uncontrolled hemorrhage is a leading cause of death in military

conflicts, road accidents, and surgical procedures. Rapid and effective hemostasis is crucial for pre-hospital care to save lives.

Objective: To fabricate and evaluate nanofibers hemostatic dressing incorporating collagen, nanocellulose, and silk fibroin, ensuring rapid blood coagulation, superior biocompatibility.

Materials and methods: This study introduces electrospun nanofibers composed of silk fibroin, nanocellulose, and collagen, designed to enhance hemostatic performance. The combination of these biomaterials provides superior biocompatibility, mechanical strength, high surface area, biodegradability, and extracellular matrix-mimicking properties.

Results: Scanning electron microscopy (SEM) analysis reveals that increasing the electrospinning voltage reduces nanofiber diameter. Additionally, cell viability assays confirm the safety of the nanofibers across all tested concentrations. In vivo evaluations demonstrate their effectiveness as a hemostatic dressing, facilitating rapid blood coagulation and exhibiting superior biocompatibility compared to conventional methods.

Conclusion: Overall, this study conclude that Nanofibers were made from electrospinning and the combination of Silk fibroin, Nanocellulose and Collagen shows great effect of hemostasis in vivo tests.

Keywords: electrospinning, Nanofibers, SEM, voltage.

ICPEP062

INNOVATIVE RP-HPLC APPROACHES FOR THE DEVELOPMENT AND VALIDATION OF ESTIMATION METHODS FOR PHARMACEUTTICAL FORMULATIONS

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Abstract:

Chromatography is the foundation of separation science and is employed globally in pharmaceutical and research labs. For drugs detection, separation, and quantification, HPLC is the most widely use separation method. The process of demonstrating that the analytical approach is appropriate for use is known as method development. To maximize the process, several chromatographic parameters were examined including detector selection, column selection, mobile phase selection, and sample pretreatment. This article aims to explain the process of developing, optimizing, and validating methods. Numerous medications in multi component dosage forms can be analysed using the HPLC method due to its benefits, which include speed, specificity, accuracy, precision, and ease of automation. The development and validation of HPLC methods are essential

for the discovery, creation, and production of novel drugs during the drug research and manufacturing processes, analytical procedures must be validated to make sure they are suitable for the function for which they were designed. An analytical process is validated when it is shown to be appropriate for its intended use. Pharmaceutical company should have an overall validation policy that outlines the validation process to comply with GMP regulations. All performance parameters of validation, including accuracy, precision, specificity, linearity, range and limit of detection, limit of quantification, robustness, and system suitability testing, are covered by HPLC method validation in accordance with ICH Guidelines.

Keywords: HPLC, Method validation, Method development, Chromatography

ICPEP063

UNDERSTANDING THE INTEGUMENTARY SYSTEM

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Abstract :

The integumentary system, comprising the skin, hair, nails, and associated glands, plays a vital role in protecting the body, regulating temperature, and sensing the environment. This abstract explores current advancements in the understanding and application of integumentary health, while projecting future directions. Currently, there is an increasing focus on skin as a diagnostic tool, reflecting internal health and aiding in early detection of systemic diseases. Innovations in dermatology, including regenerative treatments and personalized skincare, are reshaping traditional approaches. Public awareness around skincare routines and protection from environmental stressors has led to a rise in proactive skin health practices. Scientifically, the system is being explored at the molecular level to better understand skin diseases and develop targeted therapies. Technological progress has introduced smart wearable sensors capable of monitoring skin conditions in real-time. Culturally, the perception of skin health is shifting toward holistic wellness, encouraging integration with nutrition, mental health, and lifestyle choices. Looking ahead, the future of the integumentary system in medicine is promising, with developments like bioengineered skin, gene therapy for genetic disorders, and AI-based diagnostics. The increasing inclusion of skin health in broader healthcare strategies underscores its

significance. However, the evolution of this field relies heavily on continued research, interdisciplinary collaboration, and public education to bridge biological insights with clinical advancements.

Keywords: Integumentary system, skin health, dermatology, bioengineered skin, personalized care.

ICPEP064

PHYTOCHEMICAL CHARACTERIZATION AND PHARMACOLOGICAL EVALUATION OF SIDA ACUTA (BURM.F.) FOR THERAPEUTIC APPLICATIONS

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Abstract:

Sida acuta (Burm.f), commonly known as wireweed, is a medicinal plant widely used in traditional medicine systems such as Ayurveda, Siddha, and African ethnomedicine for its antimicrobial, anti-inflammatory, antimalarial, and wound-healing properties. Despite its extensive use, comprehensive phytochemical profiling and identification of bioactive constituents remain underexplored. This study aims to bridge this gap by conducting a detailed phytochemical analysis of Sida acuta extracts using advanced analytical techniques. Preliminary phytochemical screening confirmed the presence of alkaloids, flavonoids, tannins, saponins, steroids, and terpenoids. Further characterization was performed using High-Performance Liquid Chromatography (HPLC),Gas Chromatography-Mass Spectrometry (GC-MS), Fourier-Transform Infrared Spectroscopy (FTIR),, and Nuclear Magnetic Resonance (NMR) spectroscopy, revealing key bioactive compounds such as cryptolepine (alkaloid), quercetin (flavonoid), β-sitosterol (steroid), and friedelin (terpenoid). These compounds exhibit significant pharmacological activities, including antimicrobial, antioxidant, anti-inflammatory, antimalarial, and cytotoxic effects. The findings highlight the potential of Sidaacuta as a source of novel therapeutic agents for drug development, nutraceuticals, and biopesticides. Future research should focus on standardized extraction methods, clinical validation, and conservation strategies to ensure sustainable utilization. This study provides a foundation for further exploration of *Sida acuta* in modern pharmacology and phytomedicine.

Keywords: Sida acuta, phytochemical analysis, bioactive compounds, GC-MS, HPLC, traditional medicine, antimicrobial, antioxidant.

ICPEP065

TOWARDS A GREENER FUTURE: INNOVATIONS IN SUSTAINABLE CHEMICAL SYNTHESIS

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Abstract:

As global environmental concerns intensify, the field of green chemistry has emerged as a vital approach to reimagining traditional chemical practices through the lens of sustainability. This paper explores recent innovations in sustainable chemical synthesis, focusing on methods that minimize environmental impact while maintaining or improving reaction efficiency and product yield. Key strategies include the use of renewable feedstock's, environmentally benign solvents, energy-efficient reaction conditions, and catalytic systems that reduce waste generation. The integration of bio-based materials, solvent-free reactions, and the development of recyclable catalysts are revolutionizing synthetic pathways across both academic and industrial settings. In particular, advancements in photo catalysis, mechanochemistry, and flow chemistry demonstrate significant potential for scalable, low-waste production methods. The implementation of the Twelve Principles of Green Chemistry serves as a guiding framework for chemists to design safer, cleaner, and more sustainable processes. Furthermore, case studies in pharmaceutical and agrochemical industries highlight the real-world applications and economic benefits of green synthesis techniques. This abstract underscores the importance of innovation in achieving a circular chemical economy, where efficiency, safety, and environmental responsibility are at the forefront. As sustainable practices become not only desirable but necessary, green chemistry will continue to be a cornerstone of responsible scientific progress. The paper concludes with a look at future directions and emerging technologies that promise to further reduce the ecological footprint of chemical manufacturing.

Keywords: Green Chemistry, Sustainable Synthesis, Renewable Feedstocks, Catalysis, Photocatalysis, Mechanochemistry, Environmental Impact.

ICPEP066

ARTIFICIAL INTELLIGENCE-DRIVEN PERSONALIZED MEDICINE IN PCOS: A PRECISION-BASED APPROACH FOR OPTIMIZED TREATMENT OUTCOMES

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Abstract:

Polycystic Ovary Syndrome (PCOS) affects 10–15% of reproductive-age women globally and requires personalized treatment due to its varied clinical presentation. Conventional therapies often show inconsistent outcomes owing to individual differences in metabolic, hormonal, and genetic factors. This study aims to evaluate the efficacy, safety, and adherence of Artificial Intelligence (AI)-driven therapy in comparison to standard treatment approaches in PCOS patients. A prospective, comparative clinical study was conducted on 150 PCOS patients diagnosed using Rotterdam criteria. Patients were divided into two groups: the AI-Assisted Treatment Group (n=75), where machine learning algorithms guided therapy based on hormonal, metabolic, and genetic profiles, and the Conventional Treatment Group (n=75), treated per clinical guidelines. Over a six-month period, the AI group showed significantly improved ovulation rates (42% vs. 24%), greater reduction in HOMA-IR (32% vs. 15%), fewer Metformin-related side effects, higher BMI reduction (3.4 vs. 1.8 kg/m²), and 36% better adherence. The findings highlight that AI-assisted therapy enhances treatment outcomes, minimizes adverse drug reactions, and supports precision-based medicine. Further studies are warranted to assess the long-term impact and scalability of AI integration in routine clinical practice for PCOS management.

Keywords: Polycystic Ovary Syndrome, Artificial Intelligence, Personalized Medicine, Machine Learning, Precision Therapy, Treatment Optimization

ICPEP067

ANTIDIABETIC ACTIVITY OF MADHUCA LONGIFOLIA

Deepak Sharma

Abstract:

This article presents the highlight of published literatures regarding antidiabetic activity of MADHUCA LONGIFOILA. Diabetes is a chronic metabolic disease that is showing an alarming increase in prevalence in developing countries such as India. It is characterized by defects in insulin secretion, insulin action or both, thus causing disturbance in the metabolism of carbohydrates, fat and proteins and is associated with the complications such as atherosclerosis, myocardial infarction and neuropathy. MADHUCA LONGIFOLIA commonly known as the 'Butter nut tree' is used traditionally in the Indian folk medicine for the treatment of diabetes mellitus.The qualitative phytochemical analysis of the MADHUCA LOMGIFOLIA showed the presence of glycosides, tannins, steroids, terpenoids, carbohydrates. Madhuca have been used for the treatment of diabetes, Cushing's disease, bronchitis, rheumatism, haemorrhoids, cephalgia, intestinal diseases, and dermatopathy. The leaves are used as hepatoprotection, for wound healing activity and as antioxidant

Keywords: MADHUCALONGIFOLIA**,** Diabetes, Atherosclerosis, Hepatoprotection, Cephalgia

ICPEP068

USE OF QUALITY-BY DESIGN (QBD) IN FORMULATION AND DEVELOPMENT OF CARVEDILOL LOADED ORODISPERSIBIE FILM

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Abstract:

The objective of this study was to design and optimize an Orodispersible Film (ODF) loaded with Carvedilol (CV) using the Quality by Design (QbD) approach. Oral administration is the most preferred route due to its ease of use, convenience, and ability to enhance patient compliance. However, approximately 28% of individuals experience difficulty swallowing solid dosage forms. Orodispersible thin films

(ODFs), a novel drug delivery system, offer an efficient and innovative alternative to conventional solid oral forms.

Carvedilol was prepared as a Solid Dispersion (SD) using hydrophilic polymers and evaluated for key parameters such as drug content, saturated solubility, and drug-polymer interactions. Based on these assessments, the optimal formulation was selected for ODF preparation using the solvent casting method.

Optimization led to batch C7, which contained 600 mg of pullulan and 4.0 ml of PEG 400. This batch exhibited desirable characteristics including folding endurance (127 folds), in-vitro disintegration time (33.27 seconds), and tensile strength (0.0209 N/mm^2). A drug-to-polymer ratio of 1:4 resulted in the highest solubility at 141.14 ± 0.010 µg/ml. Stability studies revealed that the ODFs, when stored in aluminum foil packaging at 34°C ± 2°C / 75% ± 5% relative humidity for one month, retained their stability.

In conclusion, the Carvedilol-loaded ODF demonstrates promising potential as a patient-friendly dosage form with enhanced biopharmaceutical properties and improved compliance

ICPEP069

CURRENT SITUATION, POTENTIAL MEDICATIONS, RELATED HAZARDS, AND ADVANCEMENTS IN TARGETED THERAPIES FOR CANCER CHEMOTHERAPY AND BEYOND.

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Abstract:

Cancer is the uncontrolled multiplication of cells that leads to malignant malignancies, resulting in millions of deaths annually. As we learn more about the molecular mechanisms that cause disease development, novel treatment regimens and trials are emerging. Over the last few decades, multiple medicines have been proposed and used to treat different malignancies. Targeted medication therapy, immunotherapy, and tailored medicines are more used compared to previous years. Cancer research is rapidly advancing, with the identification of particular biomarkers and the implementation of systematic therapy to improve patients' disease-free survival rates. Despite its recognized negative effects on patients' physical and

psychological health, chemotherapy remains a popular treatment choice for cancer, despite research suggesting that a more methodical and focused approach might be more effective. Chemotherapeutic agents/pharmaceuticals have been the primary treatment option for advanced-stage cancers when surgery or radiation therapy are not feasible. This report reviews chemotherapy advancements and assesses the status of enrolled drugs/pharmaceuticals. It also discusses the emerging role of targeted therapeutic strategies for improving clinical success/survival rates in cancer patients.

Keywords:
Antimicrobial peptides; Cancer therapies; Clinical trials; Combination therapy; Immunotherapy; Patient survival; Personalized medicine; Targeted drug deliver

ICPEP070
IN SILLICO MOLECULAR DOCKING AND ADMET STUDIES OF PIPERINE ALKALOIDS ANALOGUES: A POTENT INHIBITOR OF QUORUM SENSING

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Abstract:

INTRODUCTION: GPT said:
Antimicrobial resistance in Pseudomonas aeruginosa poses a critical global health threat, necessitating novel therapeutic strategies beyond traditional antibiotics. One promising approach involves targeting bacterial virulence mechanisms, particularly quorum sensing (QS), which regulates pathogenicity without exerting selective pressure on bacterial survival. LasR, a key QS transcription factor activated by the autoinducer 3-oxo-C12-HSL, plays a pivotal role in virulence gene regulation, while DNA Gyrase B, an essential enzyme for DNA replication, is a well-established antibacterial target. This study employs a computational drug design strategy to explore natural piperine-derived compounds for potential dual inhibitory activity against both LasR (PDB ID: 2UV0) and DNA Gyrase B (PDB ID: 6F86). A series of sulphonamide (S1–S15) and acylhydrazone (NH-1–NH-15) derivatives of piperine were screened for drug-likeness and ADME properties using SwissADME, and molecular docking studies were conducted using AutoDock 4.0 and PyRx. The docking results revealed that several derivatives exhibited strong binding affinities at

the active sites of both targets. Notably, compound S-4 demonstrated superior docking scores compared to ciprofloxacin and was structurally distinct from 3-oxo-C12-HSL, suggesting potential to bypass known resistance pathways. Among the tested derivatives, compounds S3, S5, NH-5, and NH-6 showed the most promising dual-inhibitory activity, highlighting their potential as anti-virulence agents against P. aeruginosa. These findings support the further development of piperine-based natural derivatives as innovative candidates for combating multidrug-resistant bacterial infections.

Keywords

Piperine derivatives, LasR, DNA gyrase, quorum sensing, molecular docking, ADMET.

ICPEP071

NEPHROLITHIASIS AND HERBAL MEDICINE: A REVIEW ON THE ROLE OF MEDICINAL PLANTS IN KIDNEY STONE MANAGEMENT

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ABSTRACT

Kidney stones, or nephrolithiasis, are a common and painful condition affecting millions of people worldwide. Often considered a lifestyle disease, they are linked to factors like diet, hydration, and physical activity. These Stones form when crystals build up in the kidney, leading to discomfort and serious health issues. The causes are Complex, involving genetics, diet, and certain metabolic disorders. Calcium oxalate, uric acid, and struvite are the Most common types of stones, each with different contributing factors.Recently, herbal medicine has gained attention as a complementary option to conventional treatments for kidney Stones. Plants like Aerva lanata, Crataevanurvala, and Phyllanthus niruri have shown potential in preventing And managing stones due to their diuretic, antioxidant, and anti-inflammatory properties. This review explores the Effectiveness, safety, and mechanisms of these herbal remedies in treating kidney stones. By blending traditional Herbal knowledge with modern medical research, this approach could help reduce the recurrence of kidney stones And improve outcomes for patients. However, more research is needed to confirm these benefits and create Standardised guidelines for using herbal treatments in clinical practice.

Keywords : Nephrolithiasis ,Kidney Stone, Phyllanthus niruri,Aervalanata, Crataevanurvala

ICPEP072
NANO TECHNOLOGY-BASED DRUG DELIVERY SYSTEMS AND HERBAL MEDICINE

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Abstract:

Nanotechnology has revolutionized the field of herbal medicine by enhancing the bioavailability and efficacy of phytoconstituents. This review article discusses the application of nanotechnology in herbal medicine, including the use of nanoparticles, liposomes, and nanoemulsions for targeted drug delivery. The advantages of nanotechnology-based herbal formulations, such as improved solubility, stability, and bioavailability, are highlighted. Additionally, the review discusses the potential of nanotechnology in enhancing the therapeutic efficacy of herbal medicines, including their anti-inflammatory, antioxidant, and anticancer properties. The article also explores the various types of nanocarriers used in herbal medicine, including polymeric nanoparticles, solid lipid nanoparticles, and nanostructured lipid carriers. The role of nanotechnology in enhancing the permeability and retention of herbal medicines in the body is also discussed. Overall, the review provides a comprehensive overview of the application of nanotechnology in herbal medicine, highlighting its potential in enhancing the therapeutic efficacy and bioavailability of phytoconstituents.

Keywords: Nanotechnology, Herbal medicine, Liposomes, Nanosuspension, Nano emulsion

ICPEP073
SYNTHESIS, CHARACTERIZATION, AND ETHYLENE OLIGOMERIZATION AND POLYMERIZATION BY 2-

QUINOXALINYL-6-IMINOPYRIDINE CHROMIUM CHLORIDES

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Rajeshwari anil kumarmahavidlaya pharmacy
Shahpur ganga mallawanhardoi

Abstract:

In the past two decades, increasing interest has been focussed ontheexplorationanddevelopmentofhomogeneoustransition metal catalysts for olefin oligomerization or polymerization.[1] Among transition metal complexes, chromium is the key ele- ment in the silica-supported Phillips[2] and Union Carbide catalytic[3] systems commercially used for the polymerization of olefins. Some recent successes of homogeneous chromium-basedcatalysisbyselectivetrimerization[4] ortetramerization[5]ofethylenehavebeendocumented.Theimportanceofthesecat-alystshasprovidedacompellingrationaleforthedevelopment ofhomogeneouschromiumcatalystsligatedbyavarietyoflig- ands, including cyclopentadienyl (Cp)-based[1a,1c,6] and other ligands.[1a,1c,7] Bynow,Cp-freecomplexeshavebeguntofigure prominentlyamongchromium-basedcatalystsowingtothefact

ICPEP074

RECENT ADVANCES : ANTI HYPERLIPIDEMIC AGENT NAVIGATING THE CARDIOVASCULAR NEW ERA OF HEALTH CARE

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Abstract:

Hyperlipidemia, characterized by elevated levels of lipids in the blood, is a major risk factor for cardiovascular diseases such as atherosclerosis, myocardial infarction, and stroke. Antihyperlipidemic agents are therapeutic drugs used to manage and lower lipidlevels, thereby reducing cardiovascular risk. This presentation explores the classification, mechanisms of action, therapeutic uses, and adverse effects of major classes of antihyperlipidemic agents, including statins, fibrates, bile acid sequestrants,

niacin, cholesterol absorption inhibitors, and PCSK9 inhibitors. Special emphasis is placed on the clinical relevance of these agents, recent advancements and guidelines for lipid management. Understanding these pharmacological interventions is crucial for optimizing patient care in hyperlipidemia and preventing long term complications.

ICPEP075

FORMULATIONAND EVALUATION OFTRANSDERMALPATCHES KETOROLACTROMETHAMINEAND USING RECENTINNOVATIVE TECHNIQUES

Priyansha

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Abstract:

Patches-based transdermal drug delivery offers a convenient way to administer drugs without the draw backs of standard hypodermic injections relating to issues such as patient acceptability and injection safety conventional transdermal drug delivery is limited to therapeutics where the drug can diffuse across the skin. Patches were prepared using the solvent casting method with HPMCK 15 and K30, incorporating plasticizer and permeation. The polymer selected for sustaining the release of drug were poly vinyl pyrrolidone, hydroxyl propyl methylcellulose(HPMC) andethylcellulose. The patches formulated using combination of polymer and propylene glycol as a plasticizer.

Ketorolactromethamine a pyrrolidine carboxylic acid derivative is a potent NSAID that exhibits strong analgesic and moderate anti-inflammatory activity by inhibiting cyclooxygenase(cox-1andcox-2)enzyme there by reducing prostaglandin synthesis.

It is prescribed for short–term pain relief in post operative conditions, musculoskeletal disorder and inflammatory disease. Innovationsformulationstrategiesincludingmatrixreservoiranddruginadhesivesystems have enhanced the efficiency of transdermal patches. Advanced permeation techniques such as microneedlesionto phoresis ultrasoundand chemical enhancer have further expanded ther ange of drug suitable for transdermal delivery including peptide and macromolecules.

Keywords:Transdermal patches,HPMC,Ketorolactromethamine

ICPEP076

TITLE: DEVELOPMENT AND CHARACTERIZATION OF POLYMERSOMES FOR TARGETING BREAST CANCER.

Muskan Kurre, Dr. Akhlesh K. Jain (Associate professor)
(Department of pharmacy)
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(A central university)

Abstract:

Introduction:

Uncontrolled cell growth, angiogenesis, and organ metastases are characteristics of breast Cancer (BC). Polymersomes are self- assembled bilayer structure composed of amphiphilic diblock polymer with a hydrophilic core and a hydrophobic bilayer, polymersomes resemble liposomes in their vesicular shape. This enables the encapsulation of both hydrophilic and hydrophobic medications with a hydrophilic region. Polymersomes having a particle size range 100-200 nm. Tamoxifen citrate comes under BCS class 2 category which shows low solubility and high permeability. Tamoxifen (TAM), a selective estrogen receptor antagonist, is the most widely used medicine in endocrine therapy.

Objectives:

- Formulation of polymersomes.
- Optimization and characterization of polymersomes.
- Site- specific delivery of drug via ligand conjugation, to reduce the off- target side effects and improve therapeutic efficacy.
- Invitro cytotoxicity study.

Methods:

Nano precipitation method, Single emulsion method, Double emulsion method.

Results: Polymersomes for targeted delivery of breast cancer has been developed and characterized.

Conclusion: - The targeted nature of nanocarriers ensures that the administered drugs are primarily delivered to cancer cells, minimizing exposure to healthy tissues and reducing systemic toxicity. Also Marketed formulations of tamoxifen citrate show common side effects such as higher first pass metabolism. Moreover, formulation of polymersomes instead of other Novel drug delivery formulations because it is effective for both hydrophilic and hydrophobic drugs, which possess high drug encapsulation efficiency, less leakage of drugs to the systemic circulation, and higher cellular uptake by surface modification (Ligand/Peptide).

ICPEP077

International Conference, PHARMA EVOLUTION 2025 organized by Pharmaceutical Educational Society – pesots and Maa Sharda Pharmacy College Ayodhya, U.P.on 26April 2025.

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING IN BIOMEDICAL DISCOVERY AND DEVELOPMENT

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Abstract:

Artificial Intelligence (AI) and Machine Learning (ML) are transforming the landscape of biomedical discovery and drug development. These technologies enable the analysis of vast, complex datasets—ranging from genomic sequences to clinical trial results—facilitating the identification of novel drug targets, predictive biomarkers, and therapeutic strategies. AI algorithms can model disease mechanisms, simulate drug interactions, and optimize molecular design with greater speed and accuracy than traditional methods. In preclinical research, ML models are employed to predict pharmacokinetics, toxicity, and compound efficacy, reducing the reliance on animal testing and expediting the transition to clinical phases. Furthermore, AI-driven platforms enhance patient stratification, adaptive trial design, and real-time data monitoring, improving clinical trial efficiency and success rates. Recent breakthroughs, such as deep learning in imaging diagnostics and natural language processing for literature mining, further illustrate the broad applicability of these technologies. However, challenges remain, including data quality, model interpretability, ethical considerations, and regulatory acceptance. Collaborative efforts between data scientists, biologists, clinicians, and regulators are essential to address these barriers and fully harness AI/ML's potential. As biomedical data continues to grow exponentially, the integration of intelligent systems will be vital in accelerating discovery, reducing development costs, and delivering more precise, effective therapies to patients worldwide.

Keywords: Artificial Intelligence, Machine Learning, biomedical research, drug development, precision medicine, data science, clinical trials.

ICPEP078

PREPARATION OF DEMIPERMANENT HAIR DYES GELS FROM ETHANOL EXTRACT OF CASSIA FISTULA USING CARBOMER AS GELLING AGENT

Palak Singhal
Kiet Group of Instiutions

Abstract:

The use of natural dyes as an alternative to synthetic dyes has gained popularity in recent years due to concerns over the potential health risks associated with the use of synthetic dyes. Cassia fistula, a species of tree native to the Indian subcontinent and adjacent regions of Southeast Asia, has been used as a natural hair dye in many parts of the world. However, the use of natural dyes as hair dyes is often limited by their poor stability and poor color payoff. In this study, we report the preparation of demipermanent hair dyes gels from ethanol extract of Cassia fistula using carbomer as a gelling agent. The effect of carbomer concentration on the viscosity and rheological properties of the gel was investigated, and the stability of the gel was evaluated under various conditions. The color payoff and stability of the gel were also assessed and compared to those of a commercial demipermanent hair dye. The results showed that the gel prepared with 1% carbomer had the highest viscosity and exhibited excellent stability under various conditions. The gel also showed good color payoff and stability, and was comparable to the commercial demipermanent hair dye. This study demonstrates the potential of using Cassia fistula as a natural hair dye and the use of carbomer as a gelling agent to improve the stability and color payoff of natural dyes. If we add Hibiscus flower powder to the cassia fistula powder and then gel based hair dye is made then it produces reddish shade to the hair as cassia fistula produces golden yellow color on light coloured hairs. Also hibiscus provides protection against bacteria and fungi.

ICPEP079

ANTIDIABETIC ACTIVITY OF MADHUCA LONGIFOLIA

Manas Tripathi

Abstract:

This article presents the highlight of published literatures regarding antidiabetic activity of MADHUCA LONGIFOILA. Diabetes is a chronic metabolic disease that is showing an alarming increase in prevalence in developing countries such as India. It

is characterized by defects in insulin secretion, insulin action or both, thus causing disturbance in the metabolism of carbohydrates, fat and proteins and is associated with the complications such as atherosclerosis, myocardial infarction and neuropathy. MADHUCA LONGIFOLIAcommonly known as the 'Butter nut tree' is used traditionally in the Indian folk medicine for the treatment of diabetes mellitus.The qualitativephytochemicalanalysisof the MADHUCA LOMGIFOLIAshowed the presence of glycosides, tannins, steroids, terpenoids, carbohydrates. Madhuca have been used for the treatment of diabetes, Cushing's disease, bronchitis, rheumatism, haemorrhoids, cephalgia, intestinal diseases, and dermatopathy. The leaves are used as hepatoprotection, for wound healing activity and as antioxidant

Keywords
MADHUCA LONGIFOLIA**,** Diabetes, Atherosclerosis, Hepatoprotection, Cephalgia

ICPEP080

Pharma Evolution: Navigating the New Era ofHealthcare

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Abstract:

The pharmaceutical industry stands at a pivotal crossroads, shaped by unprecedented scientific advancements, digital innovation, and shifting global healthcare priorities. This new era demandsnot only a reimagining of traditional drug development and delivery models but also a deeper integration of patient-centric and technology-driven approaches. From the rise of personalized medicine and biologics to the adoption of AI-powered research, telemedicine, and digital therapeutics, the pharma landscape is undergoing a profound transformation.

Thispresentationexploresthekeydriversofthisevolution,includingregulatoryreforms,thegrowing importance of real-world evidence, and the collaborative ecosystem emerging between biotech, big pharma, and tech companies. Emphasis will be placed on the challenges and opportunities presented by global health disparities, sustainability imperatives, and the evolving expectations of patients and providers alike. By examining case studies, emerging trends, and strategic responses across the value chain, this discussion aims to provide insights into how pharmaceutical stakeholders can adapt and lead in a rapidly changing healthcare environment. The goal is to chart a sustainable and inclusive path forward - one that leverages

innovation to improve access, outcomes, and equity in global health.

ICPEP081

PHYTOCHEMICAL INVESTIGATION, FORMULATION, OPTIMIZATION AND EVALUATION OF SILVER NANOPARTICLES OF GOSSYPIUM HERBACEUM

Ashwini Gholkar

Abstract:

This study attempts to Phytochemical investigation of Gossypium herbaceum and to synthesize silver nanoparticles (AgNPs) of plant Gossypium herbaceum using green synthesis method of silver nanoparticle formation.The effects of various synthesis on AgNP production were examined in optimum condition.Optimization is carried out at 3^2 factorial design i.e. (time,conc.) and (Solubility ,permeability and percentage yield). After a 24-hour reaction, the formed AgNPs of Gossypium herbaceum, as seen by the slow color shift from colorless to greenish-brown. AgNPs' highest absorption in the UV–vis spectrum was observed at 420 nm.The AgNPs' was evaluated for zeta size and zeta potential. It is anticipated that the produced AgNPs will have potential uses.

ICPEP082

EVELOPMENT AND VALIDATION OF A NOVEL HPLC METHOD FOR THE ANALYSIS OF ANDROGRAPHOLIDE IN MARKETED HERBAL FORMULATION

Sidhant Naithani[1], Bhawana Kapoor[2*]

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Abstract:

A specific and straightforward HPLC method is developed and validated for the analysis of andrographolide in crude material. The method was performed utilizing Poroshell 120 EC C18 column (3.0 x 50 mm, 2.7µm molecule size), Column temperature was kept 25ºC, isocratic elution with mobile phase of methanol and water (53:47) observed at 223nm wavelength with infusion volume of 20µl. The purposed

technique is particular to isolate the peak of andrographolide from different segments, at retention time of 6.6 min with r^2 value of 0.9992 in the range of 230 to 1000ppm. The LOD and LOQ were found to be 0.013 ppm and 0.041 ppm respectively. Correlation coefficient was valued 0.9992 in the 230 to 1000 ppm concentration range, hence calibration plots showed good linear relationship. The recovery of the method was found to be between 109.06-116.23%. The purposed technique is appropriate for the quality control of the raw material of Andrographis paniculata.

Keywords: Andrographolide, andrographis paniculata, HPLC, method development, validation

ICPEP083

ENHANCED SUSTAINED RELEASE OF DEXIBUPROFEN VIA LIPOSOMAL GEL FORMULATION

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Abstract:

The objective of this study was to formulate and evaluate Dexibuprofen-loaded liposomes and their incorporation into a liposomal gel system for sustained transdermal drug delivery. Preformulation studies, including Differential Scanning Calorimetry (DSC), confirmed the compatibility of Dexibuprofen with selected excipients, revealing no significant interactions. Liposomes were prepared using the film hydration method with varying ratios of soya lecithin and cholesterol, and characterized for particle size, morphology, drug entrapment efficiency, and in vitro drug release.The formulations exhibited favorable characteristics, with high drug entrapment and controlled release profiles. Scanning Electron Microscopy (SEM) confirmed spherical morphology of the liposomes, and DSC analysis indicated a transition of the drug from crystalline to amorphous form, suggesting molecular dispersion within the lipid matrix. Stability studies demonstrated that the liposomes remained stable at 2–8 °C for 30 days with minimal change in drug entrapment. Incorporation of liposomes into a Carbopol gel enhanced their suitability for topical application, offering improved stability and sustained release. Skin permeation and in vivo studies further supported the potential of the liposomal gel formulation for prolonged therapeutic effect and reduced dosing frequency. The findings suggest that Dexibuprofen-loaded liposomal gels are a promising system for safe, effective, and sustained transdermal drug delivery.

Keywords- Dexibuprofen, Liposomes, Liposomal gel, Sustained drug delivery, Transdermal delivery, Film hydration method, Drug entrapment efficiency, DSC analysis, SEM analysis, Stability studies, Carbopol gel, In vitro release, In vivo study, Topical drug delivery.

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ICPEP084

EVELOPMENT AND VALIDATION OF A NOVEL HPLC METHOD FOR THE ANALYSIS OF ANDROGRAPHOLIDE IN MARKETED HERBAL FORMULATION

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[2]JBIT College of Pharmacy, Dehradun, Uttarakhand, India

*kapoorbhawana.pharma@gmail.com

Abstract:

A specific and straightforward HPLC method is developed and validated for the analysis of andrographolide in crude material. The method was performed utilizing Poroshell 120 EC C18 column (3.0 x 50 mm, 2.7µm molecule size), Column temperature was kept 25ºC, isocratic elution with mobile phase of methanol and water (53:47) observed at 223nm wavelength with infusion volume of 20µl. The purposed technique is particular to isolate the peak of andrographolide from different segments, at retention time of 6.6 min with r^2 value of 0.9992 in the range of 230 to 1000ppm. The LOD and LOQ were found to be 0.013 ppm and 0.041 ppm respectively. Correlation coefficient was valued 0.9992 in the 230 to 1000 ppm concentration range, hence calibration plots showed good linear relationship. The recovery of the method was found to be between 109.06-116.23%. The purposed technique is appropriate for the quality control of the raw material of Andrographis paniculata.

Keywords: Andrographolide, andrographis paniculata, HPLC, method development, validation

ICPEP085

AI MACHINE LEARNING IN PHARMACEUTICAL R&D: TRANSFORMING DRUG DISCOVERY & DEVELOPMENT

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Abstract:

AI and machine learning are revolutionizing drug development, and this topic highlights one of the most exciting areas of pharmaceutical innovation. Many pharmaceutical companies are already investing heavily in these technologies. AI/ML are seen as the future of pharmaceutical R&D, streamlining processes, reducing costs, and improving drug efficacy. This makes it a topic of great interest to both industry professionals and researchers.

It addresses not only the scientific and technical advances but also the broader implications for healthcare, drug accessibility, and the efficiency of drug development.

This abstract explores how AI and ML are being utilized globally to identify novel drug targets, design new molecular entities, predict pharmacokinetic and pharmacodynamic profiles, and streamline preclinical and clinical trials. Advanced algorithms are enabling the analysis of vast biological and chemical datasets, reducing the time and cost associated with drug development, and increasing the success rate of candidate drugsMoreover, the global adoption of AI technologies in pharma is bridging gaps between academia and industry, fostering innovation in developing countries, and promoting personalized medicine. Despite challenges related to data privacy, regulatory frameworks, and algorithm transparency, the future holds immense potential for AI-driven transformation in the pharmaceutical sector..In the coming years, AI and machine learning are expected to play a bigger role in how we discover and develop new medicines. These technologies can help make the process faster, more accurate, and more affordable, leading to better healthcare for people around the world.

Keywords: Artificial Intelligence, Pharmaceutical Innovation, Pharmaceutical Research, Drug Discovery, Drug Development.

ICPEP086

AN OVERVIEW ON UTILISATION OF NATURAL PIGMENTS USED IN COLOUR BASED COSMETICS

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Abstract:

Natural pigments have drawn significant attention in the cosmetic industry due to their safe, eco-friendly, and non-toxic properties compared to synthetic alternatives. It is derived from plants, minerals and other natural sources, these pigments offer a wide range of colours and applications in cosmetics such as lipsticks, eyeshadows, blushes

and foundations. Common natural pigments include carotenoids (e.g beta-carotene), anthocyanins, chlorophyll and mineral-based pigments like mica and iron oxides. These pigments not only provide aesthetic appeal but also offer skin benefits, such as antioxidant and anti-inflammatory properties. However, the use of natural pigments in cosmetics presents challenges such as colour consistency, stability and potential allergic reactions in sensitive individuals. Furthermore, the extraction and processing methods of natural pigments must adhere to sustainable and ethical practices to ensure minimal environmental impact. The increasing demand for clean beauty products has accelerated research into enhancing the performance and versatility of natural pigments while minimizing their limitations. This overview highlights the ongoing developments in the field and emphasizes the growing importance of natural alternatives in the cosmetic industry, as consumers increasingly prioritize safety, sustainability and transparency in their product choices.

Keywords:- Natural pigments, colour cosmetics, natural colourants, organic pigments, natural dyes, sustainable colourants

ICPEP087
ESTIMATION OF SITAGLIPTINAND DAPAGLIFLOZININ THEIR BULK AND COMBINED MARKETED DOSAGE FORM BY USING UVSPECTROSCOPY

Saurabh Shantikumar Baradkar

Abstract:

A simple, efficient, precise and accurate analytical method has been developed for the estimation of Sitagliptin and Dapagliflozin in their bulk and marketed dosage form. In this method UV spectrum ofSitagliptin and Dapagliflozin were scanned to get λmax at 268 nm and 224 nm respectively.One of the several trials which showed maximum absorbance at the respective wavelength of both the drugs was selected for the development and validation of this method. In this method, Methanol: ACN: 0.1% acetic acid (40: 30: 30) was determined as the finalized mobile phase. The maximum absorbance of Dapagliflozin at 224 nm was observed to be 0.564 and that of Sitagliptin at 268 nm was 0.421 by using this mobile phase. The method was validated as per ICH guidelines using the parameters as linearity, accuracy, recovery, precision and robustness. All the validation parameters yielded good results which were within the limits. This shows that the developed analytical method can be

applied to the routine simultaneous estimation of Sitagliptin and Dapagliflozin in their bulk and marketed dosage form.

ICPEP088
FORMULATION AND EVALUATION OF TERBUTALINE SPRAY FOR NASAL DRUG DELIVERY

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Abstract:

The formulation and evaluation of a nasal spray containing terbutaline sulphate, a β2-adrenergic agonist primarily used to treat asthma and COPD, are the primary objectives of this study. Due to hepatic first-pass metabolism, traditional oral and inhalation routes of administration frequently have limitations like delayed onset of action, poor bioavailability, and patient compliance issues, particularly in the geriatric and paediatric populations. Due to its rich vascularization, rapid systemic absorption, and potential for both local and systemic drug delivery, the nasal route is a promising alternative. Benzalkonium chloride, polyethylene glycol (PEG 400), and a variety of mucoadhesive and permeation-enhancing excipients were used to make formulations of terbutaline nasal spray for this study. Parameters like pH, viscosity, spray pattern, droplet size, drug content uniformity, and in-vitro drug release were optimized for the formulations. In order to guarantee the formulation's integrity over time, stability studies were carried out in accordance with ICH guidelines. The optimized formulation was able to provide a quick onset of therapeutic action due to its satisfactory spray characteristics, mucoadhesive strength, and rapid drug release. In-vitro permeation studies using excised nasal mucosa confirmed enhanced drug permeation compared to control solutions, supporting the efficiency of the selected excipients. The results indicate that the terbutaline nasal spray formulation may be a viable alternative to conventional dosage forms due to its convenience, rapid onset, and improved bioavailability for patients.

Keywords: Terbutaline sulphate, nasal spray, mucoadhesive polymers, drug delivery system, β2-agonist, formulation development, in-vitro evaluation, permeation enhancers, bioavailability, respiratory therapy.

ICPEP089
BIOMEDICINIAL DISCOVERY AND DEVELOPMENT

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Abstract:

Biomedical discovery and development encompass the comprehensive process of transforming scientific research into clinical applications that improve human health. This multidisciplinary field integrates biology, chemistry, pharmacology, and technology to identify disease mechanisms, discover potential therapeutic targets, and develop novel drugs, diagnostics, and medical devices. The journey from bench to bedside includes target identification, lead compound screening, preclinical testing, clinical trials, and regulatory approval. Recent advancements in genomics, proteomics, and artificial intelligence have accelerated the pace of discovery and personalized medicine approaches. Despite challenges such as high costs, long timelines, and regulatory hurdles, continued innovation in biomedical research remains essential to address unmet medical needs and enhance patient outcomes.

Keywords: Biomedical research, drug discovery, development, clinical trials, personalized medicine, genomics, preclinical testing, therapeutic targets, biotechnology, translational medicine.

ICPEP090

NOVEL MULTIFUNCTIONAL TACRINE–DONEPEZIL HYBRIDS AGAINSTALZHEIMER'S DISEASE: DESIGN, SYNTHESIS AND BIOACTIVITY STUDIES.

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Abstract:

Aseriesoftacrine donepezil hybrids were created as possible multifunctional anti-Alzheimer's disease (AD) drugs. Tacrine and the benzylpiperidine moiety of donepezil were combined with a hydrazone group to create a limited library of tacrine-donepezil hybrids. All substances inhibited both acetylcholinesterase (AChE) and butyrylcholinesterase (BChE) with IC50 values in the low micromolar range, as predicted by the design. Kinetic tests on the most effective cholinesterase (ChE) inhibitors in the series revealed a mixed-type inhibition mechanism for both enzymes. Additionally, docking experiments revealed that the drugs block ChEs through dual binding site (DBS) interactions. Tacrine-donepezil hybrids effectively protect against

H2O2-induced cell death in a differentiated human neuroblastoma (SH-SY5Y) cell line at concentrations close to their IC50 values on ChEs. They also showed high to medium blood-brain barrier (BBB) permeability on humancerebralmicrovascularendothelial cells (HBEC-5i). Furthermore, the compounds showed no significant toxicity in the HepG2 and SH-SY5Y human hepatocellular carcinoma cell lines. Furthermore, the compounds were projected to have excellent bioavailability. Amongthetestedcompounds,H4,H16,H17,andH24stand outwiththeirbiologicalprofile. The suggested Noveltacrine-donepezil scaffold is a viable starting point for developing innovative multifunctional medicines against AD.

Keywords: AChEinhibition, BBBpermeability, BChEinhibition, neuroprotection, tacrine–donepezilhybrid.

ICPEP091

UTILIZING BIG DATA AND ARTIFICIAL INTELLIGENCE TO MANAGE GLIOBLASTOMA MULTIFORME

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Abstract:

Background: Platforms for artificial intelligence (AI) could revolutionize brain tumor surgery. AI-enhanced brain tumor surgery can lead to safer and more efficient care. With numerous applications in neuro-oncology, artificial intelligence is a quickly developing discipline. With an emphasis on machine learning (ML) and deep learning (DL) approaches, we explore how AI may support brain tumor imaging in this review. AI might support prognostication, anatomic segmentation, lesion detection, differential diagnosis, identification of molecular markers, and assessment of pseudo-progression. AI utilization for non-glioma brain tumors, including pituitary, posterior fossa, and brain metastases, are also covered. We draw attention to the difficulties and restrictions associated with the application of AI in radiology, including issues with integration, standardization, and data quality.

Result: Based on the results in the previously listed fields, AI may help with brain tumor diagnosis and treatment, pave the way for personalized medicine, and enhance patient outcomes. AI has revolutionized the management of brain tumors by leveraging genetic, histopathological, and imaging technologies for effective diagnosis, classification, outcome prediction, and treatment planning.

Conclusion: When evaluating its impact on diagnosis, prognosis, and treatment of malignant brain tumors, AI models perform better than human assessments in terms of specificity and accuracy. Their capacity to identify molecular features in imaging could speed up the process of molecular diagnosis and lessen dependency on invasive diagnostics.

KEYWORDS: Artificial Intelligence; Neurosurgery; Brain tumour; Machine learning; Deep learning; oncology.

ICPEP092
GENE THERAPY: REVOLUTIONIZING MODERN MEDICINE

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Abstract:

Gene therapy is an innovative and rapidly evolving field that holds immense potential to transform the landscape of modern medicine. By targeting the root causes of genetic disorders at the molecular level, gene therapy offers the possibility of long-term, and in some cases, permanent cures for conditions once deemed incurable. This therapeutic approach involves the insertion, alteration, or removal of specific genes within an individual's cells to correct underlying genetic defects.Over the past two decades, significant advancements in vector technology, delivery systems, and gene-editing tools—particularly CRISPR-Cas9—have propelled gene therapy from experimental stages to real-world clinical applications. Treatments for rare genetic disorders such as spinal muscular atrophy, hemophilia, and Leber congenital amaurosis have demonstrated promising outcomes, bringing renewed hope to patients and families. Furthermore, gene therapy is being explored in the treatment of common conditions like certain cancers, cardiovascular diseases, and viral infections, including HIV. Despite its promise, gene therapy faces challenges related to ethical concerns, high costs, delivery efficiency, and potential immune responses. Nevertheless, ongoing research and regulatory support are paving the way for more accessible and safer gene therapies. As we enter a new era of precision and personalized medicine, gene therapy stands out as a revolutionary tool capable of reshaping the future of healthcare by offering targeted, efficient, and lasting treatments tailored to individual genetic profiles.

Keywords: Gene therapy, genetic disorders, CRISPR-Cas9, gene editing, personalized medicine, molecular medicine, genetic engineering.

ICPEP093

PHYTOCHEMICAL SCREENING AND GREEN SYNTHESISOF ANTIBACTERIAL SILVER NANOPARTICAL OF OCIMUM TENUIFLORUM (TULSI)

Kuldeep Vastrakar

Abstract:

Plants herbs and ethnobotanicals have been utilized JOJ health promotion and disease treatment since the dawn of time and are still widely employed today. The immense demand and potential health advantages of herbal medicines balance out the enormous research demands. There SI a need for research on the quality, safety molecular effects. and therapeutic efficacy of the many common herbs.The biosynthesis of nanoparticles using the green route is an effective strategy

innanotechnology that provides a cost-effective and environmentally friendly alternativeto physical and chemical methods. This study aims to prepare an aqueous extract ofOcimum sanctum (O. sanctum)-based silver nanoparticles (AgNPs) through the greenroute and test their antibacterial activity.The nanoparticles are almost sphericalto oval or rod-shaped with smooth surfaces and have a mean particle size in the range of 55 nm with a zeta potential of −2.7 mV. The filtrate was homogeneously combined with 0.9 mg of silver nitrate to prepare nanoparticles of silver (AgNPs)Tulsi to be effective in synthesizing silver nanoparticles that have good antibacterial activity. The TEM results showed thatall the synthesised samples of nanoparticles demonstrated stability with a size range of 7-70 and 9-48 nm with Aloebarbadensis miller and Ocimum tenuiflorum leaf extracts ,respectively. The formation of smaller Ag nanoparticlesdue to utilisation of different precursor concentration andleaf extracts was also explained. The synthesised samples'anti-bacterial activity was examined against the pathogens ,Bacillus subtilis, Staphylococcus aureus, and Escherichia coli.The biosynthesis of nanoparticles using the green route is an effective strategy innanotechnology that provides a cost-effective and environmentally friendly alternative to physical and chemical methods. This study aims to prepare an aqueous extract of Ocimum sanctum (O. sanctum)-based silver nanoparticles (AgNPs) through the green route and test their antibacterial activity. The nanoparticles are almost spherical to oval or rod-shaped with smooth surfaces and have a mean particle size in the range of 55 nm with a zeta potential of −2.7 mV. The filtrate was homogeneously combined with 0.9 mg of silver nitrate to prepare nanoparticles of silver (AgNPs). Tulsi and effective in synthesizing silver nanoparticles that have good antimicrobial…Silver nanoparticles showed excellent antimicrobial activity against Streptococcus mutans at 100 µL concentration. At 25 and 50 µL, all microbes showed similar extent of antimicrobial activity when quantified. Tulsi and mint prove to be effective in synthesizing silver nanoparticles that have good antimicrobial activity against oral microbes.the green synthesis approach established aprospective for developing highly stable Ag nanoparticles with rigid particle shape/size distribution from differentleaf extracts for the development of better anti-bacterialagents agent .

Key word: silver nanoparticles, phytochemical, Ocimum tenuiflorum

ICPEP094
FORMULATION AND EVALUATION OF DECOCTION OF NYCTANTHESARBORTRISTIS LINN. LEAVES TO TREAT JOINT PAIN

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International Conference, PHARMA EVOLUTION 2025 organized by Pharmaceutical Educational Society – pesots and Maa Sharda Pharmacy College Ayodhya, U.P.on 26April 2025.

Abstract:

Nyctanthesarbortristis L. belongs to family Oleaceae is widely used in the preparation of herbal medicine and have various biological activities. It is mythological plant with immense medical use in the Ayurveda.

It contains alkaloids, flavonoids, anthraquinone, glycoside, tannins, steroids, saponins,phlobatannins, terpenoids etc. Its leaves contain mainly benzoic acid, fructose, glucose, carotene, amorphous resins, ascorbic acid, methyl salicylate, tannic acid, oleanolic acid, flavanol glycoside.

The Anti inflammatory decoction is a substance used to treat the joint pain, In the present investigation an attempt was made to prepare and evaluate anti inflammatory activity comprising extracts of leaves of Nyctanthesarbortrist L.

The anti inflammatory activity namely decoction was formulated from the extract of parjat leaves. The extraction was done by the decoction process. Formulation of anti inflammatory was successfully developed that met the relevant pharmaceutical characteristics.

The prepared formulation is then evaluated for parameters like pH,chemical test, in-vitro and anti-oxidant assay of the formulated decoction. Stability parameters like visual appearance, nature, and pH of the formulations showed that there was no significant variation during the study period.

ICPEP095

EVALUATING THE HYPOLIPIDEMIC EFFECTS OF AQUEOUS LEAF EXTRACT FROM ANNONA SQUAMOSA IN HIGH FAT DIET INDUCED HYPERLIPIDAEMIC RAT.

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Abstract:

The leaves of Annona squamosa are utilized in the Americas and the Caribbean, including nations such as Argentina, Brazil, Jamaica, and Puerto Rico, for their antidiabetic, antimicrobial, and hepatoprotective properties. Hyperlipidaemia occurs when the concentration of lipoproteins that transport triglycerides or cholesterol in the blood exceeds a defined normal level. These lipoproteins can accumulate in the interstitial space of arteries branching from the aorta, restricting blood flow to the heart. This condition is known as atherosclerosis. An excess build-up of lipoproteins can completely obstruct blood flow to the heart, leading to a myocardial infarction (MI), commonly known as a heart attack. While it can be genetically transmitted,

hyperlipidaemia is more often a result of poor lifestyle choicesThis study was carried out to assess the hypolipidemic and anti-atherosclerotic effects of the aqueous extract from Annona squamosa leaves in rats with induced hypercholesterolemia. The rats were subjected to a high-cholesterol diet for 4 weeks while receiving three different doses (225, 300, and 375 mg/kg) of Annona squamosa extract during the experiments. The trials were conducted under uniform conditions alongside atorvastatin, which served as the pharmacological control. The study examined the impact of Annona squamosa on weight increase, as well as water and food intake, alongside serum lipid and lipoprotein levels, lipid oxidation, and stress indicators in both blood and liver. The administration of the Annona squamosa extract significantly ($P< 0.05$) inhibited the rise in total cholesterol (TC), low-density lipoprotein cholesterol (LDL), very low-density lipoprotein cholesterol (VLDL), hepatic triglycerides (TG), and total cholesterol in the aorta. These findings demonstrated the hypolipidemic and anti-atherosclerotic properties of the extract from Annona squamosa leaves extract.

Keywords: Annona squamosa, Hyperlipidaemia,Atorvastatin,Lipoprotein

ICPEP096

EVALUATION OF ANTI-INFLAMMATORY ACTION OF ETHANOLIC EXTRACT OF PEEL OF PUNICA GRANATUM

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Abstract:

Punica granatum L. is a plant widely used in traditional Algerian medicine to treat digestive, inflammatory and painful diseases. The objective of the present study was to determine the phenolic, flavonoids, anthocyanin, hydrolysable& condensed tannins, proanthocyanidin contents and to evaluate in vivo the anti-inflammatory activity of the ethanolic extracts of the peel of Punica granatum fruit. Doses of 250 and 500 mg/kg of ethanolic extracts were administered orally in carrageenan-induced paw edema in mice, using Diclofenac (50 mg/kg) as a standard drug. Increases in paw diameter were measured for 6 hours at a 1- hour interval. After that, the mice were scarified and the inflamed paw tissue was removed and subjected to histopathological study. The results of the ethanolic extracts showed a significant inhibition ($p <0.001$) of the mouse paw edema in a dose-dependent manner after 6 hours of carrageenan injection, compared to the control group. The percentages of edema inhibition of

ethanolic at a dose of 500 mg/kg were 80.72% and 51.94%, respectively, after six hours. These results were confirmed by the histological study, thus showing the presence of a less intense inflammatory infiltrate compared to the control group where the inflammation was more pronounced thus proving that carrageenin did induce an inflammatory reaction. This study revealed that peel extracts of Punica granatum have significant anti-inflammatory activity, which could be explained by the presence of a large amount of phenolic compounds

Keywords: Punica granatum ,Anti-inflammatory,ethanolic ,extractscarrageenan-induced paw edema

ICPEP097

COMPUTATIONAL DISCOVERY OF HERBAL ANTIMIGRAINE AGENTS: A PHYTOCHEMICAL-BASED APPROACH

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Abstract:

Migraine is a prevalent neurological condition characterised by debilitating and pulsating pain in the brain. In context of the aforementioned condition, and as a part of complementary and alternative medicine (CAM), the current research article deals with screening of numerous herbal drugs and their major phytoconstituents and exploring the major targets responsible for condition, namely migraine. Network pharmacology approached is used to understand the link between the targets and phytoconstituents of three major herbal drugs namely peppermint, lavender and aniseed. Further with the help of molecular docking the ligand and protein interactions are studied. Then, the stability of the ligand and protein complex is confirmed with the help of molecular dynamics simulation studies, proving the phytoconstituents effective for further formulation studies for the said neurological condition.

Keywords: Migraine, Herbal drugs, Network pharmacology, In silico studies, Molecular docking, Molecular Dynamics

ICPEP098

A HISTORICAL AND TECHNOLOGICAL EVOLUTION OF PHARMA

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Abstract:

The pharmaceutical industry has undergone a profound transformation from ancient remedies to cutting-edge biotechnological innovations. Historically, early civilizationssuch as the Egyptians, Chinese, and Greeks laid the foundation of pharmacology by using natural herbs and minerals for healing. With the advent of scientific methods during the Renaissance and the Enlightenment, pharmacology began to shift from empirical to experimental. The 19th century marked the birth of modern pharmacy, characterized by the isolation of active compounds like morphine and quinine, while the 20th century witnessed the rise of industrial-scale drug manufacturing and synthetic chemistry. The discovery of antibiotics, vaccines, and hormones revolutionizedmedicine, paving the way for regulatory bodies like the FDA to ensure safety andefficacy. The late 20th and early 21st centuries introduced biotechnology, genomics, and personalized medicine, enabling targeted therapies and accelerating drug discovery. Recent advances such as artificial intelligence (AI), machine learning, and digital health platforms are reshaping research and development, clinical trials, and patient care. The COVID-19 pandemic further highlighted the importance of rapid innovation, with mRNA vaccines exemplifying the convergence of genomics and biotechnology. This paper traces the chronological and technological evolution of the pharmaceutical sector, analyzing pivotal developments, regulatory milestones, and the integration of digital technologies. Understanding this trajectory offers insights into future directions, where innovation, ethics, and accessibility must harmonize to meet global health needs.

Keywords:Pharmaceutical evolution, drug development, biotechnology, pharmacology history, digital health, artificial intelligence.

ICPEP099

MANAGEMENT AND MEDICATION OF DYSLIPIDEMIA

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Abstract:

Hyperlipidemia is a condition that incorporates various genetic and acquired disorders that describe elevated lipid levels within the human body. Hyperlipidemia also known as dyslipidemia or high cholesterol, means you have excess amount of lipids (i.e. fats) in your blood.

Types of lipids: Cholesterol, triglycerides

Types of hyper lipidemia: Basically, there are two types of hyperlipidemia, Primary hyperlipidemia (i.e. familial) caused by genetic factor and secondary hyperlipidemia (i.e. Acquired) caused by your lifestyle. If we talk about symptoms of hyperlipidemia then there are no specific symptoms but sometimes pain in chest (angina), basically pain in any part of your body. Diagnosed by physical examination (primarily), blood test, etc. It can be treated by improving lifestyle, doing exercise atleast 20 to 30 minutes daily, weight loss and through proper medications. Hyperlipidemia important public health problem with increased incidence and prevalence worldwide. Current clinical biomarkers, triglyceride, total cholesterol, low-density lipoprotein cholesterol, and high-density lipoprotein cholesterol lack the necessary specificity and sensitivity and only increase significantly after serious dyslipidemia. Therefore, sensitive care is needed for hyperlipidemia. Hyperlipidemia-specific biomarkers would improve clinical diagnosis and therapeutic treatment at early disease stages. The aim of metabolomics is to identify untargeted and global small-molecule metabolite profiles from cells, biofluids, and tissues. This method offers the potential for a holistic approach to improve disease diagnoses and our understanding of underlying pathologic mechanisms. This review summarizes analytical techniques, data collection and analysis for metabolomics, and metabolomics in hyperlipidemia animal models and clinical studies. Mechanisms of hypolipemia and antilipemic drug therapy are also discussed. Metabolomics provides a new opportunity to gain insight into metabolic profiling and pathophysiologic mechanisms of hyperlipidemia.

Keywords: Hyperlipidemia, Cholestrol, Triglyceride, Familial, Metabolomics, Untargeted.

ICPEP100
HIV: RECENT ADVANCEMENT IN THE PREVENTION, TREATMENT AND MANGEMENT

International Conference, PHARMA EVOLUTION 2025 organized by Pharmaceutical Educational Society – pesots and Maa Sharda Pharmacy College Ayodhya, U.P.on 26April 2025.

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Abstract:

HIV is a type of immunodeficiency virus which causes HIV infection and acquired immunodeficiency syndrome. It is a type of condition in humans in which there is blunder of immune system that admit deathly infection and to produce cancer. This Human immunodeficiency virus (HIV) is caused by sexually (unprotected anal or vaginal sex with a person who has HIV) and asexually (mother to child during breast feeding, blood to blood contact etc)

Note: HIV is not transmitted through being around the person who's having HIV or by sharing food, saliva, sweat or tears. HIV causes AIDS. As we know that our body has a system that fight against pathogens is immune system. As we know our immune system has white blood cells which protect us from any type of infection. White blood cells have CD_4^+ T cells and when the person get infected through HIV infection, this infection leads to low level of CD_4^+ T Cells by many mechanisms like pyroptosis, proptosis. When the level of CD_4^+ T Cells comes below a critical level then Cellular immunity (it identifies the infection and cancerous cells and kill them) is lost and as a result causes many health problems or may lead to death. Actually, there is no specific symptoms of this infection, We can guess when people get infected with HIV may experience flu-like symptoms after a week. Sometime they see fever, rashes and severe sore throat at same time, etc. There is no cure for HIV, if u get infected with this you cannot run from it. There is Many medicines that can be used to control and can be prevented its complications i.e. ART.

Keypoints:HIV, Pyroptosis, CD_4^+ T cells, Proptosis, Cellular immunity

ICPEP101
BASICS OF DIGESTIVE SYSTEM

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Abstract:

The digestive system is a complex network of organs responsible for the breakdown, absorption, and assimilation of nutrients essential for human survival. This presentation provides a foundational overview of the digestive process, beginning with ingestion in the mouth and ending with waste elimination through the rectum. Key organs such as the stomach, small intestine, liver, and pancreas play crucial roles in chemical and mechanical digestion. Understanding the structure and function of each component enhances our appreciation of this vital system and lays the groundwork for exploring related disorders, nutritional science, and the emerging field of gut health.

Keywords:-Digestion, organs, absorption, Nutritional etc.

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ICPEP102
HEALTH IS WEALTH

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Abstract:

The age-old adage 'Health is Wealth' emphasizes the intrinsic value of good health as the foundation for a fulfilling and prosperous life. This abstract explores the significance of maintaining physical, mental, and emotional well-being in achieving personal and societal success. Good health not only enhances productivity and efficiency but also reduces medical expenses, allowing individuals to allocate resources towards education, growth, and development. In a broader context, a healthy population contributes to a nation's economic and social progress. Through this seminar, we aim to highlight practical approaches to nurturing health through balanced nutrition, regular exercise, mental resilience, and preventive healthcare. Ultimately, the true wealth lies not in material possessions but in the ability to live a vibrant and disease-free life.

Keywords : health is wealth, well-being ,vitality ,fitness , and longevity.

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ICPEP103
DEVELOPMENTOFSKINCAREFORMULATIONSUSING

PLANT-BASEDMUCILAGEWITH HEALING AND ANTI-INFLAMMATORY ACTIONS FOR TOPICAL APPLICATION

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Abstract:

Balanga seed (Botanical name: Ocimum basilicum) seeds are a rich source of mucilage, a polysaccharide with promising applications in skincare. This research investigates the potential of Balanga seed mucilage in developing topical formulations with healing and anti-inflammatory properties. The mucilage will be extracted and make formulation of gelcharacterized for its physicochemical properties and anti-inflammatory assay. Subsequently, various formulations incorporating the mucilage were developed and evaluated for their efficacy in promoting skin reducing inflammationthroughin-vitro studies. The study aims to establish Balanga seed mucilageas a novel, plant-based ingredient for effective and safe dermatological applications and cosmeceutical application.

Key words: Balanga seeds, cosmeceuticals, anti-inflammatory potential, topical formulation

ICPEP104
CURRENT STATUS OF NANOPARTICLES IN DRUG DELIVERY SYSTEM

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Abstract:

Nanoparticles have transformed drug delivery systems, offering innovative solutions to enhance therapeutic precision and efficacy. Ranging from 1 to 100 nanometers, these carrierssuch as liposomes, polymeric nanoparticles, dendrimers , and metallic nanosystems are engineered to improve drug solubility, stability, and targeted delivery while minimizing side effects. Current advancements include stimuli-responsive nanoparticles that release payloads in response to triggers like pH, temperature, or

enzymes, and multifunctional systems integrating diagnostics and therapy (theranostics). Active targeting via surface functionalization with ligands enhances specificity for diseased tissues, notably in cancer, infectious diseases, and neurological disorders. Recent developments also focus on overcoming biological barriers, such as the blood-brain barrier, and improving bioavailability of poorly soluble drugs. However, challenges persist, including scalability, long-term toxicity, immune responses, and regulatory complexities. Emerging trends, such as bioinspired nanoparticles and personalized nanomedicine, promise further innovation. This abstract examines the current status of nanoparticle-based drug delivery, highlighting breakthroughs, limitations, and future directions to accelerate clinical translation.

Keywords: Nanoparticle DrugDelivery System Targeted Delivery Stimuli Responsive Theranostics, Liposomes

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ICPEP105
A COMPREHENSIVE REVIEW OF MEDICINAL USES OF CALOTROPISIN INDIA

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Abstract:

Calotropis, encompassing species such as Calotropisgigantea and Calotropisprocera, is a significant medicinal plant deeply rooted in India's traditional healthcare systems, notably Ayurveda, Siddha, and Unani. Known as "Arka" in Ayurveda, this perennial shrub thrives in diverse Indian landscapes and is valued for its therapeutic versatility despite its toxic latex. Various plant parts—leaves, roots, bark, flowers, and latex—are employed to treat a wide array of ailments. In Ayurvedicpractice, Calotropisprocera is used for respiratory disorders like asthma and bronchitis, skin conditions such as eczema and leprosy, and gastrointestinal issues including diarrhea and dysentery. The latex is traditionally applied as an antidote for snakebites and to alleviate joint pain, while the roots are used for their laxative, antihelmintic, and expectorant properties. Calotropisgigantea is similarly utilized for skin diseases, dysentery, and as a diaphoretic and abortifacient. Pharmacological studies have validated some traditional uses, highlighting the plant's anti-inflammatory, antimicrobial, analgesic, and wound-healing properties, attributed to bioactive compounds like cardenolides, flavonoids,

and terpenoids. However, the plant's toxicity, particularly due to cardenolides causing severe cardiotoxicity, necessitates cautious use under professional guidance. This abstract underscores Calotropis'sethnomedicinal significance in India, emphasizing the need for further research to standardize formulations and ensure safe clinical application.

Keywords: Calotropis, Ayurvedic medicine system, terpinoids, antihelmintics, cardinolides.

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ICPEP106
EMERGENCE OF MULTIDRUG RESISTANCE IN ENVIRONMENT: A CRITICAL REVIEW

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Abstract:

Antibiotics are used to protect the health of humans and animals or increase the growth rate of animals as a food additive. Most antibiotics remain unchanged in the environment. This has become a cause of concern in recent years following the emerging potential effects of antibiotic resistance in the aquatic environment. Since the establishment of medicines, antibiotics have played a key role in today's healthcare system. Their prominence has extended from treating serious infections like tuberculosis to prevent nosocomial infections related to surgical wounds, and protecting cancer etc. It also promotes growth and disease prevention in livestock and other food animals. Antibiotics resistance has emerged as a global threat to public health. With the past origination and global presence of various resistance genes, the modern evaluation of resistance has led to the widespread exposure of a numerous amount of resistant bacteria possessing advanced genotypes and phenotypes against. Over the past 70 years of the antibiotics era, the outcome of the natural selection process in microorganisms is promoted by the human activities. Antibiotics have been used for multiple therapeutic purposes. The mid-20th-century antibiotics were seen as a wonder drug, the beginning of the modern 'antibiotics era' was associated with Alexander Fleming and Paul Ehrlich. The discovery of antimicrobial pharmaceuticals (APs) is considered one among the foremost significant achievements of the 20th century, which alongside improved health and vaccination programs revolutionized

for both humans and medicine. For decades, antibiotics are commonly prescribed for the treatment of infectious diseases in humans and animals. Moreover, antibiotics are used at a worldwide scale in livestock to extend meat production by preventing infections and promoting growth. In European countries, Beta-lactams were the most frequently applied antimicrobials and among them penicillin was the most popular subclass which were used from 36% (Germany) to 71% (Slovenia) of the total use in out of hospital conditions. On the basis of antibiotics and Antibiotic Resistance Genes (ARGs), we aimed to consolidate this acquired knowledge in the Chinese environment with the intention of informing evidence-based strategies towards mitigating Antimicrobial Resistance (AMR)in the environment, a poorly acknowledged goal at the national and international level. Antimicrobial resistances i.e. a global public health crisis was characterized by World Health Organization (WHO) which must be managed with the utmost urgency. A perturbing prediction by the WHO is that by the year 2050, drug-resistant infections, largely exacerbated by the indiscriminate use of antibiotics, will kill 10 million people annually, ignite a financial cataclysm, and impose extreme poverty upon many people.

Keywords: Antibiotics, Antimicrobial Resistance (AMR), Antibiotic Resistance Genes (ARGs)

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ICPEP107
PHARMACOKINETICS AND PHARMACODYNAMICS OF NORETHISTERONE IN WOMEN OF REPRODUCTIVE AGE

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Abstract:

Norethisterone, a synthetic progestin, is widely used in the management of menstrual disorders, contraception, and hormone replacement therapy. This paper explores the pharmacokinetic and pharmacodynamic properties of norethisterone in women of reproductive age, emphasizing absorption, distribution, metabolism, and excretion (ADME), as well as its interaction with progesterone receptors. The review highlights variations in bioavailability due to first-pass metabolism and individual physiological factors, including body mass index, liver enzyme activity, and concurrent

medications. It also addresses the hormonal and systemic effects of norethisterone, such as endometrial suppression and ovulation inhibition. Understanding these parameters is crucial for optimizing dosing regimens, improving therapeutic outcomes, and minimizing adverse effects. Current research gaps and the need for personalized medicine approaches in progestin therapy are also discussed.

Keywords:
Norethisterone, Pharmacokinetics, Pharmacodynamics, Reproductive Age, Progestins

ICPEP108
IMPACT OF A.I. IN PHARMACY

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Abstract:
Artificial Intelligence (AI) is transforming the pharmacy landscape by improving patient care, streamlining operations, and enhancing medication management. AI-powered systems can analyze vast amounts of data, identify patterns, and make predictions, enabling pharmacists to make informed decisions and provide personalized care.

Keywords:- Technology, Artificial Intelligence, Pharmatech, Transforming etc.
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ICPEP109
FORMULATION AND EVALUATION OF HERBAL SKINCARE TOPICAL GEL

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Abstract:

Herbal skincare products have gained popularity due to their natural ingredients, potential efficacy, and reduced risk of adverse reactions. This study focuses on formulating and evaluating an herbal skincare gel incorporating natural extracts. To develop and evaluate an herbal skincare gel incorporating natural ingredients with potential benefits for skin health. The herbal gel was formulated using extracts of [herbal ingredients, e.g., aloe vera, neem, turmeric] and evaluated for its physical, chemical, and biological properties, including pH, viscosity, stability, and antioxidant activity. The formulated herbal gel showed promising results, with good physical stability, antioxidant activity, and potential benefits for skin health, such as moisturizing, anti-inflammatory, and antimicrobial effects. The herbal skincare gel formulation offers a natural, effective, and potentially safer alternative to conventional skincare products, warranting further research and development. This abstract provides a concise overview of the formulation and evaluation of an herbal skincare gel, highlighting its potential benefits and advanta.

Key words: Herbal, skincare, Topical gel, anti-inflammatory, evaluations .

ICPEP110

PHYTO-COSMECEUTICAL GEL CONTAINING CURCUMIN AND QUERCETIN LOADED MIXED MICELLES FOR IMPROVED ANTI-OXIDANT AND PHOTOPROTECTIVE ACTIVITY

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Abstract:

UV radiations induced skin damage and it results in consequences like aging, solar urticaria and cancer. Sunscreens provide protection to skin from these damages. Objective of the study was to develop novel phyto-dermal gel (PDG) with dual action of sun protection and antioxidant potential using polymeric mixed micelles (PMMs) as nanocarriers. PMMs of Pluronic F127 and Pluronic F68 loaded with CUR and QU were optimized by 3^2 factorial designs. Responses studied were vesicle size, SPF, entrapment efficiency and antioxidant activity. Optimized micelles were incorporated into Carbopol 940 gel and evaluated for pH, drug content, spreadability, rheology,

syneresis, ex vivo permeation and skin retention. The micellar size ranged between 387-527 nm and PDI was between 0.248 to 0.584. SPF was found between 18.86 to 28.32 and antioxidant activity of CUR ranged from 44% to 77% and for QU it was 60% to 79%. TEM revealed spherical morphology of micelles. Hysteresis loop in rheogram suggested thixotropy of gel. Syneresis for gels from day 0-30 days ranged from 0 to 12.46% w/w. SPF of optimized gel was 27±0.5 and antioxidant activity was enhanced by the gel. The spreadability was found to be good. Cumulative permeation release was found to be 97.71% for CUR and 99.78% for QU at 4 h. Polymeric micelles showed increased skin retention and sustained drug release. Gel showed no signs of erythema and edema on Wistar rats. PMMs enhanced antioxidant and skin protective effect of CUR and QU.
Keywords: - Curcumin (CUR), Quercetin (QU), Antioxidant Activity, sun protective activity.

ICPEP111
NATURAL EXTRACT-BASED FORMULATION FOR IN VITRO ANTIMICROBIAL EVALUATION

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Abstract:

Introduction: The rising concern over antimicrobial resistance has prompted the exploration of plant-based alternatives to synthetic drugs. This study focuses on the formulation and in vitro evaluation of a natural extract derived from a nutrient-rich botanical source. The extract was obtained using solvent extraction methods and incorporated into a stable formulation. Preliminary phytochemical screening confirmed the presence of bioactive constituents such as triterpenoids, flavonoids, alkaloids, and phenolic compounds. The antimicrobial activity of the formulation was assessed using the agar well diffusion method against selected Gram-positive, Gram-negative bacterial strains, and a fungal species. Results revealed a concentration-dependent zone of inhibition, indicating notable antimicrobial potential. This suggest that the formulated natural extract holds promise as a cost-effective and eco-friendly antimicrobial agent for further therapeutic development.
Keywords: natural extract, evaluation, formulation, antimicrobial activity

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