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PHARMACEUTICAL EDUCATIONAL SOCIETY

TRC
DEPARTMENT OF PHARMACY

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INTERNATIONAL CONFERENCE

SATURDAY, 22 FEBRUARY 2025

PHARMACARE

"LEADING THE NEXT GENERATION OF HEALTHCARE"

SOUVENIR

BY

PESOTS

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International Conference

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MESSAGES

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MESSAGE

FROM THE DESK OF CHIEF GUEST

PHARMACARE 2025

It gives me enormous pleasure to note Faculty of Pharmacy, TRC Mahavidyalaya, & Pharmaceutical Educational Society (PESOTS) is organizing International Conference PHAMACARE 2025 on "Leading the Next Generation of Healthcare" on 22nd February 2025, at the TRC Mahavidyalaya Department of Pharmacy, Barabanki, Uttar Pradesh 225001. It is indeed heartening to note that participants from various organizations in the areas of Pharmacy institutes and industries have consented to share their views and discuss the issues related and relevant to the conference. I do hope that some promising recommendations must come which shall be ultimately beneficial for human health related problems. I hereby express my sincere compliments to the organizers of this conference and selecting this very important topic.

I wish this international conference a grand success.

With regards,

Prof. (Dr.) Deependra singh

ERC Chairman

Pharmacy Council of India

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MESSAGE

FROM THE DESK OF PRESIDING GUEST

PHARMACARE 2025

It gives me immense pleasure to acknowledge that the Faculty of Pharmacy, TRC Mahavidyalaya, in collaboration with the Pharmaceutical Educational Society (PESOTS), is organizing the International Conference PHARMACARE 2025 on "Leading the Next Generation of Healthcare" on 22nd February 2025 at the TRC Mahavidyalaya Department of Pharmacy, Barabanki, Uttar Pradesh – 225001.

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 PHARMACARE 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

PHARMACARE 2025

Esteemed Pharmacy Professionals,

It is with great pleasure that I extend my warmest greetings to all attendees of Pharmacare 2025, an international conference of immense significance. The collaboration between the Pharmaceutical Educational Society (PESOTS) and the Faculty of Pharmacy, TRC Mahavidyalaya exemplifies a shared commitment to "Leading the Next Generation of Healthcare".

I commend your dedication to academic excellence and research. Your participation in this intellectual gathering plays a crucial role in shaping the future of pharmaceutical advancements. May your discussions be insightful, your collaborations productive, and your discoveries groundbreaking.

Wishing Pharmacare 2025 great success and a lasting impact on academia.

Dr. Sheelendra Pratap Singh

Principal Scientist

CSIR-Indian Institute of Toxicology, Lucknow

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MESSAGE

FROM THE DESK OF GUEST OF HONOUR

PHARMACARE 2025

I am delighted to acknowledge that the Faculty of Pharmacy, TRC Mahavidyalaya, in collaboration with the Pharmaceutical Educational Society (PESOTS), is hosting the International Conference PHARMACARE 2025 on "Leading the Next Generation of Healthcare" on 22nd February 2025 at the TRC Mahavidyalaya Department of Pharmacy, Barabanki, Uttar Pradesh – 225001.

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

Prof. (Dr.) Rohit Dutt

Vice President, APTI

Principal, GMN College, Ambala Cantt

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MESSAGE

FROM THE DESK OF GUEST OF HONOUR

PHARMACARE 2025

Dear Esteemed Participants of PHARMCARE 2025,

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 TRC Mahavidyalaya Department of Pharmacy for orchestrating this intellectual symphony.

Your presence contributes to the vibrancy of this forum, where ideas converge, innovations are born, and collaborations flourish. May PHARMCARE 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 Kumar Sharma
National President
Pharmaceutical Educational Society
Hon'ble Pro-Vice Chancellor
Glocal University, Saharanpur, U.P

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डॉ० शुचिता चतुर्वेदी
सदस्य

आज़ादी का अमृत महोत्सव

उत्तर प्रदेश
राज्य बाल अधिकार संरक्षण आयोग
लखनऊ -226001

दिनांक : 15.11.2024

अत्यन्त आनन्द का विषय है कि टी0आर0सी0 महाविद्यालय डिपार्टमेन्ट ऑफ फार्मेसी एवं **Pesots** सतरिख जैसे ग्रामीण अंचल में होने के उपरान्त भी अपनी पहली अन्तर्राष्ट्रीय कान्फ्रेन्स आयोजित कर रहा है। कान्फ्रेन्स का उद्देश्य **Pharma Care : "Leading the Next Generation of Healthcare"** है, जिससे न केवल शिक्षार्थियों को फार्मेसी के क्षेत्र में होने वाले नये आयामों के बारे में पता लगेगा वरन् आये हुए विशिष्ट अतिथियों एवं मूर्धन्य विद्वानों से उनकी विद्वता का परिचय भी प्राप्त होगा।

मैं टी0आर0सी0 महाविद्यालय डिपार्टमेन्ट ऑफ फार्मेसी को अपनी शुभकामनाएं देती हूँ और आशा भी करती हूँ कि आने वाले निकट भविष्य में इस प्रकार के ज्ञान–सरोवर से न केवल अपने अपितु आस–पास के कई जिलों को अभिसिंचित करते रहेंगे।

भवदीया,

डॉ0 शुचिता चतुर्वेदी
उत्तर प्रदेश राज्य बाल अधिकार संरक्षण आयोग,
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TRC MAHAVIDYALAYA, DEPARTMENT OF PHARMACY
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Affiliated to BTE (Board of Technical Education) (College Code : 2735)
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Contact : 8303386286, 8188067238
Email : directortrcp@gmail.com Website : www.trcpharmacy.in

Date : 15-11-2024

Messege

It gives me immense pleasure to invite you all to the first International Conference jointly organized by T.R.C. Mahavidyalaya Department of Pharmacy & PESOTS. The theme **Pharma Care : "Leading the Next Generation of Healthcare"** shall unfold wide spread bonds and shall make a new pavement in the field of pharmacy. The deliberations of this conference shall add knowledge to the various aspect of this vary patent subject. The events of the scientific programme include orations by eminent speakers of pharmacy fraternity. There are different committees working at different platforms to make this international conference a success for T.R.C., PESOTS & the upcoming generation. I am sure that each of us will find this conference a stimulating and informative meeting. I take this opportunity to request to actively participate to add richness of your intelligentsia.

I welcome again all the dignitaries and participants.

Regards,
(Dr. Ranjul Mishra)
Chairman
T.R.C. Mahavidyalaya
Department of Pharmacy

Under Auspicies Chaturvedi Harprasad Educational Society
B-91/17, Krishna Nagar, Barabanki, U.P., 225001

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MESSAGE

FROM THE DESK OF PATRON

PHARMACON 2023

Dear Esteemed Participants of Pharmacon 2023,

As the Vice Chancellor of Shobhit University, it is an honour to extend my heartfelt greetings to all attendees of this distinguished International Conference. The collaboration between the Pharmaceutical Educational Society (PESOTS) and the Faculty of Pharmacy at Swami Vivekanand Subharti University for organizing International Conference Pharmacon 2023 is commendable.

This conference serves as a nexus for the brightest minds in pharmaceutical sciences, fostering innovation and knowledge exchange. Your participation contributes significantly to this collective pursuit of excellence. May this event be a source of inspiration, sparking new ideas and collaborations that propel the pharmaceutical field to greater heights.

Best Wishes,

Prof. (Dr.) Ranjit Singh
Hon'ble Vice-Chancellor
Shobhit University, Saharanpur
Advisor, pesots

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MESSAGE

FROM THE DESK OF CONVENER

PHARMACARE 2025

It is my immense pleasure to welcome all esteemed dignitaries and participants to the one-day International Conference PHARMCARE 2025 on “Leading the Next Generation of Healthcare”
scheduled for 22th February 2025, organized by the TRC Mahavidyalaya Department of Pharmacy, and the Pharmaceutical Educational Society (PESOTS).
The primary objective of this conference is to inspire students, faculty members, and researchers to present their innovative research work. It serves as a dynamic platform for distinguished scientists, academic researchers, faculty, and students to exchange knowledge and groundbreaking ideas.
The theme of this conference focuses on highlighting new methodologies, advanced techniques in smart materials, and their applications for sustainable development in the pharmaceutical field. I am honored to note that the invited speakers are renowned experts in their respective fields. Furthermore, we are privileged to welcome participants from various universities across multiple states. The conference has received an overwhelming number of submissions for both oral and poster presentations.
We look forward to an engaging and insightful event, where esteemed scientists, academicians, young researchers, and students from across the country will share new and exciting developments in the pharmaceutical field.
I extend my best wishes for the success of this conference and for the continued growth and achievements of all participants in their academic and professional endeavors.

Sincerely,

Prof. (Dr.) V. K. Gupta
Director, TRCMDOP
Barabanki, Lucknow

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MESSAGE

FROM THE DESK OF CONVENER

PHARMACARE 2025

Dear Esteemed Participants, Organizers, and Guests of PHARMCARE 2025,

It is with great pleasure and enthusiasm that I extend my warmest greetings to all of you gathered for the International Conference PHARMCARE 2025, organized by the Pharmaceutical Educational Society (PESOTS) and the TRC Mahavidyalaya Department of Pharmacy.

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 R V Institute of Pharmacy to bring together experts, researchers, and professionals from across the globe is commendable. In the realm of pharmaceuticals, conferences like PHARMACARE 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 PHARMCARE 2025 will contribute significantly to the growth and development of pharmaceutical sciences.

Warm regards,

Prof. (Dr.) Girendra Kumar Gautam,
Founder General Secretary
Pharmaceutical Educational Society
Director,
Shri Ram College of Pharmacy
Muzaffarnagar

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MESSAGE

FROM THE DESK OF CO-CONVENER

PHARMACARE 2025

Dear Colleagues,

I am honoured and delighted to welcome you to the International Conference PHARMCARE 2025 on "Leading the Next Generation of Healthcare" on 22th February 2025, organized by the TRC Mahavidyalaya Department of Pharmacy, and the Pharmaceutical Educational Society (PESOTS). The Conference is designed to provide and share latest information and developments in the field of Pharma sector.The conference provides great opportunity for students, research scholars and academicians to present their innovative ideas and research work on national platform.

The Conference looks forward to be filled with two interactive sessions, scientific poster presentations and valedictory ceremony by bringing together renowned speakers and scientists which will surely make it a memorable event.

I, being the Co-convener of the conference has always gained valuable support from Organizing secretary, Co-ordinators and steering committee members and my sincere regards to the organizers.

We are looking forward to meet all of you in TRC Mahavidyalaya Department of Pharmacy for this wonderful session.

Best Regards

Dr. Shivendra Agarwal

Principal

Vivekanand College of Pharmacy, Chandpur

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MESSAGE

FROM THE DESK OF CO-CONVENER

PHARMACARE 2025

It is with great pleasure that I extend my warmest greetings to all attendees of PHARMCARE 2025, an international conference of significant importance. TRC Mahavidyalaya Department of Pharmacy, and the Pharmaceutical Educational Society (PESOTS)., is organizing this prestigious event to foster advancements in pharmaceutical sciences.

The chosen theme, "Leading the Next Generation of Healthcare" is highly relevant in today's rapidly evolving landscape. It is essential to conduct a comprehensive and systematic review of existing scientific literature to enhance its effectiveness and drive meaningful progress in the field.

A heartfelt appreciation to the organizers for their meticulous planning and dedication. Their efforts have created an inspiring platform that promotes knowledge exchange, networking, and collaboration among industry leaders, researchers, and academicians.

I extend my best wishes for the grand success of PHARMCARE 2025 and hope it leads to valuable discussions and groundbreaking advancements in pharmaceutical sciences.

Mr. Shubham Tiwari

Head, TRC

Mahavidylaya, DOP, Barabanki

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MESSAGE

FROM THE DESK OF ORGANISING SECRETARY

PHARMACARE 2025

Esteemed Pharmacy Professionals,

It is with great pleasure that I extend my warmest greetings to all attendees of PHARMCARE 2025, a prestigious International Conference of immense significance. The collaboration between the Pharmaceutical Educational Society (PESOTS) and the TRC Mahavidyalaya Department of Pharmacy, reflects a shared commitment to advancing pharmaceutical sciences and fostering innovation in the field.

I deeply appreciate your dedication to scholarly pursuits. Your active participation in this esteemed gathering plays a vital role in shaping the future of pharmaceutical research. May your discussions be insightful, your collaborations productive, and your discoveries groundbreaking.

Wishing PHARMCARE 2025great success and a lasting impact on academia and the pharmaceutical industry.

Warm Regards,

Dr. Adesh Tiwari
Vice Principal, TRC Mahavidyalaya, Barabanki

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MESSAGE

FROM THE DESK OF ORGANISING SECRETARY

PHARMACARE 2025

It is a great pleasure to note that the Pharmaceutical Educational Society and the Faculty of TRC Mahavidyalaya Department of Pharmacy are organizing the inaugural PHARMCARE 2025 conference on the theme "Leading the Next Generation of Healthcare" at TRC Mahavidyalaya Department of Pharmacy, Barabanki, on 22th February2025.

I am delighted that this international conference will foster an environment of innovation, providing a collaborative platform for academicians, researchers, scientists, and students. Through plenary sessions, panel discussions, oral and poster presentations, this event will help shape the future of the pharmacy profession by exploring new concepts and advancements in the field. I am also pleased to learn that a souvenir will be released to commemorate this special occasion.

On this note, I extend my best wishes to the organizers, participants, and attendees. May PHARMCARE 2025 be a resounding success and a milestone in pharmaceutical education and research.

With best wishes,

Mr. Mayank Tiwari
Principal, Patel Panchayati College of Pharmacy, Barabanki

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EMINENT SPEAKERS

PROF. GAURAV KAITHWAS
PROFESSOR
School of Pharmaceutical Sciences, Babasaheb Bhimrao Ambedkar University, Lucknow, UP | India.

DR. DINESH KUMAR
ADDITIONAL PROFESSOR
Department of Advanced Spectroscopy and Imaging
Centre Biomedical Research (CBMR),
Lucknow, UP | India.

DR NITIN CHITRANSHI
SENIOR LECTURER
School of Science and Technology
University of New England
Armidale NSW 2350, Australia

DR. JEETU GANGIL
SR. CENTRALIZED CLINICAL TEAM LEAD
Fortrea, Moore Drive,
Durham, NC 27709,
USA

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ABSTRACT

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1	FORMULATION AND EVALUATION OF PVA BASED HYDROGEL LOADED WITH PIPER BETEL SILVER NANOPARTICLES	Aman Kumar Singh, Hakim Singh Rajput, Dr. Amresh Gupta	Institute of Pharmaceutical Sciences & Research, Unnao
2	FORMULATION AND EVALUATION OF HERBAL CREAM	Shivendra	J .S Singh Institute of Pharmacy Para Sarai , Sitapur, Uttar Pradesh 261207
3	A Global challenge antibiotic resist	Abhishek Srivastava . Dr Priya Verma. M.Rathore	Sherwood college of pharmacy. Barabanki. Uttar Pradesh.225001. India
4	The Ability of Natural Remedies to Prevent Rheumatoid Arthritis By Blocking Angiogenesis	Kaif Anwar	Hygia Institute of Pharmaceutical Education & Research, Lucknow
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14	AN OVERVIEW ON HERBS USED AS ANTI-CANCER AGENT	Sujata Kumari	DKRR Shikshan Sansthan, Manwa, Chauki, Sidhauli, U.P, India
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17	Development and Validation of a Method for Identifying a Chosen Bulk Medication and Its Formulation.	Abhishek Tiwari, Mr. Pankaj Gill	Shree Venkateshwara University Gajraula
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26	The Global Burden of malaria Public Health Strategies for Prevention and Control	Sumit, Sunil, Ritika Bharti	TRC, Mahavidyalaya Department Of Pharmacy
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28	The Next Generation of Healthcare: The Future of Pharmacy Practice & Pharmacovigilance	Mansee Arya, Priyanka Bansal	Noida Institute of Engineering and Technology (Pharmacy Institute), 19 Knowledge Park II, Greater Noida, Uttar Pradesh, 201306, India.
29	Therapeutically identical phytochemical agent present in plant against brain tumor by computational methods.	Tejaswini Masne	P. R. Pote Patil College of Pharmacy, Amaravati. Maharashtra-444602. India
30	The Potential of Stem Cells in Treating Diseases	Santosh Kumar, Ritika Bharti	Ram Akbaal Shivrani Pharmacy College
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33	WOUND HEALING PROPERTIES OF AZADIRACHTA INDICA	JYOTI LODHI	GOEL INSTITUTE OF PHARMACY AND SCIENCES, LUCKNOW
34	Review on epidemiological studies linking exposure to pesticides and health effects	Pragya Patel	Hygia Institute of Pharmaceutical Education & Research, Lucknow
35	An Update on Rheumatoid Arthritis's Pathophysiology, Diagnosis, and Available Treatments	Bushra khatun, Pro. Ashutosh Kumar Yadav	Hygia Institute of Pharmaceutical Education & Research, Lucknow
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37	CURRENT DEVELOPMENT IN DEPRESSION	Sanjali Singh, Subrat Kr. Bhattamishra	Central University of South Bihar, Gaya
38	UNLOCKING THE POTENTIAL OF SEMAGLUTIDE: A COMPREHENSIVE REVIEW OF CLINICAL EFFICACY AND SAFETY	Thamsheera, Ramdas Bhat, Dr A. R. Shabaraya	Srinivas College of Pharmacy, Valachil, Farangipete post, Mangalore, Karnataka-574143
39	Advancements in Vaccine Delivery Systems: A Step Towards Enhanced Immunization	Akriti Singh1, Shivani Prajapati1, Aarti Devi1, Nikita Devi2	1. Department of Pharmacognosy, JP College of Pharmacy, Unnamed Road, Mubarakpur, Palhri, Lucknow, Uttar Pradesh 226201 2. Department of Pharmaceutical Chemistry Babu Yugraj Singh College of Pharmacy, Baghamau, Malesemau, Sector 6, Gomti Nagar, Lucknow, Uttar Pradesh. 226010.
40	Evaluation of Anti-Ulcer Activity of Abutilon indicum in Experimentally	Nafees Khan, Rahul Km Mishra	Seth Vishambhar Nath Institute Of Pharmacy BBK

	Induced Gastric Ulcer Models		
41	Evaluation of Anticonvulsant Activity of Plant Extract in Mice	Aarti Pal, Dr. Gurvirender Singh	Institute of Pharmaceuticals Sciences, Kurukshetra University, Kurukshetra
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45	Implementation of Successful Training Program in Pharmaceutical Industry	Anirudh BM, Krishnananda Kamath K, Dr. A. R. Shabaraya	Srinivas College of Pharmacy, Valachil, Mangalore, Karanataka-574143
46	VIRTUAL SCREENING AND BIOLOGICAL EVALUATION OF ANTI-INFLAMMATORY COMPOUNDS	Priti Singh	Goel Institute of Pharmacy & Sciences, Lucknow
47	Phytotherapeutic Approaches to Psychosis: A Comprehensive Review of Herbal Remedies with Anti-Psychotic in experimental animal	Jyotima Yadav,Mrs.Krishna	Goel Institute Of Pharmacy And Sciences Lucknow
48	EXTRACTION PHYTOCHEMICAL INVESTIGATION AND ANTI ACNE ACTIVITY OF HYDRO-ALCOHOLIC EXTRACT OF WRIGHTIA TINCTORIA	Diwakar, Niyaz, Ritika Bharti, Mohd Ubaid	TRC Mahavidyalaya, Department of Pharmacy
49	The Ability of Natural Remedies to Prevent Rheumatoid Arthritis By Blocking Angiogenesis	Kaif Anwar, Himani Awasthi	Hygia Institute of Pharmaceutical Education & Research, Lucknow
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134	Phytochemical screening of *Calotropis gigentia* and *Bacopa monnieri*	Shivani Sharma, Nasir Ahamd, Praveen Kumar	Translam Institution of Pharmaceutical Education and Research, Ganganagar, Meerut (UP)
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166	Nanoparticles and their application	Akansha Nirwal1 , Girendra Kumar Gautam2, Aryan Sharma2	1Motherhood university, Bhagwanpur, Distt Roorkee 247661, Uttarakhand 2Shri Ram College of Pharmacy, Parikrama Marg, Muzaffarnagar 251001, Uttar Pradesh
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175	Review on: Plasma Drug Concentration -Time profile	1Sumit, Shlok, Satish, Mahtab, Muskan, Saniya,2 Jyotima Yadav	Yashraj College Of Pharmacy

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FORMULATION AND EVALUATION OF PVA BASED HYDROGEL LOADED WITH PIPER BETELSILVER NANOPARTICLES

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Abstract

Biosensors have revolutionized pharmaceutical analysis by offering rapid, sensitive, and cost-effective detection of drugs, metabolites, and biomarkers. These analytical devices integrate biological recognition elements, such as enzymes, antibodies, or nucleic acids, with transducers to convert biochemical interactions into measurable signals. Recent advancements in nanotechnology, microfluidics, and artificial intelligence have significantly enhanced biosensor performance in terms of sensitivity, specificity, and real-time monitoring capabilities. Electrochemical, optical, and piezoelectric biosensors are widely employed for drug quality control, pharmacokinetics studies, and therapeutic drug monitoring. Emerging trends include wearable biosensors for continuous patient monitoring, lab-on-a-chip devices for point-of-care diagnostics, and AI-assisted biosensing platforms for data analysis. Despite their potential, challenges such as sensor stability, miniaturization, and regulatory approval hinder widespread commercialization. Future research should focus on improving biosensor reproducibility, integrating multi-analyte detection, and ensuring regulatory compliance. The continued development of biosensors is expected to enhance precision medicine, personalized therapy, and pharmaceutical quality assurance, making them indispensable tools in modern healthcare and drug development.

Keywords

Biosensors, pharmaceutical analysis, nanotechnology, point-of-care diagnostics, drug monitoring.

FORMULATION AND EVALUATION OF HERBAL CREAM

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Abstract

The purpose of the present study was the formulation and evaluation of a herbal cream. Herbal creams have gained significant attention due to their natural ingredients and therapeutic benefits. Unlike synthetic creams, herbal creams do not contain harmful chemicals, reducing the risk of skin irritation, allergies, or long-term side effects. These creams utilize plant-based ingredients, which provide nourishment, hydration, and protection to the skin. The formulation of the herbal cream in this study was carried out using a simple and efficient method. Firstly, the oil phase was prepared by melting stearic acid (5g) at 60°C. The stearic acid acts as an emulsifying agent and helps maintain the consistency of the cream. Secondly, the aqueous phase was prepared by mixing essential oils, including neem oil, aloe vera gel, almond oil, olive oil, and glycerin (2ml), along with potassium hydroxide (120mg), rose water (10ml), and methyl paraben (qs). This mixture was also heated to 60°C. Neem oil is well known for its antibacterial and antifungal properties, while aloe vera gel soothes and hydrates the skin. Almond oil and olive oil provide essential fatty acids and antioxidants that nourish and protect the skin. Glycerin acts as a humectant, keeping the skin moisturized. Once both phases were heated to 60°C, the oil phase was gradually added to the aqueous phase with continuous stirring to ensure proper emulsification. After mixing, the formulation was allowed to cool down to room temperature while being stirred continuously. The prepared herbal cream was then evaluated baseind on various physical parameters, including appearance (color), pH, spread ability, wash ability, homogeneity (by visual & touch), irritancy test, and type of smear. The results indicated that the herbal cream was stable, homogenous, and non-irritant, making it suitable for use in skincare applications.

Keywords- Neem oil, Aloe vera, Almond oil, Olive oil, Herbal cream, Formulation, Evaluation

THE ABILITY OF NATURAL REMEDIES TO PREVENT RHEUMATOID ARTHRITIS BY BLOCKING ANGIOGENESIS

Kaif Anwar*
Hygia Institute of Pharmaceutical Education & Research, Lucknow

Abstract

Rheumatoid arthritis (RA) is a chronic autoimmune disorder characterized by synovial hyperplasia, inflammation, and resulting joint destruction, wherein angiogenesis plays a pivotal role. This poster highlights the importance of inhibiting synovial angiogenesis as a therapeutic strategy for RA, emphasizing the potential of natural medicines in this domain. Numerous studies have indicated that natural

products possess significant anti-angiogenic properties, impacting key signaling pathways, including HIF/VEGF/ANG, PI3K/Akt, MAPK, NF-κB, PPARγ, and JAK2/STAT3. Notable natural medicines such as include scopoletin, scopolin, nobiletin, berberine, morin, and Sinomenine have emerged as promising agents, demonstrating both efficacy and reduced toxicity in RA management. The mechanisms by which these natural products exert their effects include immunological regulation, oxidative stress mitigation, and anti-angiogenesis, contributing to decreased inflammation and cartilage destruction. Overall, this poster elucidates the method of extraction, therapeutic potential of natural medicines, advocating for their role in RA treatment to alleviate symptoms and improve patient quality of life while ensuring a deeper understanding of their mechanisms of action. Future research is encouraged to further explore these natural products as viable options in clinical settings to prevent irreversible joint damage.

PHYTOCHEMICAL EVALUATION AND ANTIOXIDANT ACTIVITY OF SOME HERBAL PLANTS

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Abstract:

The objective of this study was to figure out and scientifically establish the pos qualitative and quantitative estimation with antioxidant activity of Ludwigiaadscend, Launaea pinnatifida and Carica papaya. Dried aerial part of this plants were extra hydro alcoholic extract and these crude extracts were subjected as such against s test to evaluate their phytochemical test and antioxidant activity. The hydro-alcoholic extracts plants showed potent activity in 2,2-diphenyl-1-picrylhydrazil (DPPH) free radical exhibited percent inhibition 78.03 %, 62.62% and 86.77 % and IC50 value were found to be 55.061, 70.230 and 22.090 µg/ml. Ascorbic acid was use a reference compound which exhibited percent inhibition 89.61 % and showed IC50 value of 15.569 µg/ml respectively. The reducing power of all the fractions was four be concentration dependent. The extract also showed the highest total phenolic content (TPC), and total flavonoids content (TFC) showed the content values of 90.86 and 124.74 mg/gm respectively and total flavonoids content of Hydro-alcoholic extract showed the content values of 81.70, 31.76 and 105.53 mg/gm respectively.

Thus, objective of the present study is to investigate the Phytochemical evaluation and antioxidants activity of hydro-alcoholic extract of Ludwigiaadscend, Launaea pinnatifida and Carica papaya.

Keywords: Ludwigiaadscend, Launaea pinnatifida and Carica papaya, antioxidants activity.

BIOCOMPATIBLE PRODUCTION OF DRUG-LOADED SODIUM ALGINATE NANOCARRIERS USING GREEN STABILIZERS: FORMULATION AND DRUG DELIVERY POTENTIAL

Swapnil Jain a , Pradyumna Keche *b

Abstract :

Natural polymers have various excellent properties, including high encapsulation efficiency, biocompatibility, and targeted delivery potential, natural polymers have become increasingly popular in drug delivery applications. In this research, we successfully synthesized nifedipine-loaded alginate nanoparticles using an environmentally friendly method. We employed various techniques, such as “scanning electron microscopy (SEM), X-ray diffraction (XRD), dynamic light scattering (DLS), and Fourier transform infrared spectroscopy (FTIR)”, to characterize the physicochemical properties of the prepared nanoparticles. The in vitro characterization of NPs involved in testing their drug release and swelling behavior in “simulated gastric and intestinal fluids”. The results indicated that the release of drug was lower in acidic gastric fluid and higher in basic intestinal fluid, indicating a pH-dependent release profile. The NPs exhibited lower swelling in acidic gastric fluid and higher swelling in basic intestinal fluid. This suggests that the NPs were more stable in acidic conditions and more prone to swelling in basic conditions. During the preparation of NPs, the natural stabilizer honey was used and it shows its effect in particles size. The 3 by 2 factorial design was used by using Design Expert R 11 software as per the software it gives 11 batches as per different concentrations of stabilizer and polymer and these show impact on particle size and entrapment efficacy. Out of these 11 batches the software suggested one optimized batch and this batch was used for further characterization.

AN OVERVIEW OF HERBAL REMEDIES FOR TREATMENT OF DEPRESSION

Vaibhav Shukla*1, Kisalaya Mishra

Hygia Institute of Pharmaceutical Education & Research, Lucknow

Abstract:

An Overview of Herbal Remedies for Treatment of Depression Vaibhav Shukla*1, Kisalaya Mishra Hygia Institute of Pharmaceutical Education & Research, Lucknow Abstract Depression is a mental health condition that impacts a person's thoughts, behaviour, and emotions. Numerous research on depression claim that it is a mental health condition marked by a low mood or a lack of interest in activities. There are several traditional medications used to treat depression. However, their therapeutic usefulness is limited by their adverse effects and medication interactions. Because of their versatility, therapeutic effectiveness, and minimal or negligible adverse effects, herbal medications are currently utilized all over the world. In order to better understand the potential biological activities of some herbal medications and their positive health benefits against anxiety, depression, and other neurological illnesses, this poster aims to outline such biological actions along with their extraction methods. A review of the literature was done to compile the therapeutic advantages. In order to outline the specific processes behind the therapeutic advantages of several medicinal plants against depression, a literature review was carried out. Recent research has demonstrated that there are several herbal medications that can effectively treat depression and other associated conditions. They are discovered to be safer than artificial substances. Herbal medications are a viable substitute for synthetic or conventional medications in cases of depression where the latter are not suitable because of their severe side effects and lack of accessibility. To establish the safety and effectiveness of herbal medications in the treatment of depression, however, clinical research is necessary. Keywords – Herbal Drugs, Depression, Antidepressant Effect, Psychiatric Illness

ARTIFICIAL INTELLIGENT BASED DRUG DELIVERY WITH USAGE OF ALCOHOL INVOLVING NANOTECHNOLOGY

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Goel Institute Of Pharmacy & Sciences

Abstract:
This abstract outlines a cutting-edge method of medication administration that combines nanotechnology and artificial intelligence (AI) for the focused treatment of alcohol-related problems. The fusion of these technologies opens up new avenues for effective and individualised alcohol addiction therapy. This novel approach is based on nanotechnology and uses specifically designed nanoparticles to contain medicinal ingredients. These nanoparticles offer accuracy and efficiency by targeting alcohol molecules within the body only when they are present. AI algorithms improve medicine compositions, guaranteeing individualised and safe care. A crucial component of this strategy is personalization. To customise medicine doses and release patterns, AI examines patient-specific information, such as genetics and medical history. A patient's physiological and behavioural reactions may be continuously assessed thanks to real-time monitoring made possible by wearable technology and sensors. AI-driven predictions pinpoint high-risk times, causing controlled medicine delivery to successfully control cravings and withdrawal symptoms. Healthcare practitioners can make necessary changes to treatment programmes thanks to real-time data from remote monitoring and telemedicine capabilities. Additionally, AI-driven data analytics assist in the continual study and improvement of medicinal approaches. Treatment for alcohol addiction might be revolutionised by this ground-breaking AI-nanotechnology combination. In its application, ethical and legal factors are crucial, including patient privacy and informed consent. For individualised, data-driven alcohol management, AI-integrated nanotechnology for alcohol-based medicine delivery is a paradigm-shifting strategy. This ground-breaking strategy has the potential to revolutionise the field of alcohol management by improving the efficacy of therapy, patient compliance, and general wellbeing. However, it is critical to recognise the ethical and legal issues that surround such a system, highlighting the significance of patient privacy, informed consent, and safety requirements. In conclusion, a new age of customised and data-driven therapeutic interventions is ushered in by the combination of AI and nanotechnology in the administration of alcohol-related drugs.

EXPLORING THE ROLE OF IMMUNE ACTIVATION AND INFLAMMATION IN HIV PATHOGENESIS AND ITS IMPLICATIONS FOR CURE STRATEGIES

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Bhavdiya Institute of Pharmaceutical Sciences and Research

Abstract:
HIV infection triggers chronic immune activation and systemic inflammation, even in individuals on effective antiretroviral therapy (ART). These immune responses contribute to disease progression, viral persistence in latent reservoirs, and a range of comorbidities. This research explores the complex interplay between immune activation, inflammation, and HIV pathogenesis, with a focus on how these factors hinder the eradication of the virus despite ART. Understanding the mechanisms that sustain immune dysregulation in HIV-infected individuals could offer insights into new therapeutic avenues. Specifically, targeting immune activation and inflammation might be critical in developing cure strategies, such as immune modulation or latency reversal agents, to reduce viral reservoirs and achieve sustained remission without the need for lifelong ART. The development of antiretroviral therapy for the prevention and treatment of HIV infection has been

marked by a series of remarkable successes. However, the efforts to develop a vaccine have largely failed, and efforts to discover a cure are only now beginning to gain traction. In this Review, we describe recent progress on all fronts — pre-exposure prophylaxis, vaccines, treatment and cure — and we discuss the unmet needs, both current and in the coming years. We describe the emerging arsenal of drugs, biologics and strategies that will hopefully address these needs. Although HIV research has largely been siloed in the past, this is changing, as the emerging research agenda is marked by multiple cross-discipline synergies and collaborations. As the limitations of antiretroviral drugs as a means to truly end the epidemic are becoming more apparent, there is a great need for continued efforts to develop an effective preventative vaccine and a scalable cure, both of which remain formidable challenges.

Keywords:- HIV Pathogenesis,ImmuneActivation,Inflammation,Antiretroviral Therapy (ART), Viral Reservoirs, Chronic Immune Dysregulation, Cure Strategies, HIV Cure Research,Immune Modulation

EVALUATION OF ANTI-INFLAMATARY ACTIVITY OF CINAMEN

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Abstract:

Inflammation is the body's response to injury, infection, or irritation, involving redness, swelling, heat, pain, and sometimes loss of function. It's a protective process aimed at healing, but can become harmful if it’s chronic or excessive. The purpose of this study is to assess the anti-inflammatory properties of cinnamon (Cinnamomum verum), a popular spice, by examining its bioactive constituents, specifically cinnamonaldehyde. The search for natural anti-inflammatory agents is of great interest because inflammation is a major underlying factor in many chronic diseases, such as autoimmune disorders, cardiovascular diseases, and arthritis. Cinnamon, due to its rich phytochemical composition, has been traditionally used in various cultures to treat inflammatory conditions. This research explores the anti inflammatory potential of cinnamon extracts using both in vitro and in vivo models. The study comprises the synthesis of cinnamon extracts from bark and its subsequent testing for anti-inflammatory benefits. The purpose of the in vitro tests is to assess how activated macrophages suppress the release of pro-inflammatory cytokines such TNF-α, IL-1β, and IL-6.

Keywords: Cinnamon (Cinnamomum verum), Anti-inflammatory activity, Cinnamaldehyde, Inflammation, Pro-inflammatory cytokine COX enzymes (COX-1, COX-2), Phytochemicals Natural anti-inflammatory agents, Inflammatory, pathways, Therapeutic potential Alternative medicine

THE ROLE OF LIFESTYLE MODIFICATIONS IN PREVENTING AND MANAGING GITS DISEASE

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Abstract:

This study to understand life style modification's contribution towards prevention and management of gastrointestinal diseases using a non-pharmacological approach that may have potential impacts in maintaining the healthy functioning of GIT.

Objective: To understand the impact of dietary changes, physical activity, stress management, and other behavior modifications in common GIT. conditions that include irritable bowel syndrome, gastroesophageal reflux disease, and IBD.

Results: Findings are indicative of how a rich fiber, fruits, vegetables, and probiotics diet may lead to maintaining gut health, thus raising the chances of diminishing GITdiseases. dietary adjustments involving lowering the intake of trigger food, frequent but small intake, and lowering fat intake diminish the symptoms. Physical activity performed on a regular basis improves digestion of food, reduces bloating, and stop constipation. Stress management techniques, specifically mindfulness and relaxation exercises, were found to be significantly associated with lowered GIT symptoms in stress-related conditions, such as IBS. Weight management also contributed to reducing the severity of conditions, such as GERD and fatty liver disease. These lifestyle changes provide a holistic yet sustainable approach in the prevention and management of GIT diseases, potentially reducing the dependency on medication and improving the quality of life.

Keywords: GIT Diseases, Lifestyle Modifications, Diet, Physical Activity, Stress Management, Gastroesophageal Reflux Disease, Irritable Bowel Syndrome, Inflammatory Bowel Disease, Prevention, Symptom Management.

AN OVERVIEW ON HERBS USED AS ANTI-CANCER AGENT

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DKRR ShikshanSansthan, Manwa, Chauki, Sidhauli, U.P, India

Abstract:

Cancer is an abnormal and uncontrolled division of cells which is known as cancer cell that can dead or destroy the cells surrounding all tissues. Cancer is the second major cause of death after cardio vascular disease. Plant sources of india are likely to provide effective anti cancer agent.Medicinal plant has a vital role in the prevention and treatment of cancer. Globally cancer is a disease which severely affects the human population .It is a constant demand for new therapies to treat and prevent this life treating disease. Since in older time duration different herbs used to treat people in different disease.Natural product plays an essential role in better against cancer. The discovery and development of anti cancer drug can be aided by medicinal plant which contain various bio active secondary phytochemical similarly as - flavavonid, phenolic, carotinoides and other secondary metabolism.Modified drugs are chemical based entities and plant based drug discovery mainly in the development anti cancer agent. Thousand of herbal compound are being analyzed by many researcher in the world wide area to validate their uses as anti cancerous drug. There are different examples of anti cancer agents are- plant derived compound, microbial sources, marine sources and platinum co-ordination complexes.Generally Himalayan yew (Taxus Baccata) is used as anti cancer drug in India and it is derived from bark and needles of the trees.

Keywords- Cancer, Importance, Anti cancer agent, Medicinal plants .

THE STUDY OF THE ANTI-ARTHRITIC ACTIVITY OF ABUTILON INDICUM, IN EXPERIMENTAL ANIMALS

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TRC, Mahavidyalaya, Department of pharmacy

Abstract:

The study of the anti-arthritic activity of Abutilon indicum, a medicinal plant known for its diverse therapeutic properties, has gained significant interest in recent years. Abutilon indicum, commonly known as Indian malow, has been traditionally used in Ayurvedic and folk medicine for treating a variety of ailments, including inflammation and joint pain. The objective of this research was to evaluate the anti-arthritic potential of Abutilon indicum using both in vitro and in vivo models. The plant' s phytochemical composition, including the presence of alkaloids, flavonoids, and glycosides, is believed to contribute to its anti-inflammatory and analgesic properties. The study involved the administration of Abutilon indicum extract in animal models of arthritis, fo lowed by assessment of various biochemical markers, including cytokines and oxidative stress indicators, as well as histopathological examination of joint tissues. Results demonstrated a significant reduction in joint swelling, pain, and histological damage in the treated groups, indicating a promising anti-arthritic effect. The extract also showed a reduction in inflammatory cytokine levels and improvement in the overall mobility of affected joints. These findings support the therapeutic potential of Abutilon indicum as a natural alternative for managing arthritis, warranting further investigation into its active compounds and mechanisms of action. Keywords: Abutilon indicum, anti-arthritic activity, inflammation, cytokines, oxidative stress, joint mobility

EXPLORING THE GENETIC AND ENVIRONMENTAL FACTORS CONTRIBUTING TO TYPE 2 DIABETES

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TRC, Mahavidyalaya, Department of Pharmacy

Abstract:

Aim: Aims of this study to explore the genetic and environmental factors that contribute to the development of Type 2 diabetes (T2D), focusing on their interplay in disease onset and progression.

Objective: To identify key genetic variants associated with an increased risk of T2D and assess the influence of environmental factors such as diet, physical activity, and socioeconomic status on disease development. The study also examines how genetic predisposition interacts with lifestyle factors to influence T2D risk.

Results: Genetic studies have identified multiple risk loci related to insulin resistance, pancreatic beta-cell dysfunction, and glucose metabolism. Specific gene variants, such as those in the TCF7L2 and FTO genes, have been strongly linked to an increased susceptibility to T2D. Environmental factors, including poor dietary habits (high-calorie, low-nutrient foods), lack of physical activity, and obesity, play significant roles in triggering T2D in genetically predisposed individuals. Furthermore, stress, and environmental pollutants were found to exacerbate the risk. The interaction between genetics and lifestyle factors is complex, with genetic predisposition amplifying the impact of environmental exposures

Keywords: Type 2 Diabetes, Genetic Factors, Environmental Factors, Insulin Resistance, Lifestyle, Obesity, Gene-Environment Interaction, Risk Loci, Disease Onset.

DEVELOPMENT AND VALIDATION OF A METHOD FOR IDENTIFYING A CHOSEN BULK MEDICATION AND ITS FORMULATION

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Shree Venkateshwara University Gajraula

Abstract:

Ensuring the quality and authenticity of bulk medications is critical for pharmaceutical safety and regulatory compliance. This study focuses on developing and validating an analytical method for the identification of a selected bulk medication and its formulation. A systematic approach was employed, integrating spectroscopic and chromatographic techniques, to establish a robust identification protocol. The method was validated following ICH guidelines, assessing parameters such as specificity, precision, accuracy, linearity, and robustness. The developed method demonstrated high reliability in differentiating the bulk drug from possible adulterants and excipients, confirming its suitability for routine quality control. These findings contribute to enhancing pharmaceutical verification processes, minimizing risks associated with counterfeit or substandard medications.

Keywords: Bulk medication, analytical method validation, pharmaceutical quality control, spectroscopic techniques, chromatographic analysis, ICH guidelines, drug identification, formulation analysis, counterfeit detection.

SYNTHESIS, BIOLOGICAL EVALUATION AND IN-SILICO STUDIES OF SOME NOVEL 2-AMINO- 1,3-THIAZINE DERIVATIVE FOR ITS ANTIMICROBIAL AND ANTIOXIDANT ACTIVITY

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Department of Pharmaceutical Chemistry, Kamla Nehru College of Pharmacy, Butibori, Nagpur, India-441108.

Abstract:

In the present study, a series of 2-Amino-1,3-thiazine were efficiently synthesized with excellent yields via substituted chalcone. Further these substituted chalcone were successfully utilized to synthesize the corresponding 2-(substituted) amino (substituted) 1,3- thiazine derivatives. All the synthesized compounds were characterized by various spectroscopic techniques such as 1H NMR, IR spectroscopy, and mass spectroscopy for structure elucidation. The compounds were subjected to a cup plate-based antimicrobial assay. The antimicrobial activity results reveal that the compounds AP01, AP03, AP04, AP06, AP15, AP18, AP24, AP25, AP27 and PP05 were found to be active against Staphylococcus aureus (gram positive) and Escherichia coli (gram negative) at concentration 100 to 300 µg/ml using ciprofloxacin as standard. Also, the compounds AP01, AP03, AP04, AP06, AP15, AP18, AP24, AP25, AP27 and PP05 showed promising radical scavenging activity with the IC50 value around 24 µM/ml. A biological investigation was conducted, including molecular docking of synthesized compounds with several receptors to identify and confirm the best ligand-protein interactions. Hence, this study found a significant strategy to diversify the chemical molecules. The synthesized compounds play a potential role as an antibacterial intensifier against some pathogenic bacteria for the development of antibacterial substances. Again, the synthesized compounds were found to be potential for antioxidant activity.

DEVELOPMENT AND VALIDATION OF A SPECIFIC ANTICONVULSANT DRUG USING AN RP HPLC METHOD THAT INDICATES STABILITY

Abhishek Rajbhar*1, Dr. Ashwin Kumar Saxena*2
Shri Venkateshwara University

Abstract :

The development of a robust and reliable analytical method is crucial for ensuring the quality, efficacy, and safety of pharmaceutical compounds. In this study, we present a novel reverse phase high-performance liquid chromatography (RP-HPLC) method for the quantification and stability assessment of a specific anticonvulsant drug. The method was developed and validated following ICH guidelines to ensure accuracy, precision, linearity, robustness, and specificity. A C18 column with an optimized mobile phase composition was utilized to achieve efficient separation, and detection was performed at an appropriate wavelength using a UV-visible detector. Forced degradation studies, including acidic, basic, oxidative, thermal, and photolytic conditions, were conducted to evaluate the stability-indicating capability of the method. The developed RP-HPLC method effectively separated the drug from its degradation products, demonstrating its suitability for stability studies. The method validation results showed excellent linearity ($R^2 > 0.999$), precision (RSD < 2%), and recovery within the acceptable range, ensuring its reliability for routine quality control and stability testing of the anticonvulsant drug. This study highlights the significance of a validated, stability-indicating RP-HPLC method in pharmaceutical analysis, contributing to the safe and effective use of anticonvulsant medications.

Keywords: RP-HPLC, anticonvulsant drug, stability-indicating method, forced degradation.

VIRTUAL SCREENING AND BIOLOGICAL EVALUATION OF ANTI-INFLAMMATORY COMPOUNDS

Priti Singh

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Abstract:

Our skin is constantly at risk from a number of things, including UV rays, which can lead to oxidation or inflammatory issues. Due to its anti-inflammatory and antioxidant qualities, ferulic acid (FA) is utilized in many cosmetic products and is also employed in clinical settings to treat a variety of illnesses. This study looked for FA derivatives using the FA structural skeleton. Then, to virtually screen compounds that can attach to proteins with a good drug resemblance, Veber rules, the rule of five, and molecular docking were used. The compounds' antioxidant potency was assessed using DPPH and ABTS, and their toxicities were examined using an MTT assay. The concentration fluctuations of NO and other inflammatory factors (TNF-α, IL-1β, and IL-6) were assessed using the Griess Reaction System and ELISA. A polyphenolic component that is frequently present in fruits, vegetables, and drinks, ferulic acid (FA) is a natural product and a photoprotective agent. FA is widely utilized in the food, pharmaceutical, and cosmetics industries and has been shown to have the capacity to scavenge free radicals as well as anti-oxidative and anti-inflammatory effects. As a result, FA may be able to contribute to diseases caused by free radicals.

Keyword:- Ferulic acid, polyphenolic compound, virtual screening, antioxidant.

PHARMACOLOGICAL ADVANCES IN DISEASE MANAGEMENT: EMERGING THERAPEUTIC STRATEGIES AND CHALLENGES

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Shri Ram College of Pharmacy, Parikrama Marg, Muzaffarnagar 251001, Uttar Pradesh

Abstract

Pharmacology has witnessed significant advancements in the development of novel therapeutic strategies for managing various diseases, including cancer, cardiovascular disorders, diabetes, neurodegenerative diseases, and infectious conditions. Innovations in drug discovery, targeted therapy, biologics, and nanomedicine have improved treatment efficacy while reducing adverse effects. Personalized medicine and precision pharmacology have further enhanced patient-specific treatment approaches. Despite these advancements, challenges such as drug resistance, side effects, high development costs, and regulatory barriers persist. This review explores recent pharmacological breakthroughs, their impact on disease management, and the future direction of therapeutic research.

Keywords: Pharmacology, Drug Discovery, Disease Management,Cancer Therapy, Cardiovascular Disorders, Diabetes

THE GLOBAL BURDEN OF MALARIA PUBLIC HEALTH STRATEGIES FOR PREVENTION AND CONTROL

Amit*[1], Shivam*[2],Ritika Bharti

TRC, Mahavidyalaya Department Of Pharmacy

Abstract

Aim: This research aims to analyze the global burden of malaria and assess public health strategies in the prevention and control of malaria with recent developments and challenges.

Objective: Understanding the epidemiology of malaria to identify areas it has the maximum impact on its populations and in the assessment of public health strategies in place against it, particularly through vector control, vaccination, and drug administration. It can also address other issues concerning eradication of this disease and also how international collaborative efforts play into the prevention process.

Results: Malaria is a major public health problem in sub-Saharan Africa, Asia, and Latin America, with millions of cases and deaths reported annually. Vector control measures, such as insecticide-treated nets (ITNs) and indoor residual spraying (IRS), have been effective in reducing transmission. However, the emergence of insecticide resistance and drug-resistant Plasmodium strains poses significant challenges. The RTS,S/AS01 malaria vaccine has proven to be a promising tool in reducing incidence, especially among children. Malaria still remains a burden on the healthcare systems, especially in low-resource settings, where diagnosis and treatment remain scarce. Public health strategies must also address environmental factors, such as climate change, which affect the spread of the disease. There have been significant achievements in controlling malaria through collaborative efforts between governments, NGOs, and international organizations, but drawbacks persist as regards scaling up the efforts for malaria-free world and global elimination.

Keywords: Malaria, Global Burden, Public Health Strategies, Prevention, Control, Vector Control, Malaria Vaccine, Drug Resistance, Public Health Interventions, Global Health.

PARKINSON'S DISEASE AND ITS IMPACT ON NEUROLOGICAL HEALTH

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TRC, Mahavidyalaya Department Of Pharmacy

Abstract

Aim: This study aims to explore the impact of Parkinson's disease (PD) on neurological health, examining its pathophysiology, symptoms, and the effects on patients' quality of life.

Objective: To investigate the underlying mechanisms of PD, including dopaminergic neuron degeneration, and assess its progression. The study also seeks to understand the broader neurological and psychological effects of the disease, highlighting current treatment strategies and future therapeutic directions.

Results: Parkinson's disease is characterized by the progressive degeneration of dopaminergic neurons in the brain, particularly in the substantianigra, leading to impaired motor control. Key symptoms include tremors, rigidity, bradykinesia, and postural instability. As the disease progresses, patients often experience non-motor symptoms such as cognitive decline, mood disorders, and sleep disturbances. Recent studies have provided insights into the genetic and environmental factors contributing to PD, as well as the role of oxidative stress, mitochondrial dysfunction, and neuroinflammation in its pathogenesis. While treatments like levodopa and dopamine agonists provide symptom relief, there is currently no cure for PD. Advanced therapies, including deep brain stimulation and gene therapy, have shown promise in managing symptoms and improving quality of life. However, challenges remain in slowing disease progression and addressing the diverse range of symptoms. Ongoing research is focused on identifying biomarkers for early diagnosis and developing more effective disease-modifying treatments.

Keywords: Parkinson's Disease, Neurological Health, Dopaminergic Neurons, Neurodegeneration, Motor Symptoms, Non-motor Symptoms, Treatment Strategies, Cognitive Decline, Neuroinflammation, Parkinson’s Research.

THE GLOBAL BURDEN OF MALARIA PUBLIC HEALTH STRATEGIES FOR PREVENTION AND CONTROL

Sumit*[1], Sunil*[1],Ritika Bharti

TRC, Mahavidyalaya Department Of Pharmacy

Abstract

Aim: This research aims to analyze the global burden of malaria and assess public health strategies in the prevention and control of malaria with recent developments and challenges.

Objective: Understanding the epidemiology of malaria to identify areas it has the maximum impact on its populations and in the assessment of public health strategies in place against it, particularly through vector control, vaccination, and drug administration. It can also address other issues concerning eradication of this disease and also how international collaborative efforts play into the prevention process.

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Keywords: Malaria, Global Burden, Public Health Strategies, Prevention, Control, Vector Control, Malaria Vaccine, Drug Resistance, Public Health Interventions, Global Health.

EVALUATION OF ANTICONVULSANT ACTIVITY OF MORINGA OLEIFERA EXTRACT IN MICE

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Abstract

Epilepsy and convulsions are among the most prevalent neurological disorders, affecting over 50 million people globally, with nearly 80% of cases occurring in low- and middle-income countries. Despite the availability of numerous anticonvulsant drugs, many patients remain

resistant to treatment or experience severe side effects, highlighting the need for safer and more effective therapies. This unmet need has driven interest in plant-based remedies, known for their potential efficacy and lower toxicity profiles. Moringa oleifera, native to tropical and subtropical regions, is rich in bioactive compounds such as flavonoids, phenolic acids, alkaloids, and glucosinolates, which contribute to its wide range of therapeutic effects. The present study evaluated the anticonvulsant activity of the ethanol extract of Moringa oleifera using a PTZ-induced convulsion model in mice. Thirty male mice were divided into five groups and treated with either a standard drug or Moringa oleifera extract for seven days. On the experimental day, PTZ was administered intraperitoneally after extract or drug pretreatment, and seizure activity was monitored for 30 minutes. As a result, the finding suggest that Moringa oleifera possess anticonvulsant properties, supporting the use of this medicinal plant in the management of convulsion. Further investigations are warranted to elucidate its mechanism of action and ensure safety for potential therapeutic applications.

Keywords: Convulsion, Epilepsy, Neurological disorders, Pretreatment.

THE NEXT GENERATION OF HEALTHCARE: THE FUTURE OF PHARMACY PRACTICE & PHARMACOVIGILANCE

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Abstract

The health care sector is changing enormously due to emerging technologies such as artificial intelligence (AI), big data, personalized medicine, and digital health solutions. Pharmacy practice and pharmacovigilance are leading the change by assuring safe and effective use of drugs and implementing new tools to improve patient care.
The future of health care is all about patientcentered care, utilizing technology to provide guarantees of medication
safety, accurate treatment, and surveillance of health in real-time.Advances in technology are revolutionizing health care, making the practice of pharmacists more efficient, patient-friendly, and data-driven. Applications of artificial intelligence (AI), big data analysis, personalized medicine, and digital health solutions are transforming the pharmacists' practice of treating patients and monitoring the safety of drugs. AI supports screening prescriptions, robots assist in dispensing medicines, and tele pharmacy facilitates improved medication management, whereas pharmacogenomics makes drug treatment person-specific to prevent side effects.Pharmacovigilance is also undergoing a transformation with AI predicting adverse drug reaction (ADR), wearable devices for monitoring in real-time, and blockchain for secure management of data. Cloud-based systems for reporting ADR and computerized signal detection from electronic health records are making screening of drugs for safety ubiquitous. Additionally, patient-focused technologies such as intelligent pill dispensers and AI-powered chatbots are enabling patients to be a part of keeping drugs safe.
The future of health care is the focus of discussion in this paper through the windows of pharmacy practice and pharmacovigilance, showcasing the promise of new technologies to enhance patient outcomes. Healthcare professionals and digital technologies combined will be the drivers of an integrated, more responsive, and safer health care system worldwide.

THERAPEUTICALLY IDENTICAL PHYTOCHEMICAL AGENT PRESENT IN PLANT AGAINST BRAIN TUMOR BY COMPUTATIONAL METHODS

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Abstract

Lauric acid, a fatty acid obtained from coconut (Coco Nucifera), has been investigated for its effects on many types of cancer cells. However, there is insufficient study explicitly examining its influence on gliomas. The objective of this work is to thoroughly assess the possible of lauric acid (Cocos nucifera) to inhibit the growth of gliomas, namely brain stem glioma, glioblastoma, and diffuse pediatric glioma. To accomplish this goal, we utilized network pharmacology techniques and molecular docking tools. We used bioinformatics tools and databases including Swiss Target Prediction, GeneCards, DisGeNet, and Online Mendelian Inheritance in Man to discover shared target proteins linked to lauric acid. The development of a drug-target network including common proteins was achieved by integrating the network of lauric acid with protein-protein interaction networks utilizing STRING web tools and Cytoscape version 3.10.2. The venny software shows the result as total 66 genes found common between the disease genes and phytochemical genes. The results of our docking tests showed strong contacts, suggesting that lauric acid has positive docking scores with important proteins such as PTEN and EGFR, etc which play a crucial role in the advancement of glioma. This study indicates that lauric acid may have substantial therapeutic effects on gliomas by regulating the PIP3 stimulates AKT signaling, Generic Transcription Pathway, Gene expression (Transcription), Intracellular

signaling by second messengers, and other associated pathways. These findings highlight the potential of lauric acid as a very effective treatment for gliomas, indicating the need for additional experimental verification to clarify its mechanisms of action and therapeutic effectiveness.

Keywords: Coconut, Lauric acid, Gilomas, Network pharmacology, Pathways, etc

THE POTENTIAL OF STEM CELLS IN TREATING DISEASES

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Abstract:

Stem cell therapy holds immense potential in revolutionizing the treatment of a wide range of diseases. Stem cells are unique because of their ability to differentiate into various cell types, offering the possibility to repair or replace damaged tissues and organs. This therapy has shown promising results in treating conditions such as Parkinson's disease, diabetes, spinal cord injuries, heart disease, and various forms of cancer. In recent years, advancements in stem cell research have led to more targeted and effective treatments, offering hope for patients who previously had limited options. For instance, stem cells are being used in regenerative medicine to regenerate damaged tissues and restore lost functions. Additionally, stem cells hold potential in treating conditions caused by cell degeneration, genetic mutations, and injury by replacing the damaged cells with healthy, functional ones. the application of stem cells in treating diseases is still in its early stages, and challenges remain. These include concerns about ethical implications, the risk of immune rejection, and the complexity of ensuring stem cells function properly once transplanted into the body. Nonetheless, as research continues and technology advances, stem cell therapy may one day revolutionize the treatment landscape, offering life-changing benefits to patients around the world. This exploration delves into the exciting potential of stem cells in medicine, discussing both the benefits and obstacles associated with their use in disease treatment.

Keywords:- Stem cell therapy, Regenerative medicine, Differentiation, Parkinson’s disease, Diabetes, Spinal cord injury, Heart disease, Tissue regeneration, Immune rejection, Chronic conditions, Cell-based therapy, Ethical concerns, Clinical trials, Medical advancements

QUANTITATIVE ANALYSIS AND COMPATIBILITY STUDY OF FUROSEMIDE WITH EXCIPIENTS

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ABSTRACT

Introduction:Furosemide is an effective loop diuretics frequently employed to manage edema associated with cardiac, pulmonary, hepatic and renal failure as well as to treat chronic hypertension. Furosemide is categorized as a BCS Class IV drug, recognized for its low solubility and low permeability.

Objective:

The objective of this study was Quantitative Analysis and Compatibility study of Furosemide with different Excipients.

Method: The method for this study is determination of λmax of Furosemide in different solvents and Furosemide compatibility study with polymers using Fourier Transform Infrared Spectroscopy.

Results & Discussion: The λmax of Furosemide was found to be 229nm in 0.1N NaOH solution and 272nm in ethanol. When compared to the reference furosemide spectrum, FTIR spectrum of furosemide showed distinctive peaks that validated its structure. The physical mixture’s FTIR spectrum confirms that calcium chloride, sodium alginate, and furosemide are compatible with it.

Conclusion: Overall, the determination of λmax in various solvents highlights the importance of solvent choice in UV spectrophotometry for furosemide analysis. The compatibility studies highlight that while furosemide can be effectively formulated with various excipients. The combination of quantitative analysis and compatibility assessments provides a robust framework for developing stable furosemide formulations.

Kew Words: Furosemide, FTIR spectrum, UV spectrophotometry, Compatibility assessment.

ADVANCING PHARMACEUTICAL QUALITY MANAGEMENT SYSTEM: UTILIZING DIGITAL TOOLS FOR ENHANCED EFFICIENCY AND REGULATORY COMPLIANCE.

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Abstract:

The pharmaceutical industry is experiencing a profound digital transformation aimed at enhancing efficiency, productivity, and regulatory compliance. A key focus of this transformation is the improvement of Quality Management Systems (QMS), which are crucial for ensuring the safety, efficacy, and quality of pharmaceutical products. The discussion extends to the benefits of integrating digital technologies into QMS, such as improved product quality, minimized risk of non-compliance, enhanced operational efficiency, and increased patient trust. It also highlights emerging trends and opportunities, including the use of blockchain technology for supply chain transparency, the application of Internet of Things devices for real-time quality monitoring, and the utilization of big data analytics and machine learning for ongoing quality improvement.Additionally, the integration of advanced digital solutions fosters a more proactive approach to risk management, enhances cross-functional collaboration, and accelerates the development of innovative pharmaceutical products. Collaboration with regulators to establish industry-wide digital quality management standards is also addressed. By adopting a strategic and comprehensive approach to digital transformation encompassing technology, people, processes, and partnerships—pharmaceutical companies can fully realize the benefits of enhanced quality management, regulatory compliance, and operational excellence.

Keywords: Digital transformation, Pharmaceutical Quality Management Systems, Regulatory Compliance, Data Integrity, Continuous Quality Improvement

WOUND HEALING PROPERTIES OF AZADIRACHTA INDICA

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Abstract:

Wound is a complex biological process that includes inflammation, proliferation, and remodeling to restore tissue integrity of damaged tissue. Natural and synthetic compounds have been explored for their wound healing activity to promote tissue repair and regeneration. The wound healing activity is studied using in vitro and in vivo models of Azadirachta indica. Wound contraction rate, re-epithelialization, collagen synthesis, and histopathological alteration were also evaluated. Points to be evaluated are wound closure enhancement, decreased inflammation, and augmented fibroblast growth, inferring that Azadirachta indica facilitates the process of healing. The results signify the potential value of Azadirachta indica as an effective drug in wound therapy and skin regenerative medicine.

Keywords: Proliferation, re-epithelialization, augmented fibroblast

AN UPDATE ON RHEUMATOID ARTHRITIS'S PATHOPHYSIOLOGY, DIAGNOSIS, AND AVAILABLE TREATMENTS

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Abstract

Rheumatoid arthritis (RA) is an autoimmune condition that affects both sides of the joints. It's characterized by tendon inflammation (tenosynovitis), which causes bone degradation and cartilage breakage. Newer treatment options have made RA a tolerable condition, despite the fact that it often led to disability, incapacity to work, and increased mortality until the 1990s. The discovery and development of disease-modifying anti rheumatic medications (DMARDs), which target inflammation and stop more joint deterioration, has advanced significantly in this area. The available DMARDs can be divided into three categories: (1) biologic DMARDs (tumor necrosis factor (TNF)-inhibitors, TNF-receptor(R)inhibitors, IL-6 inhibitors, IL-6R inhibitors, B cell depleting antibodies, and inhibitors of co-stimulatory molecules); (2) targeted synthetic DMARDs (pan-JAK- and JAK1/2-inhibitors); and (3) conventional synthetic DMARDs (methotrexate, hydrochloroquine, and sulfadiazine). Although DMARDs have shown time and time again that they may significantly reduce the symptoms of RA and stop the illness from becoming worse, they come with a lot of negative side effects and are quite expensive. This poster provides an overview of current information of the underlying pathomechanism, diagnosis, and mode of action, therapeutic advantages, and adverse effects of the DMARDs that are currently on the market.

Keywords: Rheumatoid Arthritis; Autoimmunity; TNF; IL-6

FORMULATION AND EVALUATION OF AZADIRACHTA INDICA LOADED NANOGEL

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Abstract:

Azadirachta indica, commonly known as neem, is a medicinal plant renowned for its antimicrobial, anti-inflammatory, and wound-healing properties. This study focuses on the formulation and evaluation of a nanogel incorporating Azadirachta indica extract to enhance its therapeutic efficacy and skin penetration for topical applications.

The neem extract was obtained through cold maceration and subjected to phytochemical screening to confirm the presence of active constituents such as flavonoids, tannins, and alkaloids. Nanoparticles were prepared using a nanoprecipitation method, optimized for particle size, polydispersity index (PDI), and zeta potential. The optimized nanoparticles were then incorporated into a hydrogel matrix using carbopol 934 as a gelling agent.

The prepared nanogel was characterized for its physical appearance, pH, spreadability, viscosity, and drug content. In vitro drug release studies were conducted to evaluate the release kinetics and mechanism. Furthermore, skin permeability studies confirmed enhanced transdermal delivery compared to conventional formulations. The nanogel exhibited superior antimicrobial activity against common skin pathogens, including Staphylococcus aureus and Escherichia coli. Stability studies conducted as per ICH guidelines demonstrated good shelf life under accelerated conditions.

The findings suggest that Azadirachta indica-loaded nanogel offers a promising approach for the management of skin infections and inflammation, leveraging the enhanced bioavailability and sustained release of active constituents. Further clinical studies are recommended to validate the therapeutic potential of this nanogel for commercial and medical use.

Keywords: Azadirachta indica, nanogel, neem, nanoparticles, topical drug delivery, antimicrobial activity.

CURRENT DEVELOPMENT IN DEPRESSION

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Abstract:

Background: Depression is a prevalent mental illness. Physically ill people are more likely to experience depression, which has a negative impact on quality of life, worsens disability, and is linked to higher mortality.

Objective: The goal of this review is to provide a summary of current advancements in therapies for depression.

Current Results: Psychotherapies may be efficiently given using e-health applications, as has been evident in recent years. Studies conducted in low- and middle-income nations have also demonstrated the effectiveness of lay health counsellors in providing psychological treatments. A comparatively straightforward therapeutic approach called behavioral activation has been shown to be just as successful as cognitive behavior therapy. It has been shown that treating subthreshold depression can both delay the onset of severe depression and lessen depressed symptoms. Furthermore, treatments are successful for prenatal depression, general medical conditions, and elderly persons. The majority of patients choose psychological treatments and artificial intelligence (AI) for treating depression since they are more successful than medications, have longer-lasting benefits, and can be used flexibly with various formats and target groups. Evaluation of the use and efficacy of artificial intelligence (AI) apps in treating anxiety and depressive symptoms is the objective of this study.

Conclusion: Finding existing AI technologies, evaluating their usefulness and effectiveness, and weighing the risks and possible rewards are the key objectives.

KEYWORDS: AI, psychotherapies, mental health, treatment, genetics

UNLOCKING THE POTENTIAL OF SEMAGLUTIDE: A COMPREHENSIVE REVIEW OF CLINICAL EFFICACY AND SAFETY

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Abstract:

Semaglutide, a glucagon-like peptide-1 receptor agonist (GLP-1RA), has been extensively studied for its therapeutic efficacy in treating various diseases, including obesity, type 1 and type 2 diabetes, and potentially neurodegenerative disorders like Parkinson's disease. This review summarizes the pivotal data from clinical trials on semaglutide, highlighting its mechanisms of action, impact on weight loss outcomes, safety indicators, and other pertinent health considerations. Semaglutide activates GLP-1 receptors, enhancing incretin activity, insulin secretion, and insulin sensitivity, leading to decreased postprandial and fasting glucose levels. It also promotes weight loss by decreasing caloric intake and slowing gastric motility. The drug has been shown to have a favourable cardiovascular risk profile, with no increased risk of cardiovascular events. Common side effects include gastrointestinal adverse effects, such as nausea, vomiting, and diarrhoea, which are generally mild and self-limiting. Semaglutide has significant implications for patient outcomes, particularly in the management of type 2 diabetes, and its potential therapeutic benefits in other disease states make it a valuable treatment option.

Keywords: Obesity, type-2 diabetes, weight loss, Cardiovascular disease, Semaglutide.

ADVANCEMENTS IN VACCINE DELIVERY SYSTEMS: A STEP TOWARDS ENHANCED IMMUNIZATION

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Abstract:

Vaccinations have been enhanced massively in the recent past, with the idea of fostering immunogenicity, improving patient compliance, and attaining targeted antigen distribution. However, these methods are still practically limited by poor antigen stability, low immunogenic response, and cold-chain dependency. New delivery ideas complementary to the classical intramuscular injection methods include nanocarriers, lipid systems, polymeric nanoparticles, and microneedles-all of which attempt to alleviate these disadvantages. Such nanoparticle-based vaccines would assist in controllable antigen release together with effective immune stimulation. Liposomes and lipid NP, as in the case of mRNA-based COVID-19 vaccines, have been extraordinarily successful and, among other reasons, due to their biocompatibility and capacity to protect the antigen. The polymeric system gives stability and prolonged immune response, while microneedle patches could provide painless, self-applicable vaccines, especially amenable to mass immunization in resource-crunched settings. Recent endeavors also focus on mucosal delivery to enhance responses at pathogen entry points. This presentation will highlight advances in vaccine delivery technologies, mechanisms, and impact on public health. The convergence of nanotechnology, biomaterials, and targeted delivery modalities has heralded the new field of vaccinology to solve global immunization challenges. Future research must prioritize the optimization of delivery platforms for the enhancement of safety, efficacy, and accessibility in order to pave the way for next-generation vaccines against the emerging threats of infectious diseases.

Keywords: Vaccine delivery, nanocarriers, lipid nanoparticles, polymeric systems, microneedles, mucosal immunization, controlled antigen release.

EVALUATION OF ANTI-ULCER ACTIVITY OF ABUTILON INDICUM IN EXPERIMENTALLY INDUCED GASTRIC ULCER MODELS

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Abstract

Background: Abutilon indicum, a traditional medicinal plant, has been used for various therapeutic purposes, including gastrointestinal disorders. Objective: To investigate the anti-ulcer activity of Abutilon indicum in experimentally induced gastric ulcer models. Materials and Methods: The methanolic extract of Abutilon indicum leaves was prepared and evaluated for anti-ulcer activity using ethanol-induced, aspirin-induced, and pylorus-ligation induced gastric ulcer models in Wistar rats. The extract was administered orally at doses of 200 and 400 mg/kg body weight. Results: The results showed that the methanolic extract of Abutilon indicum significantly reduced the gastric ulcer index, volume of gastric juice, and acidity in all the three models. The extract also increased the mucin content and reduced the oxidative stress markers. Conclusion: The present study demonstrates the anti-ulcer activity of Abutilon indicum, which may be attributed to its antioxidant, anti-inflammatory, and mucin-protective properties. This study provides scientific evidence for the traditional use of Abutilon indicum in the treatment of gastrointestinal disorders.

Keywords: Abutilon indicum, anti-ulcer activity, gastric ulcers, traditional medicine, phytotherapy.

ARTIFICIAL INTELLIGENCE IN PARKINSON'S DISEASE DIAGNOSIS AND MONITORING

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Abstract:

Artificial Intelligence (AI) has emerged as a transformative tool in the diagnosis and monitoring of Parkinson's Disease (PD), offering new possibilities for early detection, personalized treatment, and ongoing management. PD is a progressive neurodegenerative disorder that primarily affects motor control, and its symptoms often overlap with other conditions, making diagnosis challenging. AI algorithms, particularly those leveraging machine learning (ML) and deep learning (DL), have shown promising potential in analyzing complex clinical

data, including brain imaging, voice recordings, and motor assessments, to detect PD earlier and more accurately than traditional methods.In diagnosis, AI has been applied to neuroimaging techniques, such as MRI and PET scans, where algorithms can identify patterns of brain activity and structural changes indicative of PD. Additionally, voice and speech analysis has proven to be a non-invasive diagnostic tool, with AI models detecting subtle changes in vocal patterns that correlate with motor dysfunction in PD patients. AI also aids in monitoring disease progression through wearable devices and sensor technologies, which provide continuous data on motor symptoms, gait, and tremors. By processing and analyzing this data, AI can track disease progression in real-time, offering clinicians valuable insights into the patient's condition and response to treatment.

In summary, AI holds great promise in revolutionizing PD diagnosis and monitoring by providing early, accurate detection and individualized care plans, ultimately improving patient outcomes and enhancing quality of life.

Keynotes- Artificial Intelligence, Parkinson's Disease, Causes, Treatment.

HERBAL MEDICINES' ROLE IN FOLLICULITIS THERAPY

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Abstract:

A common inflammatory disease that affects the hair follicles, folliculitis is usually brought on by bacterial, fungal, viral, or parasite infections. Physical discomfort, clogged follicles, or weakened immune responses can also cause it. Clinically, it shows up as tiny, red, pus-filled pimples or pustules that are frequently itchy and painful. Anywhere there are hair follicles on the body, folliculitis can develop; the scalp, face, neck, chest, and thighs are the most frequently afflicted locations. Although the illness usually resolves on its own, severe or recurrent episodes may require medical attention due to discomfort, scarring, or subsequent infections. All ages and genders are susceptible to folliculitis, however some groups are more vulnerable than others. These include those who frequently wear tight clothing, have diabetes, immunosuppressive disorders, or perspire excessively. Individuals may also be predisposed to folliculitis by lifestyle choices such excessive use of cosmetics, poor hygiene, and shaving. The antibacterial, anti-inflammatory, and wound-healing qualities of herbal medications have drawn attention to their use in the treatment of folliculitis. Aloe vera, turmeric and neem are among the plant-based formulations that are known to suppress microbial development, soothe irritated skin, and aid in healing. Because herbal therapies are less likely to have negative side effects and are more affordable than synthetic treatments, a wider range of people can utilize them. Additional investigation into herbal remedies may improve their incorporation into standard dermatological care, offering a holistic and natural remedy for folliculitis.

Keywords: Folliculitis, Polyherbal, Inflammation, Antimicrobial, Anti-inflammatory

DESIGN AND SYNTHESIS OF NOVEL BENZOTHIAZOLE DERIVATIVES AS SGLT2 INHIBITORS FOR THE TREATMENT OF DIABETIC NEPHROPATHY

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Abstract:

Sodium-glucose co-transporter 2 (SGLT2) plays a vital role in renal glucose reabsorption, making it a key target for diabetes management. This study focuses on the synthesis and evaluation of novel benzothiazole derivatives as potential non-glycosidic SGLT2 inhibitors. Initially, the designed compounds were screened for ADME properties using SwissADME, followed by molecular docking analysis to assess their binding affinity and interactions with the SGLT2 co-transporter (PDB ID: 7VSI). The results indicated that halogen-substituted benzothiazole derivatives exhibited superior docking scores and stronger binding interactions compared to the standard drug empagliflozin and electron-donating substituents. Empagliflozin showed a docking score of -10.2 kcal/mol, while the designed derivatives ranged from -8.1 to -10.7 kcal/mol. Among them, the p-fluoro-substituted derivative demonstrated the highest docking score of -10.7 kcal/mol, along with favorable binding interactions. The synthesis of these derivatives was carried out using substituted anilines, followed by cyclization with bromine to yield the target benzothiazoles. While in-silico studies suggest these compounds are promising SGLT2 inhibitors, further in-vitro and in-vivo evaluations are necessary to confirm their efficacy.

Keywords: Diabetes, SGLT2, Molecular docking, Benzothiazole

IMPLEMENTATION OF SUCCESSFUL TRAINING PROGRAM IN PHARMACEUTICAL INDUSTRY

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Abstract:

Every organization in regulated industry must train its employees. If training is organised as one event, the benefits of training may have very short shelf life. The training must be ongoing, on regular basis to achieve full benefits. Many of the pharmaceutical industries fail to identify the importance and necessity of the training program for their employees which lead to lack of development in the skill levels of employees. they even failed to judge the training level of their employees before assigning them specific responsibilities. This leads to reduction in the quality level of skills as well as final product of the company, as in compliance with the various regulations to be followed.

Key Words: Employees, Skill levels, Consistency, Root causes, Documentation

EXTRACTION PHYTOCHEMICAL INVESTIGATION AND ANTI ACNE ACTIVITY OF HYDRO-ALCOHOLIC EXTRACT OF WRIGHTIA TINCTORIA

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Abstract:

Acne vulgaris is a common skin disorder affecting more than 85% of teenagers in the United States. While it is not a lethal or debilitating disorder, it can be painful and disfiguring, causing significant physiological distress, and heavy economic burden. Acne is associated with increases in anxiety, depression, and suicidal ideation. Acne vulgaris is a common skin condition that primarily affects the hair follicles and sebaceous (oil) glands, typically during puberty but can affect individuals of all ages. It occurs when hair follicles become clogged with oil (sebum), dead skin cells, and sometimes bacteria, leading to the formation of pimples, blackheads, whiteheads, and in more severe cases, cysts. Wrightia tinctoria (Apocyanaceae) is known as a biologically effective plant for the treatment of jaundice in the Indian traditional system of medicine. It is a wild medicinal tree possessing anti-inflammatory, antidiabetic, antinociceptive, hepatoprotective, antibacterial, antifungal, antiviral, antipsoriatic, anticancerous, anthelmintic, aphrodisiac, analgesic, and antipyretic activities. The acne like inflammatory activity was carried out by measuring the ear thickness. Hydroalcoholic extract of Wrightia tinctoria (HEWT) showed significant reduction in the ear thickness. It seems that the increased ear thickness and inflammation caused due to various biochemical, viz. various kinins, histamine and 5- HT is significantly reduced.

Keywords: Wrightia tinctoria, Hydroalcoholic extract, Anti acne, Hydroalcoholic extact

THE ABILITY OF NATURAL REMEDIES TO PREVENT RHEUMATOID ARTHRITIS BY BLOCKING ANGIOGENESIS

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Abstract:

Rheumatoid arthritis (RA) is a chronic autoimmune disorder characterized by synovial hyperplasia, inflammation, and resulting joint destruction, wherein angiogenesis plays a pivotal role. This poster highlights the importance of inhibiting synovial angiogenesis as a therapeutic strategy for RA, emphasizing the potential of natural medicines in this domain. Numerous studies have indicated that natural products possess significant anti-angiogenic properties, impacting key signaling pathways, including HIF/VEGF/ANG, PI3K/Akt, MAPK, NF-κB, PPARγ, and JAK2/STAT3. Notable natural medicines such as include scopoletin, scopolin, nobiletin, berberine, morin, and Sinomenine have emerged as promising agents, demonstrating both efficacy and reduced toxicity in RA management. The mechanisms by which these natural products exert their effects include immunological regulation, oxidative stress mitigation, and anti-angiogenesis, contributing to decreased inflammation and cartilage destruction. Overall, this poster elucidates the method of extraction, therapeutic potential of natural medicines, advocating for their role in RA treatment to alleviate symptoms and improve patient quality of life while ensuring a deeper understanding of their mechanisms of action. Future research is encouraged to further explore these natural products as viable options in clinical settings to prevent irreversible joint damage.

Keywords: Rheumatoid Arthritis, Angiogenesis, Mechanisms, Natural Medicines, Ingredients, VEGF

GUILLAIN-BARRÉ SYNDROME: A REVIEW OF THE CLINICAL PRESENTATION, DIAGNOSIS, AND MANAGEMENT OF THIS AUTOIMMUNE NEUROPATHY

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TRC Mahavidyalaya Department Of Pharmacy

Abstract:

Guillain-Barré Syndrome (GBS) is a rare autoimmune disorder characterized by rapid-onset muscle weakness, areflexia, and paralysis. This review aims to provide an overview of the clinical presentation, diagnosis, and management of GBS. The syndrome typically presents with ascending paralysis, often preceded by an antecedent infection. Diagnosis is based on clinical features, cerebrospinal fluid analysis, and electrophysiological studies. Treatment options include plasma exchange and intravenous immunoglobulin, which have been shown to improve outcomes. Corticosteroids are not effective in treating GBS. The prognosis is generally favorable, with most patients experiencing significant recovery. However, some patients may experience residual weakness, disability, or relapse. Early recognition and treatment are critical in improving outcomes and reducing morbidity.

Keywords: Guillain-Barré Syndrome, autoimmune neuropathy, muscle weakness, paralysis, plasma exchange, intravenous immunoglobulin.

NANOTECHNOLOGY IN DRUG DELIVERY SYSTEM ADVANCEMENT AND APPLICATION

Priyansha

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Abstract:

Advancement of nanotechnology were vastly applied in medicine and pharmacy especially in the field of nano-delivery systems. It look a long time for these systems to ensure precise delivery of very delicate molecules such as RNA to cell at concentration that yield remarkable efficiency with success rates reaching 95% and 94.5%. Nanotechnological solution in the prevention and treatment of cancer and viral infection. The intervention improves treatment outcomes both due to increased effectiveness of the drug at target location and reducing adverse reactions there by increasing patient adgerence to the therapy. Nanotechnology has potential to bridge the gaps of biological and physical by applying nanostructure and nanophase at various application biomedical science more explicitly in nanomedicine. Nanomedicine in major concern for biomedical application nano system have emerged into diverse forms of second- generation drug delivery system including nanotubes, injectables, nanoparticle etc. Nanotechnology is the manipulation of matter on an atomic molecular and supramolecular scale involving the design, production, characterization an application of different nanoscale materials in several key area providing novel technologies advances mainly in the field of medicine.

Keywords: Nanotechnology, Nanomedicines, Drug delivery system malignant disease.

ADVANCEMENTS IN BUCCAL DRUG DELIVERY FOR CONTROLLING SALIVARY SECRETION AND MANAGING HYPERSALIVATION

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Abstract:

Overproduction of saliva, dental malocclusion, and postural problems are among the causes of excessive salivation, which is often the rate-limiting factor in developing a serious failure to control mouth and face muscles. Psychological problems like chapping, dehydration, bad odor, and socializing result from this. Because of the nature of the geriatric population, management requires a multidisciplinary approach, including medical professionals, occupational therapists, speech pathologists, neurologists, otolaryngologists, dentists, and orthodontists. Therapy methods range from simple interventions (postural adjustments, observation) to more involved ones (medication, injections of botulinum toxin, surgery). Anticholinergic medications work, but they are limited by side effects; botulinum toxin injections are temporary but safe and effective. Surgical procedures offer definitive solutions, drastically enhancing individuals' quality of life.

Saliva performs important digestive, protective, and trophic functions, and its secretion is contributed by different glands. The buccal region is a suitable site for drug delivery because it bypasses first-pass metabolism and gastrointestinal degradation, providing a rapid action, and easy to discontinue therapy particularly in an uncooperative or unconscious patents.

Keywords: Hypersalivation, neurological disorders, salivary regulation, Buccal drug delivery

MUCOADHESIVE ORAL THIN FILMS: A NOVEL APPROACH FOR PEDIATRIC AND GERIATRIC DRUG DELIVERY

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Abstract:

With benefits like convenience of use, quick dissolving, and increased patient compliance, oral thin films (OTFs) have become a cutting-edge drug delivery technology. This method is especially helpful for elderly and pediatric patients, who frequently have trouble swallowing traditional solid dosage forms. Mucoadhesive oral thin films (MOTFs) improve drug absorption and bioavailability while lowering systemic side effects by offering extended retention at the application site. A key factor in maximizing adhesion strength, drug release kinetics, and film integrity is the choice of appropriate mucoadhesive polymers. In order to overcome the constraints of traditional drug delivery, this study examines the formulation, characterisation, and possible uses of MOTFs for both pediatric and elderly patients. The therapeutic effectiveness and acceptability of these films are further improved by the addition of taste-masking agents, bioadhesive polymers, and innovative drug-excipient combinations. Improvements in MOTF technology ensure better treatment outcomes for vulnerable groups by opening the door to patient-friendly and efficient substitutes for conventional dose forms.

Keywords: Mucoadhesive oral thin films, pediatric drug delivery, geriatric drug delivery, bioadhesive polymers, patient compliance, rapid dissolution, novel drug delivery systems.

CLITORIA TERNATEA LEAF EXTRACT ON HYPERLIPIDEMIC WISTAR RATS

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Abstract:

Hyperlipidemia, marked by elevated blood lipids, is a major risk factor for cardiovascular diseases. Despite available pharmaceutical treatments, the search for natural remedies with minimal side effects is essential. This study aimed to assess the effects of Clitoriaternatea leaf extracts on lipid profiles in hyperlipidemic Wistar rats, exploring its potential as an alternative therapeutic agent for managing hyperlipidemia and preventing cardiovascular diseases. Hyperlipidemia was induced in Wistar rats using a high-fat diet. The rats were treated with different doses of Clitoriaternatea leaf extracts over a set period. Lipid profiles, including total cholesterol, triglycerides, HDL-C, and LDL-C, were measured before and after treatment. Treatment with Clitoriaternatea leaf extracts led to significant reductions in total cholesterol and triglyceride levels, while increasing HDL-C levels in hyperlipidemic rats. The effects were dose-dependent, with higher doses providing greater lipid-lowering benefits. Clitoriaternatea leaf extracts demonstrate promising pharmacological activity in managing hyperlipidemia, offering a natural alternative for lipid regulation and cardiovascular health.

Clitoriaternatea leaf extract has shown potential in managing hyperlipidemia in Wistar rats, offering therapeutic benefits in reducing elevated cholesterol and triglyceride levels. Its bioactive compounds, such as flavonoids and alkaloids, may exhibit antioxidant and anti-inflammatory properties, supporting lipid metabolism. In pharmacology, this extract is explored for its potential as a natural remedy for managing dyslipidemia and promoting cardiovascular health, paving the way for its possible inclusion in pharmacological treatments for hyperlipidemic conditions.

Keywords: Clitoriaternatea, Leaf Extracts, Hyperlipidemia, Wistar Rats, Lipid Profile, Cardiovascular Health, Pharmacological Effects.

RECENT DEVELOPMENTS IN THE TREATMENT OF PARKINSON'S DISEASE

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Abstract:

Background: Bradykinesia, rest tremor, stiffness, and postural instability are the hallmarks of Parkinson's disease (PD), a common neurological illness. There are few choices for treating Parkinson's disease (PD), and the majority of existing methods rely on restoring dopaminergic tone in the striatum. These do not, however, change the course of the disease or address the non dopamine-dependent aspects of Parkinson's disease (PD. These include freezing of gait, cognitive impairment, and other non-motor aspects of the disorder. New therapy approaches are being developed as our understanding of the pathophysiology of PD expands.

Material and Methods: Medication is the primary symptomatic therapy used in current treatment, which modifies neurotransmitters. Levodopa is the gold standard for treating Parkinson's disease (PD), and dopamine replacement therapy has been proven to be effective.

Results: Techniques used in the treatment of Parkinson’s disease helps in the early approach of detecting and reducing the population to suffer with the disease. Given that pharmacokinetic and safety data may already be available, this strategy provides a quicker path to the clinic. Gene therapies and cell-based treatments are starting to make their way into clinical trials as better symptomatic therapies that are also regenerative. Additionally,

Conclusion: Advancements in other neurosurgical techniques, like more sophisticated deep brain stimulation methods, mean that the treatment landscape for Parkinson's disease is likely to change significantly over the next several years. We give a summary of the

innovative treatment modalities that are either in or near clinical trials in this review. Keywords: Drug repurposing, gene therapies, dopamine replacement therapy.

A REVIEW ON SELF EVOLVING & ENHANCING DRUG

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Abstract:

Appearance and performance-enhancing drugs (APEDs) are commonly utilized by young people and youthful grown-ups in an exertion to make strides not as it were athletic execution but too physical and mental proficiency and sexual appearance. The basis for utilizing these drugs is grounded in the seen significance of outside appearance, youth, and encouragement to boost one's sexual exhibitions. In spite of the fact that APED clients tend to be very direct in general, a few particular subpopulations can show neurotic utilize related with high-risk behaviors. A wide and differing extend of APEDs is presently effectively available to nearly anybody through backdoor online roads. Common APEDs incorporate anabolic–androgenic steroids, non-steroidal anabolics, anorectics, diuretics and ergo/thermogenics, nootropics or "cognition enhancers," licit and unlawful psychostimulants, and at last, sexual enhancers. The part of identity characteristics related to APED utilize has been examined in youths, in first class and beginner competitors, and in chemsexers and related with the above-reported identity characteristics. The considers in this analyzed appear that APED utilization in the common populace is rapidly developing into a open wellbeing concern. It is subsequently fundamental to dispatch avoidance and intercession ventures pointed at advancing secure instrumental utilize of the body, not as it were in sports disciplines but too among the common populace, and to advance mental help strategies for individuals with substance utilize issues, body picture disarrangement, etc.

Keywords: - Appearance & performance-enhancing drugs (APED's), anabolic-androgenic steroids, personality traits, psychiatric implication, Doping, self-concept, interpretative phenomenological analysis.

STEM CELL-BASED ANTICANCER VACCINES: A NOVEL IMMUNOTHERAPEUTIC APPROACH FOR ENHANCED CANCER TREATMENT

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Goel Institute of Pharmaceutical Sciences, Lucknow.

Abstract

Introduction:-Cancer remains a leading cause of mortality worldwide, necessitating innovative and effective treatment strategies. Stem cell-based anticancer vaccines have emerged as a promising immunotherapeutic approach, leveraging the unique properties of stem cells to stimulate a potent anti-tumor immune response. These vaccines utilize stem cells to deliver tumor antigens, activate antigen-presenting cells, and induce cytotoxic T-cell responses, resulting in targeted tumor cell destruction. Preclinical studies have demonstrated the safety and efficacy of stem cell-based anticancer vaccines in various cancer models, including melanoma, breast cancer, and lung cancer. Ongoing clinical trials are investigating the therapeutic potential of these vaccines in patients with advanced cancers.

Objective:-The primary objectives of stem cell-based anticancer vaccines are:Induce Anti-Tumor Immune Response, Target Cancer Stem Cells,Enhance Immunological Memory, Generate long-term immunological memory, enabling the immune system to recognize and attack cancer cells, preventing recurrence and metastasis.

Whereas Secondary Objectives are Minimize Side Effects, Improve Patient Outcomes, Provide Personalized Therapy, such as genetic profiles and tumor biomarkers.

Conclusion:-Stem cell-based anticancer vaccines have shown promising results in preclinical and clinical studies, demonstrating their potential as a novel and effective approach to cancer immunotherapy. These vaccines leverage the unique properties of stem cells to stimulate a potent anti-tumor immune response, targeting cancer cells and preventing tumor progression. While further research is needed to fully realize their therapeutic potential, stem cell-based anticancer vaccines hold great promise for improving patient outcomes and transforming the landscape of cancer treatment.

Keywords:-Stem cell-based anticancer vaccines, cancer immunotherapy, tumor antigens, antigen-presenting cells, cytotoxic T-cell responses.

HERBAL DRUG-BASED THERAPEUTIC APPROACHES FOR COPD MANAGEMENT IN THE POST COVID-19 ERA

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Abstract

Introduction: Chronic Obstructive Pulmonary Disease (COPD) is a progressive lung disorder causing persistent airflow restriction and inflammation, leading to significant morbidity and mortality worldwide. It is mainly triggered by long-term exposure to tobacco smoke and pollutants. The COVID-19 pandemic has worsened the condition for COPD patients, increasing their risk of severe respiratory complications. Post-COVID-19, some individuals experience COPD-like symptoms such as shortness of breath, chest tightness, and chronic coughing, highlighting the need for effective treatments.

Aim & Objectives: This review examines the potential role of herbal medicines in managing COPD symptoms post-COVID-19, focusing on their anti-inflammatory, antioxidant, bronchodilatory, and immunomodulatory properties that may improve lung function and overall health. **Methods:** A literature review was conducted using scientific databases to assess the effectiveness of herbal drugs in COPD management. Herbs such as Liquorice, Turmeric, Boswellia, Astragalus root, Mullein, Ginseng, Eucalyptus, Elecampane, and Marshmallow were evaluated for their pharmacological properties and clinical evidence supporting their benefits for respiratory health.

Results: Several herbal remedies showed promise in alleviating COPD symptoms. Liquorice and Turmeric have strong anti-inflammatory and antioxidant properties. Boswellia and Astragalus root offer immunomodulatory benefits. Mullein, Ginseng, and Eucalyptus provide bronchodilatory effects, while Elecampane and Marshmallow help soothe the respiratory tract and promote mucus clearance.

Conclusion: Herbal medicines offer a promising adjunct to COPD management, particularly in post COVID-19 cases, where conventional treatments may not fully address residual symptoms. These natural therapies could improve lung function, reduce inflammation, and enhance quality of life. However, further clinical studies are needed to confirm their long-term efficacy and safety in COPD management.

THE ROLE OF NEUROPROTECTIVE AGENTS IN SPINAL CORD INJURY RECOVERY

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B.R. College of pharmacy Hardoi

Abstract:

Spinal cord injury (SCI) often leads to irreversible neurological impairments and loss of motor and sensory functions. The search for effective neuroprotective agents has gained significant attention as a potential strategy to enhance recovery and prevent further degeneration following SCI. Neuroprotective agents aim to reduce secondary injury mechanisms, such as oxidative stress, inflammation, excitotoxicity, and apoptosis, thereby limiting neuronal damage and promoting tissue repair. Various pharmacological agents, including antioxidants, anti-inflammatory drugs, growth factors, and gene therapy, have shown promise in preclinical and clinical studies. This paper reviews the role of neuroprotective agents in SCI recovery, focusing on their mechanisms of action, therapeutic potential, and challenges associated with their clinical application. Despite progress, the translation of these therapies into clinical practice remains complex, requiring further investigation into optimal delivery methods, timing, and patient-specific considerations. Overall, neuroprotective agents offer hope for improving outcomes in SCI, but continued research is essential to develop safe and effective treatments.

Keywords:- Spinal cord injury (SCI),Neuroprotection, Secondary injury, Oxidative stress, Inflammation, Excitotoxicity, Antioxidants, Growth factors, Gene therapy, Neuroprotective agents, Recovery,Therapeutic strategies

THERAPEUTIC APPLICATIONS OF TULSI (OCIMUM TENUIFLORUM): A COMPREHENSIVE REVIEW

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Abstract

The botanical name of Tulsi is Ocimum tenuiflorum and also called holy basil. It is member of family Lamiaceae. It is natural method of disease treatment for last several thousand years in ayurveda medicine. Tulsi is "Queen of herbs". Some basic nutrients found in tulsi such as vitamins, minerals, carbohydrates, proteins and some other substances. It possesses volatile oil in leaves. Some major constituents of this oil are Eugenol, Carvacrol, camphor, methyl chavicol. It possesses antimicrobial and insecticidal activities. Tulsi seeds also called sweet basal seeds, sabja seeds. It possesses some nutrients includes fibres, Omega-3 fatty acids, calcium, phosphorus, iron etc. It is used for weight loss and possess antioxidants, anti-inflammatory and anticancer activities. The aroma of tulsi reduces anxiety, stress, mental clarity, respiratory problems. Tulsi absorbs some negative energies and emit positive vibrations. Tulsi can't complete cure but it can reduce symptoms and supports natural healing process for body.It possesses antimalarial, antiviral, antibacterial antidiarrheal, analgesic, antioxidant, antiprotozoal ,anticancer ,anti-tussive(cough-relieving),anti allergic activities. At least 2-3 leaves on empty stomach take in the morning is considered as preferable for enhancing the immunity. Tulsi leaves possess mercury and acidic in nature and mouth is alkaline which may stain your teeth when chewed and become discoloration of teeth. So, simply gulp the leaves can be preferred.

Keywords: Antioxidant, Antimicrobial, Anti-inflammatory, Anticancer, Immunity Booster, Antiviral, Antibacterial, Antiprotozoal, Analgesic, Antidiarrheal, Antitussive, Antiallergic

NANO CARRIES FOR DRUG DELIVERY

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Abstract:

Aim: The primary aim of this research is to explore the use of nanocarriers for drug delivery applications, focusing on their potential to enhance the bioavailability, targeted delivery, and controlled release of therapeutic agents.

Objective: The objective of this study is to evaluate the design, characterization, and efficacy of various types of nanocarriers, including liposomes, dendrimers, and nanoparticles, in drug delivery systems. Additionally, it aims to investigate the mechanisms of drug encapsulation, release kinetics, and cellular uptake, as well as the impact on therapeutic outcomes.

Result: The results indicate that nanocarriers exhibit significant promise in improving the pharmacokinetics and therapeutic efficacy of drugs. Nanocarrier-based drug delivery systems offer enhanced stability, reduced toxicity, and the ability to target specific tissues, leading to improved therapeutic outcomes. Furthermore, controlled drug release profiles are achievable, minimizing side effects and optimizing drug action.

Keywords: Nanocarriers, drug delivery, liposomes, dendrimers, nanoparticles, targeted delivery, controlled release, bioavailability, therapeutic efficac

AN OVERVIEW ON NANO CARRIES FOR DRUG DELIVERY SYSTEM

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Abstract:

Nanocarriers in drug delivery systems have gained significant attention due to their ability to improve the efficacy and targeting of therapeutic agents while reducing side effects. These nanocarriers, including liposomes, nanoparticles, dendrimers, and micelles, offer distinct advantages over conventional drug delivery methods. Their small size, typically ranging from 10 to 1000 nanometers, allows for enhanced cellular uptake and the ability to penetrate biological barriers, such as the blood-brain barrier, which is often a limitation for traditional drugs.

Nanocarriers can be engineered to encapsulate a variety of drug types, including hydrophilic and hydrophobic compounds, providing versatility in drug formulation. They can also be surface-modified to improve stability, release kinetics, and targeted delivery to specific tissues or cells, thereby minimizing off-target effects and improving therapeutic outcomes. For instance, functionalization with targeting ligands, such as antibodies or peptides, allows for the selective delivery of drugs to diseased tissues, such as cancer cells, enhancing the precision of treatment.

The release of drugs from nanocarriers can be controlled through various mechanisms, such as pH sensitivity, temperature sensitivity, or the application of external stimuli like magnetic fields or light. This level of control over drug release not only improves therapeutic effectiveness but also allows for sustained drug delivery, reducing the frequency of administration and improving patient compliance.

Despite their promising potential, challenges remain in the clinical application of nanocarriers, including issues related to toxicity, biocompatibility, manufacturing scalability, and regulatory hurdles. Nonetheless, the continuous advancement in nanotechnology and materials science holds promise for overcoming these barriers and revolutionizing drug delivery systems. The future of nanocarrier-based drug delivery is poised to play a pivotal role in personalized medicine, offering more effective and targeted therapies.

Keynotes- Nano Carries, Liposomes, Hydrophilic, Drug Delivery System

RECENT ADVANCES IN RESPONSIVE HYDROGELS FOR DIABETIC WOUND HEALING

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Abstract:

Diabetic wound, also known as diabetic foot ulcer (DFU), is a form of chronic lesion that disrupts the patient's lifestyle and, in severe cases, may be fatal. Poor wound healing after diabetes mellitus remains a challenging problem, and its pathophysiological mechanisms have not yet been fully elucidated. Recent endeavors utilizing enzymes, particularly nanozymes in conjunction with other materials, have revealed the potential to treat diabetic wounds. Persistent bleeding, disturbed regulation of inflammation, blocked cell proliferation, susceptible infection

and impaired tissue remodeling are the main features of diabetic wound healing. Conventional wound dressings, including gauze, films and bandages, have a limited function. They generally act as physical barriers and absorbers of exudates, which fail to meet the requirements of the whole diabetic wound healing process. Recently, the application of stimuli-responsive hydrogels, also known as “smart hydrogels”, for diabetic wound healing has attracted particular attention. he basic feature of this system is its capacities to change mechanical properties, swelling ability, hydrophilicity, permeability of biologically active molecules, etc., in response to various stimuli, including temperature, potential of hydrogen (pH) other biological factors. Smart hydrogels can improve therapeutic efficacy and limit total toxicity according to the characteristics of diabetic wounds.

Keywords:-Diabetic wound, Hydrogel, Biomaterials, Wound healing, Skin tissue, Therapeutic response.

MONOCLONAL ANTIBODIES IN AUTOIMMUNE DISEASES: PHARMACOLOGICAL ADVANCES

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Abstract

Monoclonal antibodies (mAbs) have revolutionized the treatment of autoimmune diseases by offering targeted therapy with enhanced efficacy and reduced systemic toxicity. These biologics are designed to specifically block pro-inflammatory cytokines, inhibit immune cell activation, or modulate immune pathways involved in disease progression. Advances in mAb development, including fully humanized antibodies and bispecific antibodies, have improved their safety and therapeutic potential. Key monoclonal antibodies such as infliximab, adalimumab, and rituximab have demonstrated significant benefits in conditions like rheumatoid arthritis, multiple sclerosis, and inflammatory bowel disease. Additionally, novel approaches, including antibody-drug conjugates and engineered Fc modifications, are enhancing their pharmacokinetics and reducing immunogenicity. Despite their success, challenges such as high costs, immunogenic adverse effects, and the need for long-term safety monitoring remain. Ongoing research aims to develop next-generation mAbs with improved specificity, longer half-lives, and reduced side effects. As precision medicine advances, monoclonal antibodies will continue to shape the future of autoimmune disease management by providing patient-specific treatment strategies.

Keywords: Monoclonal antibodies, autoimmune diseases, biologics, targeted therapy, immunomodulation.

NANO-STRUCTURED HERBOSOMES ARE JUDICIOUS PASSAGE OF PHARMACO-THERAPEUTICS FOR A MODERNISTIC DRUG DELIVERY PERSPECTIVE –A REVIEW

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Abstract:

Numerous herbal plants include active phytoconstituents with well-established pharmacological actions in-vitro. However, the clinical uses of these active components are severely limited due to their minimal pharmacological action in-vivo. Following the formulation of phyto-constituent herbosomes by mixing with phospholipids in an aprotic solvent, this active ingredient displays distinct physicochemical characteristics regardless of its free form. Merely by entering the systemic circulation and effortlessly navigating the gastrointestinal biological membrane, these herbosomes significantly increased the bioavailability of many phytoconstituents. As a result, the utility of herbosomes has gained more attention in recent decades. The current review article will give an overview of the divergent application of herbosomes in the context of herbal drug delivery and its recent developments.

Keywords- Herbosomes, bioavailability, phospholipids, phytoconstituents, herbal drugs.

MINI TABLETS IN CAPSULE SYSTEM

Abstract

Oral drug delivery is the most desirable and preferred method of administering therapeutic agents for their system effects. Mini-tablets are flat or slightly curved tablets with a diameter ranging between 1.0-3.0 mm. Mini-tablets are small, solid dosage forms that are typically round or oval in shape and can be filled into hard gelatin capsules. They offer several benefits, such as improved drug distribution, reduced risk of local irritation, and the ability to encapsulate multiple drugs or formulations in a single capsule. The use of mini-tablets in hard gelatin capsules allows for precise dosing and can be particularly useful when multiple drugs need to be administered together or when controlled release is desired. Hard gelatin capsules can be filled with various types of fillings, including powders, granules, pellets, liquids,

and semi-liquids. The filling process involves filling the capsule body with the desired formulation, compressing the powder or forming a soft compact, and then joining the capsule body with the cap. The size of hard gelatin capsules can vary, and they are available in different sizes ranging from 000 to 5 for human use. Improve bio-availability of drug compare to single unit dosage form and also delivery of an accurate dose and the opportunity of dose flexibility by administration multiple mini-tablets.

DESIGN AND SYNTHESIS OF 3-ARYL NAPHTHOFURAN DERIVATIVES AS ANTICANCER AGENTS

Mohd Ateek, Manvendra Kumar
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Abstract

Cancer is the second leading cause of human deaths after cardiovascular disease causing about 10 million deaths in 2020. The most common cancers are breast, lung, colon and rectum and prostate cancers. In India, there were about 14.6 lakhs cancer patients in 2022 causing about 5.6 lakhs deaths annually. The arylnaphthofuran scaffold is frequently found in biologically active natural and synthetic compounds. Structurally, it consists of fused ring system as aryl ring with furan moiety. Naphthofuran derivatives have been reported to possess diverse biological activities, including anticancer, antidiabetic, anti-inflammatory, antimicrobial, and analgesic activities.In the present studies, we designed some diarylnaphthofurans possessing a 3,4,5-trimethoxyphenyl unit and antitubulin fragment. This fragment has been identified from some of the natural antitubulins colchicine, podophyllotoxin and combretastatin A4. We designed our pharmacophore possessing this fragment have been planned for synthesis as possible anticancer agents. The starting substrate 3,4,5-trimethoxyacetophenone have been transformed to corresponding 1-bromoacetophenone derivative. It is condensed with 2-naphthol followed by cyclisation to 2-arylnaphthofuran core. It will be transformed to 1,2-diaryl naphthofuran using palladium catalysed Heck coupling reaction. Further, biological evaluation will be done.

Key Words: Breast cancer, lung cancer, arylnaphthofuran, antitubulins, podophyllotoxin, combretastatin A4, 3,4,5-trimethoxyacetophenone, Heck coupling reaction.

FORMULATION AND EVALUATION OF HYDROGEL BASED TRANSDERMAL PATCHES FOR OPTIMAL WOUND HEALING

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Abstract

The development of an optimal transdermal patch for wound healing presents a promising approach for improving the management and treatment of chronic and acute wounds. Traditional wound care methods often rely on dressings that require frequent changes, which can lead to discomfort, infection, and delayed healing. Transdermal patches, on the other hand, offer a controlled and sustained release of therapeutic agents, creating a localized healing environment that accelerates tissue repair. This study explores the formulation of a novel transdermal patch incorporating bioactive compounds such as growth factors, antimicrobial agents, and anti-inflammatory drugs, aimed at promoting wound closure, preventing infection, and reducing inflammation. The patch is designed to enhance skin regeneration through the use of biocompatible and biodegradable materials, ensuring ease of application, comfort, and minimal irritation. In vitro and in vivo evaluations reveal significant improvements in healing time, tissue regeneration, and reduced scarring compared to conventional treatments. The optimal patch design demonstrates an efficient delivery system, ensuring precise dosage and controlled release. The findings suggest that such transdermal patches could revolutionize wound care by providing a non-invasive, effective, and patient-friendly alternative for wound healing management.

Keywords – Transdermal Patches, tissue regeneration, wound healing, therapeutic agents,

ARTIFICIAL INTELLIGENCE IN DETERMINATION OF IMPURITIES IN CRUDE DRUGS USED IN HERBAL DRUG PRODUCTS

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Abstract:

Since two decades we we are simplifying formulation processing of herbal drug products with enhanced standardization and improved stability by using advanced analytical tools associated with computer based processing. Since few years computerized artifical intelligence (CAI) technology is growing very fast because this is saving our time with accuracy in all type of works. Actually there are some hurdles

and complications to find complex impurities, in crude drugs before or during formulation processing of harbal drug products using old traditional computer hardware and software technologies. These impurities may directly affect stability of herbal drug product. We can apply many CAI tools for qualitative and quantitative analysis of contaminants or adulterants in form of impurities whcih is present in raw material (crude drugs). Examples of AI tools and techniques that can be applied like Machine Learning Algorithms, Cherometric Analysis, Spectral Analysis, Data Fusion, Techniques, Deep Learning and so on. AI tools acceptable by the herbal formulators worldwide but it is important to point that the effectiveness of these tools depends on the quality and diversity of the data, software configuration, calibration, and hardware quality.

INNOVATIVE RP-HPLC METHOD DEVELOPMENT AND VALIDATION FOR ASIATIC ACID QUANTIFICATION IN CENTELLA ASIATICA HYDROGEL FORMULATIONS

Harshita Mathur[1], Dr. Anjana Sharma[2], Dr. Divya Chauhan[3]
Llyod Institute of management and technology, Greater Noida

Abstract:

Aim: Innovative RP-HPLC Method Development and Validation for Asiatic Acid Quantification in Centella Asiatica Hydrogel Formulations

Background: RP-HPLC and RP-UPLC are crucial analytical tools for separating and quantifying pharmaceutical compounds. Asiatic acid, derived from Centella asiatica, is widely studied for its therapeutic benefits. Recent advancements, such as Design of Experiments (DoE), Quality by Design (QbD), and artificial intelligence, have revolutionized method development, enabling robust, efficient, and precise chromatographic analysis.

Objective: This study aims to develop and validate RP-HPLC and RP-UPLC methods for quantifying asiatic acid in hydrogel formulations. The objective includes optimizing critical parameters and leveraging advanced techniques like DoE, QbD, and AI to ensure compliance with ICH guidelines, enabling accurate, reliable, and routine quality control analyses.

Materials and Methods: RP-HPLC and RP-UPLC systems with optimized stationary phases, mobile phases, and detection techniques were used. Parameters such as flow rate and gradient elution were refined using DoE, QbD, and AI tools. Validation was performed for linearity, precision, robustness, specificity, and detection limits, adhering to ICH guidelines.

Results: The developed methods demonstrated exceptional linearity, precision, and specificity, confirming their robustness and reliability. They were validated for all critical parameters, showing accurate quantification of asiatic acid in hydrogel formulations. Integration of DoE, QbD, and AI significantly streamlined the method development process.

Conclusion: The validated RP-HPLC and RP-UPLC methods offer robust, accurate, and reliable quantification of asiatic acid. These techniques, optimized with modern advancements, ensure their suitability for routine quality control and stability studies, enhancing pharmaceutical formulation consistency and safety.

ADVANCEMENTS IN NOVEL BIOMATERIALS FOR BONE TISSUE REGENERATION

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Abstract

Bone tissue regeneration remains a significant challenge in orthopedic and reconstructive medicine, necessitating the development of novel biomaterials that offer enhanced osteoconductivity, osteoinductivity, and biocompatibility. Recent innovations have focused on bioactive ceramics, polymeric scaffolds, and composite materials designed to mimic the natural bone extracellular matrix. Advances in 3D bioprinting, nanotechnology, and biofunctional coatings have further improved the mechanical strength and biological integration of these biomaterials. Additionally, smart biomaterials incorporating growth factors, stem cells, and drug-delivery systems have shown promising results in accelerating bone healing and reducing complications. This review highlights the latest breakthroughs in biomaterials for bone regeneration, discussing their structural properties, in vivo performance, and clinical translational potential. Future research directions emphasize the need for patient-specific, bioresponsive materials that can enhance bone repair efficiency while ensuring long-term safety and functionality.

Keywords: Bone tissue regeneration, Advancement in biomaterials

GREEN SYNTHESIS AND CHARACTERIZATION OF COPPER SULFATE NANOPARTICLES USING CYMBOPOGON FLEXUOSUS LEAF EXTRACT

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Abstract

In order to deliver therapeutic agents to specific targets in the body, nanoparticle drug delivery systems use nanoscale carriers (1–1000 nm). The entrapment of drugs within nanoparticles improves delivery to or uptake by target cells and/or lowers the toxicity of the free drug to non-target organs. The goal of this paper is to create copper sulphate nanoparticles of Cymbopogon flexuosus (lemon grass). To do this, a liquid extract of lemon grass was extracted, combined with copper sulphate solution, and centrifuged to produce the nanoparticles. Bioassays, such as antifungal and antibacterial tests, as well as tests like XRD and UV-visible spectroscopy were conducted. With their advantageous qualities and positive test findings, the synthesised copper sulphate nanoparticles of Cymbopogon flexuosus are clearly suitable for use in future formulations to treat a variety of illnesses.

Keywords: Nanoparticles, copper sulphate, Cymbopogon flexuosus, green synthesis, lemon grass

PHARMACARE: A SOLUTION FOR ACCESSIBLE HEALTHCARE FOR COMMON HEALTH ISSUES IN NOWADAYS

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Abstract:

Pharmacare, a system designed to ensure universal access to necessary medications, presents a significant solution to addressing the growing challenge of accessible healthcare for common health issues today. With rising healthcare costs and an increasing number of individuals unable to afford essential medications, pharmacare offers an equitable framework that can mitigate the financial barriers to accessing necessary treatments.By providing affordable or free prescription drug coverage, pharmacare helps to improve health outcomes, prevent the progression of chronic conditions, and reduce the burden on emergency services and hospitals. This approach not only supports individuals with chronic illnesses like diabetes, hypertension, and asthma but also plays a crucial role in reducing health disparities among different socioeconomic groups. Furthermore, pharmacare programs can enhance medication adherence, reduce healthcare system costs, and contribute to a more efficient, sustainable healthcare model. Despite the challenges of funding and program design, pharmacare represents a promising step toward a more accessible, equitable healthcare system, ensuring that medications are a right, not a privilege, for all individuals.

Keywords: Universal Acces to Medication (Goal, Benefit), Improved Health Outcomes (Preventive Care, Reduced Complications), Health Equity, Economic Efficiency (Reduced Healthcare Costs), Government Role and Regulations.

PHYTOCHEMICAL SCREENING, HPLC ANALYSIS AND ANTIMICROBIAL POTENTIAL OF MK-AKS TABLETS: AN ANTIDIABETIC AYURVEDIC FORMULATION

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Abstract:

MK-AKS, a polyherbal formulation, has garnered attention for its antimicrobial properties, attributed to its diverse composition of primary and secondary metabolites. This study was carried out to investigate the phytochemical screening, HPLC analysis (Quercetin as a standard) and antimicrobial efficacy of MK-AKS against significant human pathogens, including Klebsiella pneumoniae, Vibrio cholerae, Staphylococcus epidermidis, Listeria monocytogenes, Escherichia coli, Staphylococcus aureus, Pseudomonas aeruginosa, Salmonella Typhi, Streptococcus mutans, Streptococcus pyogenes, Enterococcus faecalis, Bacillus subtilis and Xanthomonas oryzae. The findings reveal a dose-dependent antimicrobial effect, with optimal activity observed at 100 mg/mL, highlighting its potential as a therapeutic agent. The phytochemical screening confirmed the presence of various primary and secondary metabolites like flavonoids, alkaloids, saponins, carbohydrate, alkaloids, tannins, proteins, terpenoids etc. HPLC analysis showed the presence of quercetin (2.2974 ug/ml) which are responsible for various pharmacological activities. Antimicrobial potential showed that the activity of MK-AKS against various microbes which are responsible for various diseases. The bioactive compounds in MK-AKS, such as phenolics, flavonoids, and terpenoids, exhibit mechanisms like biofilm disruption and microbial membrane interference, underscoring its broad-spectrum efficacy. Furthermore, its potential role in addressing infections related to biofilm-forming pathogens and resistant strains establishes its clinical significance. These results support the continued exploration of MK-AKS as a viable option in combating microbial infections, with implications for managing resistant pathogens and reducing the burden of infectious diseases.

Key words: MK-AKS, HPLC, antioxidant, flavonoids, antimicrobial, disease.

TITLE - LONG TERM EXPOSURE OF ULTRA FINE PARTICLES AND IMPACT OF LUNG CARCINOMA

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Abstract

This section examines the influence of prolonged exposure to ultrafine particles (UFPs) the development of lung cancer. Air pollution, an issue with roots in the early use of fuel combustion by humans, remains a multifaceted problem. A significant component of air pollution is particulate matter (PM), which includes particles of various sizes e.i. coarse, fine, and ultrafine. Ultrafine particles are particularly small, with diameters less than 100 nanometers.

The atmosphere is filled with various contaminations, including (SO_2), (NO_2), (CO_2), (NO), (CO), (NO_x), and PM like $PM_{10\text{-}2.5}$. Both occupational and environmental exposures to carcinogenic substances are prevalent. Given the challenges in early diagnosis, minimizing exposure remains essential. UFPs are defined by their particles size ranging from 0.1 µm (100 nm) or less, whereas coarse PM_{10} has a particle size of 10 µm or less, and fine $PM_{2.5}$ measures 2.5 µm or smaller.

Air pollution is the secondary cause of respiratory infection, following tobacco use, and is accountable for approx 20 percent of bronchi carcinoma-related expired. Bronchi carcinoma is primarily divided into two major clinicopathological categories: non-small cell lung cancer (NSCLC) and small-cell lung cancer (SCLC).

Keywords: Air pollution, Lung Carcinoma, Occupational Exposure, Environmental Exposure, Ultrafine Particles, Particulate Matter.

ADVANCES IN HERBAL GEL FORMULATIONS FOR HYPERPIGMENTATION TREATMENT

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Abstract:

Aim: To understand effectiveness of herbal gels in treatment of hyperpigmentation

Objective:Research on herbal gels as a complete and viable remedy for hyperpigmentation, its effect under various conditions, understanding its advantages over the adverse effects of existing clinical therapies.

Background: Hyperpigmentation, caused by excessive melanin synthesis, is a common dermatological disorder marked by the darkening of certain skin regions. Studies have shown poor patient compliance results from the side effects of treatments including topical creams and procedural therapies. In our research we are trying to identify the adverse effect and inclusion of herbal substitutes wherever possible.

Method and Materials: The herbal formulations target the underlying causes of melanin overproduction by including bioactive chemicals derived from plants that have anti-inflammatory, antioxidant, and tyrosinase-inhibitory qualities. Important botanicals include Glycyrrhiza Glabra (licorice), Azadirachta Indica (neem), Aloe Vera, Curcuma Longa (turmeric), and Morus Alba (mulberry), these natural components also improve skin tone, healing, and hydration, and work on all skin types.

Result and conclusion: The review explores the pathophysiology of hyperpigmentation, highlighting the function of melanogenesis as well as contributing elements such as oxidative damage caused by UV light and inflammation. It highlights the potential of herbal gels as a long-term therapy option for hyperpigmentation by providing a thorough summary of the advantages and modes of action.

Keywords: Hyperpigmentation, Herbal, Gel, melanin, skin coloration, formulation.

POLYHERBAL FORMULATIONS FOR ANTI-INFLAMMATORY ACTIVITY: A COMPREHENSIVE REVIEW

Hakim Singh Rajput, Dr. Sunder Singh

Abstract:

Polyherbal formulations have been used for centuries in traditional medicine systems for the treatment of various ailments, including inflammatory diseases. These formulations typically consist of multiple herbs with anti-inflammatory properties, which are believed to work synergistically to provide greater therapeutic benefits than individual herbs alone. Preclinical studies have shown promising results in animal models of inflammation, and several clinical trials have demonstrated the effectiveness of polyherbal formulations in reducing pain and inflammation in patients with osteoarthritis, rheumatoid arthritis, and other inflammatory conditions. However, there is a need for further research to assess the safety and potential adverse effects of these formulations, as well as to better understand their mechanisms of action. Despite these limitations, polyherbal formulations hold great promise as a complementary approach to the treatment of inflammatory diseases, and may provide a safe and effective alternative to traditional pharmacological therapies.

Keywords: polyherbal formulations, anti-inflammatory, herbal medicine, clinical studies, safety, inflammation,

FORMULATION AND CHARACTERIZATION OF GLUTATHIONE PATCH FOR TREATMENT OF CHRONIC HYPERPIGMENTATION

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Abstract:
Hyperpigmentation is a common dermatological condition characterized by the darkening of specific areas of the skin due to an excess production of melanin. It can manifest in various forms, including melasma, post-inflammatory hyperpigmentation, and sunspots, each with unique triggers and characteristics. Materials-Active Ingredient: Reduced glutathione (L-glutathione) Polymers:Hydroxypropyl methylcellulose (HPMC): Ensures film-forming capability and controlled release Ethyl cellulose (EC): Provides structural strength and modulates drug release Plasticizers: Glycerol and polyethylene glycol 400 (PEG 400) for patch flexibility Backing Layer: Polyvinyl alcohol (PVA) Solvents: Ethanol, deionized water, and acetone .Method-The transdermal patch was formulated using the solvent casting method. Various polymer-to-plasticizer ratios were tested to optimize drug release, mechanical properties, and adhesion. HPMC and EC dissolved in ethanol water a homogenous solution is prepared then glutathione is dissolved and incorporated in polymer solution ,glycerol is added for flexibility then mixture is cast on glass plate then dried film is cut. Result-The optimized patches demonstrated uniform thickness (0.25 ± 0.03 mm) and weight (50 ± 5 mg). Folding endurance values exceeded 300, indicating good mechanical strength suitable for application. Drug content ranged from 97% to 102% of the labeled claim, confirming the reproducibility of the formulation process . The burst release ensures rapid onset of action, while the sustained phase provides prolonged therapeutic effects. Conclusion-The glutathione-loaded transdermal patch offers a novel approach to treating hyperpigmentation by combining the benefits of controlled drug delivery and ease of application.

Keywords: Hyperpigmentation , Melasma , HPMC , Patch, Formulation

ROLE OF LIPOCALIN-2 IN TARGETING THE METABOLIC DISORDERS

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Abstract:
The protein lipocalin-2 which is the member of the lipocalin family is also called neutrophil gelatinase-associated lipocalin or NGAL White blood cells and other cells release it during inflammation. Lipoclain-2 is a useful biomarker for heart failure, acute and chronic kidney disorders, and obesity. During stressful situation epithelial cells release it but constitutively found from pre-adipocytes and mature adipocytes. Lipocalin-2(LCN2) target metabolic disorders like obesity, insulin resistance and type 2 diabetes. The aim is to understand the mechanistic pathways by which LCN2 influences metabolic processes and evaluate its potential as a therapeutic target for managing this diseases. Lipocalin-2(LCN2) is involved in multiple signaling pathways such as JAK2/STAT3, NF-kB and autophagy-lysosome pathways. LCN-2 expression is increased by the NF-kB signalling pathways. It can lead to neuronal death and neuroinflammation. LCN2 promotes proliferation and glycolysis by activating the JAK2/STAT3 signaling pathway in hepatocellular carcinoma. LCN2 is a target of the autophagy-lysosome pathway activating autophagy. LCN2 exerts its biological effects by binding to its receptor,24p3R(also known as LCN2 receptor). Upon binding to 24p3R,it activates MAPK signalingpathway,it leads to pro-inflammatory cytokine production,cell survival and differentiation and enhanced immune responses. LCN2 emerges as a promising target in the treatment of metabolic disorders, particularly due to its role in regulating inflammation and metabolism.

Keywords: Lipocalin-2,NGAL, metabolic disorders, MAPK, JAK2/STAT3, NF-kB.

ANTIOXIDANT ACTIVITY OF DIFFERENT PARTS OF PHYLLANTHUS AMARUS AQUEOUS EXTRACTS ON WISTAR RATS AGAINST ACETAMINOPHEN-INDUCED HEPATOTOXICITY

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Abstract
Hepatotoxicity- All around world hepatotoxicity are cause due the Drug induced liver toxicity. They lead to damage of liver cell and necrosis due to interruption metabolites of drug enzymes P450 and decrease the level of antioxidant from the liver cell. Phyllanthus amarus have been reported hepatoprotective activity due antioxidant activity. The leaves, stem, root and seeds contain lignans as phyllanthin, hypo-phyllanthin, alkaloids, flavoroids as querceting, Quercitrin, Isoqercitrin and rutin. The analysis of the extract revealed several bioactive molecules and chemical agents including phyllanthin, hypo phyllanthin, phyltetralin, niranthin, nirtetralin, and isolintetralin. Which are lignans belongs to the polyphenols group of compounds with-well known antioxidant properties. This study aimed at investigating effects of

ingesting aqueous extracts of the different parts of Phyllanthus amarus on lipid peroxidation and antioxidant parameters and hepatoprotective activity in Wistar rats.

Keywords- Antioxidants, Hepatoprotective, Phyllanthin, Hypophyllanthin, Hepatotoxicity, Polyphenols.

THE ROLE OF ADAPTOGENS IN STRESS AND ANXIETY MANAGEMENT

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Abstract

Adaptogens are a unique class of natural compounds that enhance the body's resistance to physical, chemical, and biological stressors, helping restore homeostasis. Traditionally used in Ayurvedic and Chinese medicine, adaptogens such as Withaniasomnifera (Ashwagandha), Panax ginseng, Rhodiola rosea, and Eleutherococcussenticosus have demonstrated significant anxiolytic and neuroprotective effects. These botanicals modulate the hypothalamic-pituitary-adrenal (HPA) axis, regulate cortisol levels, and influence neurotransmitter activity, including serotonin, dopamine, and gamma-aminobutyric acid (GABA), thereby reducing stress and anxiety. Recent pharmacological studies highlight their role in improving cognitive function, reducing fatigue, and enhancing overall mental well-being. Additionally, adaptogens possess antioxidant and anti-inflammatory properties that protect neural cells from stress-induced damage. Despite their promising therapeutic potential, challenges such as variability in bioactive compounds, standardization, and limited large-scale clinical trials hinder their widespread acceptance in conventional medicine. Future research should focus on mechanistic insights, optimized formulations, and regulatory guidelines to enhance their clinical efficacy. Adaptogens represent a promising natural alternative for managing stress and anxiety, offering a holistic and sustainable approach to mental health.

Keywords: Adaptogens, stress, anxiety, cortisol regulation, neuroprotection.

AN INSIGHT ROLE OF ARTIFICAL I NTELLIGENCE MODULATED MACHINE LEARNING IN MANAGEMENT OF ALZHEIMER DISEASE: - A SYSTEMIC REVIEW

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Abstract:

Alzheimer's disease (AD) is a major challenge in neurodegenerative research and clinical treatment because of its complex etiology and progressive nature. The use of artificial intelligence (AI) in the diagnosis, treatment, and prognostic modelling of Alzheimer's disease has an opportunity to alter the dementia care landscape. This analysis looks at current advances in AI applications for various stages of Alzheimer's disease management. AI-enhanced neuroimaging techniques, such as MRI, PET, and CT scans, allow for the exact detection of AD biomarkers during early diagnosis. Machine learning techniques examine these photos to detect patterns suggestive of early cognitive decline. Additionally, artificial intelligence systems have been utilized for identifying genetic and proteomic signs, which enables early intervention. Cognitive and behavioral assessments have also benefited from AI, with tools that enhance the accuracy of neuropsychological tests and analyze speech and language patterns for early signs of dementia. This systematic review discusses how machine learning has contributed to progress in the treatment of Alzheimer's disease and contributes to a shared understanding of the disease's biological sciences, current methods of diagnosis, and potential therapies. We subsequently discuss the way machine learning techniques, including as feature selection, clustering, regression, and classification, are used in AD management. Additionally, it includes an assortment of data sources exploited to investigate the prevalence of Alzheimer's disease as well as the complications that are associated with it. In spite of machine learning's optimistic future, however still remain concerns that have to be sorted out, which include model validation, confidentiality of information, and ethical issues. We provide an overview for the future, emphasizing collaboration among disciplines and the integration of machine learning with cutting-edge technologies. The transformative role of ML in advancing the management of AD and highlights the need for continued research and innovation in this critical area of healthcare.

Keywords - Alzheimer's disease [AD], artificial intelligence (AI) , machine learning [ML], pathophysiology, diagnosis, treatment, biomarkers,

IN SILICO STUDY WITH CHARACTERIZATION OF NOVEL ISATIN-BASED URACIL, XANTHINE ANALOGUES AND THEIR DERIVATIVES

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Abstract:

This work presents the formation, structure design and evaluation through in silico molecular docking of uracil and xanthine analogues that use isatin, as a base compound. Isatin, an indole derivative, possesses potent anticancer activity and uracil, a product of purine and nucleic acid metabolism, and xanthine, which may serve as a generic scaffold for new drug development. By combining these structures, which act through synergistic mechanisms, we provide a novel approach for the enhancement of anticancer activity. Novel derivatives of these two compounds were synthesized utilizing standard organic methodologies and evaluated by spectral and physiochemical procedures (NMR and IR). In-silico molecular docking experiments showed significant binding affinities against the checkpoint kinase 2 (2YCF), indicating strong interactions with key molecular targets. Docking results indicated that IM-3 and IM-4 as lead compounds exhibiting corresponding binding affinity values of -9.4 and -9.2 kcal/mol, in contrast to doxorubicin, the reference drug (-9.6 kcal/mol). This investigation highlights the utility of isatin-uracil-xanthine hybrids in anticancer drug development.

Keywords: Molecular docking, Anticancer activity, Isatin, Uracil, Xanthine

REVIEW OF ANTI-ULCER ACTIVITY OF HURBS IN ULCER INDUCED EXPERIMENTAL MODELS

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Abstract

Peptic ulcers, characterized by the erosion of the gastrointestinal mucosa, pose significant health challenges worldwide. Traditional medicinal plants have garnered attention for their potential in ulcer management due to their multifaceted therapeutic properties. Hurbs (Linn.), commonly known as Indian mallow, is a herbaceous plant utilized in various traditional systems for its medicinal benefits. This study aims to evaluate the anti-ulcer potential of Hurbs through comprehensive in vitro and in vivo analyses.

Phytochemical screening of the plant's extracts revealed the presence of bioactive compounds such as flavonoids, alkaloids, and tannins, which are known for their antioxidant and anti-inflammatory properties. In vitro assays demonstrated that the aqueous extract of Hurbs exhibited significant acid-neutralizing capacity and inhibited H+/K+–ATPase activity, suggesting a potential mechanism for its anti-ulcer effect. In vivo studies conducted on albino rats with induced gastric ulcers showed that administration of the plant extract resulted in a notable reduction in ulcer index, free acidity, and total acidity, alongside an increase in gastric mucosal defense factors. These findings indicate that Hurbs may exert its anti-ulcer effects by enhancing mucosal protection and modulating gastric secretions.

The results of this study underscore the therapeutic potential of Hurbs as a natural anti-ulcer agent. Further research, including clinical trials, is warranted to validate these findings and explore the feasibility of incorporating Hurbs into contemporary ulcer treatment regimens.

Keywords: Hurbs, anti-ulcer, phytochemical screening, in vitro assays, in vivo studies, gastric mucosal protection, herbal medicine.

PHYTOCHEMICALS AS POTENTIAL THERAPEUTICS FOR CARDIOVASCULAR DISEASES

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Abstract

Cardiovascular diseases (CVDs) remain a leading cause of morbidity and mortality worldwide, necessitating the search for safer and more effective therapeutic alternatives. Phytochemicals, derived from medicinal plants, have gained attention for their cardioprotective potential due to their antioxidant, anti-inflammatory, lipid-lowering, and vasodilatory properties. Bioactive compounds such as flavonoids, polyphenols, alkaloids, and terpenoids modulate key pathways involved in CVD pathogenesis, including oxidative stress, endothelial dysfunction, and cholesterol metabolism. Notable phytochemicals such as resveratrol, quercetin, curcumin, and berberine have demonstrated promising effects in preclinical and clinical studies by improving vascular function, reducing blood pressure, and preventing atherosclerosis. Advances in nanotechnology and drug delivery systems are further enhancing the bioavailability and therapeutic efficacy of these compounds. Despite their potential, challenges such as poor bioavailability, standardization, and regulatory approvals limit their widespread clinical use. Future research should focus on large-scale clinical trials, improved formulation strategies, and mechanistic studies to validate their efficacy and safety. Phytochemicals hold great promise as adjunct or alternative therapies for CVD management, contributing to the development of natural, cost-effective, and sustainable treatment strategies.

Keywords: Phytochemicals, cardiovascular diseases, antioxidants, flavonoids, cardioprotection.

UNDERSTANDING THE MECHANISMS OF ULCER FORMATION: INSIGHTS FROM RECENT RESEARCH

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Abstract:

Aims: The mechanisms of ulcer formation are a concern of many; this review, therefore focuses on recent advances in research aimed at improving understanding of the pathophysiology of peptic ulcers and allied disorders.

Objective: To explore the cellular and molecular mechanisms of ulcer formation, including the role of Helicobacter pylori infection, acid secretion, inflammatory responses, and mucosal protection. The study also examines the influence of genetic, environmental, and lifestyle factorson ulcer development.

Results: Recent studies have identified several important factors in ulcer formation. Helicobacter pylori infection is a major etiological factor, leading to chronic inflammation and disruption of mucosal integrity. Excessive secretion of gastric acid, often stress-induced or the result of using nonsteroidal anti-inflammatory drugs (NSAIDs), increases mucosal damage. Inflammatory cytokines and immune responses have a central role in the process of ulcer formation by enhancing tissue injury. Lastly, an imbalance between aggressive factors such as acid and enzymes, and protective factors such as mucus and bicarbonate secretion is critical in determining ulcer formation. Genetic predispositions as well as dietary and smoking influences are being emerged by newer studies in relation to susceptibility to ulcers. A number of innovative therapeutic approaches including proton pump inhibitors, antibiotics, and mucosal protective agents, have also indicated their effectiveness for the healing and prevention of recurrent ulcers.

Keywords: Formation of Ulcers, Helicobacter pylori, Gastric Acidity, Inflammation, Mucosal Protection, Peptic Ulcer, NSAIDs, Cytokines, Genetic Factors, Therapeutic Approaches.

PHARMACOVIGILANCE AND DRUG SAFETY: CHALLENGES IN THE DIGITAL AGE

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Abstract

Pharmacovigilance plays a crucial role in ensuring drug safety by detecting, assessing, and preventing adverse drug reactions (ADRs) and medication errors. In the digital age, advancements in big data analytics, artificial intelligence (AI), and real-world evidence have transformed drug safety monitoring. Automated signal detection, electronic health records, and social media surveillance have enhanced the ability to identify drug-related risks in real time. However, challenges such as data privacy concerns, the accuracy of AI-driven reporting, and the integration of vast amounts of unstructured data remain significant hurdles. Additionally, the globalization of pharmaceutical markets has complicated regulatory harmonization, requiring collaboration between agencies such as the FDA, EMA, and WHO. The rise of digital pharmacovigilance has also introduced ethical dilemmas, including bias in AI algorithms and misinformation from unverified sources. Despite these challenges, digital innovations continue to improve early detection of ADRs and enhance patient safety. Future strategies should focus on regulatory frameworks, transparency in AI-driven systems, and improving data quality to optimize pharmacovigilance practices in the digital era.

Keywords: Pharmacovigilance, drug safety, artificial intelligence, adverse drug reactions, digital health.

CURCUMIN: A GOLDEN COMPOUND IN DISEASE MANAGEMENT

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Abstract

Curcumin, the principal bioactive compound in Curcuma longa (turmeric), has gained significant attention for its diverse pharmacological properties and therapeutic potential. Known for its strong antioxidant, anti-inflammatory, antimicrobial, and anticancer effects, curcumin has been extensively studied for its role in managing chronic diseases, including cancer, diabetes, cardiovascular disorders, and neurodegenerative conditions. Its ability to modulate key molecular pathways, such as NF-κB, Nrf2, and PI3K/Akt, contributes to its protective effects against oxidative stress, inflammation, and tumor progression. Additionally, curcumin exhibits immunomodulatory properties, enhancing immune responses while suppressing excessive inflammatory reactions. Despite its immense therapeutic potential, curcumin faces challenges such as poor bioavailability, rapid metabolism, and low solubility, limiting its clinical efficacy. Recent advancements in nanotechnology, including curcumin-loaded nanoparticles, liposomes, and phospholipid complexes, have improved its

absorption and pharmacokinetic profile. Clinical studies continue to explore its efficacy in combination therapies and drug delivery systems to enhance its therapeutic benefits. Future research should focus on optimizing formulations and conducting large-scale clinical trials to establish curcumin as a mainstream therapeutic agent. As a natural, multi-targeted compound, curcumin holds great promise in disease prevention and management, making it a valuable candidate for integrative medicine.

Keywords: Curcumin, inflammation, antioxidants, cancer therapy, bioavailability.

THE RISING GLOBAL BURDEN OF DIABETES: PUBLIC HEALTH STRATEGIES FOR PREVENTION AND CONTROL

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Aim: This study aims to examine the rising global burden of diabetes, particularly Type 2 diabetes, and explore effective public health strategies for its prevention and control.

Objective: To assess the increasing prevalence of diabetes worldwide and evaluate the effectiveness of various public health interventions, including lifestyle modifications, early screening, education, and access to healthcare. The study also explores the role of policy measures in mitigating the diabetes epidemic.

Results: The global prevalence of diabetes has significantly increased in recent decades, driven by factors such as urbanization, sedentary lifestyles, poor diet, and increasing obesity rates. Public health strategies focusing on lifestyle interventions, including promoting physical activity, healthy eating, and weight management, have been shown to reduce the incidence of Type 2 diabetes. Early detection through widespread screening programs has proven effective in identifying at-risk individuals and preventing disease progression. Education campaigns aimed at raising awareness of diabetes risk factors and the importance of regular health check-ups have also contributed to improved outcomes. Policy measures, such as sugar-sweetened beverage taxes, improved food labeling, and urban planning to encourage physical activity, have been implemented in several countries with positive results. However, challenges remain in ensuring equitable access to care and addressing disparities in diabetes management across different populations.

Keywords: Diabetes, Public Health Strategies, Type 2 Diabetes, Prevention, Control, Screening, Lifestyle Interventions, Global Health, Obesity, Policy Measures.

ROLE OF PHYTOCHEMICAL CONSTITUENTS IN CANCER TREATMENT

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Abstract:

Cancer remains one of the leading causes of mortality worldwide, necessitating the continuous search for effective and less toxic therapeutic alternatives. Phytochemicals, bioactive compounds derived from plants, have gained significant attention for their potential role in cancer prevention and treatment. These compounds exhibit anti-cancer properties by targeting multiple signaling pathways involved in tumorigenesis, apoptosis, angiogenesis, and metastasis. Major classes of phytochemicals, including polyphenols, flavonoids, alkaloids, terpenoids, and saponins, have demonstrated promising anti-cancer effects through mechanisms such as oxidative stress modulation, immune system activation, and inhibition of cancer cell proliferation. Notable phytochemicals like curcumin, resveratrol, epigallocatechin gallate (EGCG), and quercetin have shown efficacy in preclinical and clinical studies, either alone or in combination with conventional therapies. This review highlights the therapeutic potential of phytochemicals in cancer treatment, emphasizing their molecular targets, mechanisms of action, and challenges in clinical translation. Further research, including clinical trials and advanced drug delivery systems, is essential to optimize the use of these natural compounds in oncology.

Keywords: Phytochemicals, Cancer Treatment, Antioxidants, Apoptosis, Chemoprevention, Natural Compounds

ROLE OF HERBAL MEDICINE IN MODERN THERAPEUTICS

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Abstract:

Herbal medicine has been an integral part of traditional healing systems for centuries and continues to play a crucial role in modern therapeutics. With increasing global interest in natural remedies, plant-derived compounds have gained recognition for their pharmacological potential in treating various diseases. Herbal medicines exhibit diverse biological activities, including anti-inflammatory,

antioxidant, antimicrobial, and immunomodulatory effects, making them effective alternatives or adjuncts to conventional treatments. Advances in phytochemical research and biotechnology have led to the isolation and characterization of bioactive compounds, such as flavonoids, alkaloids, and polyphenols, which contribute to their therapeutic efficacy. Furthermore, nanotechnology and novel drug delivery systems have enhanced the bioavailability and stability of herbal formulations, improving their clinical applications. Despite their promising benefits, challenges such as standardization, quality control, and potential herb-drug interactions hinder their widespread adoption in mainstream medicine. Regulatory frameworks and scientific validation through clinical trials are essential to ensure the safety and efficacy of herbal medicines. This review highlights the growing significance of herbal medicine in modern therapeutics, discussing its mechanisms, advancements, and challenges while emphasizing the need for further research and integration into evidence-based medicine.

Keywords- Herbal medicine, phytochemicals, modern therapeutics, drug delivery, clinical applications

DEVELOPMENT OF HYBRID PEPTIDE-BASED FORMULATIONS FOR SKIN REGENERATION: COMBINING ANTIOXIDANT AND COLLAGEN-STIMULATING PEPTIDES FOR ENHANCED ANTI-AGING EFFICACY

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Abstract:

As we age, our skin undergoes significant changes, including a decline in collagen production, loss of elasticity, and increased oxidative stress. These changes contribute to visible signs of aging, such as wrinkles and fine lines. In response, there has been growing interest in using bioactive peptides for skin rejuvenation due to their ability to target specific aging processes. This study explores the development of hybrid peptide-based formulations that combine antioxidants and collagen-stimulating peptides, aiming to address multiple aspects of skin aging for enhanced efficacy.

The research focuses on formulating unique blends of peptides that not only promote collagen synthesis to restore skin structure but also incorporate antioxidant peptides to fight the free radicals responsible for skin damage. By combining these powerful bioactive agents, the goal is to create a more comprehensive anti-aging treatment. Advanced delivery systems, like nanocarriers and lipid-based formulations, will be employed to ensure the peptides penetrate deeper layers of the skin, delivering maximum benefit.

Through both in vitro studies and clinical trials, this research will evaluate how these hybrid peptide formulations improve skin elasticity, reduce wrinkles, enhance hydration, and restore youthful texture. The ultimate aim is to provide a holistic, scientifically-backed approach to skin regeneration, offering a potent solution for individuals seeking to reverse or slow down the visible effects of aging on their skin.

Keyword:- Hybrid Peptides, Skin Regeneration, Anti-Aging, Collagen-Stimulating Peptides, Antioxidant Peptides, Peptide Formulations, Skin Health, Skin Care, Peptide Therapy, Collagen Synthesis, Peptide Synergy

PROTEIN AND PEPTIDE DELIVERY: CHALLENGES AND ADVANCED STRATEGIES

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Abstract:

Proteins and peptides have emerged as promising therapeutic agents due to their high specificity and potency. From their design stage onward, proteins and peptides can be looked at as ideal candidates for therapeutic agents, their specificity being maximal, potency often being phenomenal; however, clinical applications are often challenged by poor stability, rapid degradation, and especially immunogenic responses and poor bioavailability. Thus, efficient delivery systems need to be developed to help combat these challenges so that we approach success in actual therapeutic intervention. Advanced systems with a brief outline of nanoparticle-based delivery, lipid-based carriers, hydrogels, and microneedle patches all show great promise in tackling the problems of stability and bioavailability concerning protein and peptide therapeutics. Chemical modifications such as PEGylation and prodrug strategies also help in extending circulation time and decreasing enzymatic degradation. Advancements in nanostructured lipid carriers (NLCs), exosome-mediated delivery, and formulation of potential targeted and controlled release upon stimulation have been a subsequent addition to improve targeted and controlled delivery of protein pharmaceuticals. This presentation will highlight some of the exciting new advancements in protein and peptide delivery, focusing on new approaches, formulation techniques, and upcoming trends in the area. A good awareness of the strategies will ensure successful and patient-compliant therapies with proteins and peptides in socio-economic aspects, boosting the prospects of modern pharmaceutical sciences.

Keywords: Protein delivery, Peptide therapeutics, Nanoparticles, Lipid carriers, Drug stability, Controlled release, PEGylation.

INSIGHTS OF DIFFERENT SOLID DISPERSION TECHNIQUES FOR SOLUBILITY ENHANCEMENT OF PHARMACEUTICALS

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Abstract:

Poor oral bioavailability is a common feature of many medications with limited water solubility. The development of solid dispersions of poorly bioavailable drugs addressed the drawbacks of the previous techniques. One or more hydrophobic active ingredients dispersed in a hydrophilic inert carrier at a solid state using a solvent, melting solvent technology, or melting (fusion) process is known as solid dispersion. The Biopharmaceutical Classification System (BCS) separated the drugs into four subclasses according to their solubility and permeability. BCS classes II and IV drugs have low solubility problems. The most challenging issue is making these BCS II and IV class medications more soluble. Among the techniques used for this purpose are solid dispersion, particle size reduction (Micronization and Nanonization), salt creation, pH adjustment, polymorph and pseudo-polymorph synthesis, complexation method, surfactant, and co-solvent. There are several different types of hydrophilic and hydrophobic pharmaceutical excipients that are used to create solid dispersions. However, their usage in drug development is quite rare due to a lack of basic understanding regarding the mechanisms governing drug release and absorption in vivo. The current endeavour aims to improve the solubility of BCS II drugs using a number of methods and measure it for a number of factors.

Keywords: Solid dispersion techniques, BCS II, amorphous solid dispersions, hydrophilic and hydrophobic carriers.

FORMULATION OF HERBAL BIGELS FROM MKDD-1 AND MKDD-2 FOR THE PREDICTION TREATMENT OF SUPERFECIAL CUTE WOUND

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Abstract:

Wound healing is a complex process that requires effective protection, hydration, and antimicrobial action to prevent infections and accelerate tissue repair. In this study, we formulate an innovative herbal bigels incorporating **(MKDD-1)** and **(MKDD-2)** for the potential treatment of superficial acute wounds. **MKDD-1**, renowned for its antimicrobial, anti-inflammatory, and skin-soothing properties**,** works synergistically with **MKDD-2**, which enhances antioxidant defense, tissue regeneration, and wound contraction**.** The unique bigel system combines the benefits of both hydrogel and oleogel phases, ensuring enhanced stability, controlled release, and deep skin penetration**.** This dual-phase formulation provides an optimal healing environmentbyreducing bacterial growth, soothing inflammation, andpromoting faster skin recovery**.** By harnessing the power of nature, this study aims to develop a novel**,** biocompatible, and effective wound care solution**,** paving the way for herbal-based innovations in modern dermatological treatments.

TYPHOID FEVER: EPIDEMIOLOGY, PATHOGENESIS, AND TREATMENT OPTIONS

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Abstract:

Background: Typhoid fever, caused by Salmonella Typhi, is a significant public health concern globally, particularly in developing countries. The disease is characterized by fever, headache, and abdominal pain, and can lead to serious complications if left untreated. This review aims to provide an overview of the epidemiology, pathogenesis, and treatment options for typhoid fever. The global incidence of typhoid fever is estimated to be around 21 million cases annually, with the majority of cases occurring in South Asia. The bacterium invades the intestinal epithelium, leading to inflammation and tissue damage.

Pathogenesis: the pathogenesis of typhoid fever involves bacterial entry through the gastrointestinal tract, invasion and dissemination via the bloodstream, and infection of various organs, particularly the liver, spleen, and bone marrow. The result is fever, systemic inflammation, and potentially severe complications if untreated.

Treatment: options include antibiotics such as ciprofloxacin and azithromycin, as well as vaccination with the Ty21a or Vi polysaccharide vaccines. However, the emergence of antibiotic-resistant strains and the limited efficacy of vaccines highlight the need for continued

research and development of new treatment and prevention strategies.

Keywords: Typhoid fever, Salmonella Typhi, epidemiology, pathogenesis, treatment options, antibiotic resistance, vaccination.

DECIPHERING THE ROLE OF CELL SIGNALING PATHWAYS IN GOUT PATHOGENESIS AND THE THERAPEUTIC POTENTIAL OF PHYTOCONSTITUENTS IN THEIR MODULATION

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Abstract:

Gout, a form of inflammatory arthritis, results from the deposition of monosodium urate crystals in joints, triggering intense pain and inflammation. Current treatments, including uric acid-lowering agents and anti-inflammatory drugs, often present side effects, necessitating safer, more effective alternatives. Phytoconstituents derived from plants have emerged as promising candidates due to their antioxidant, anti-inflammatory, and xanthine oxidase inhibitory properties. This review explores the mechanisms through which phytochemicals such as quercetin, curcumin, resveratrol, etc. modulate key signaling pathways implicated in gout, including NF-κB, NLRP3 inflammasome, MAPK pathways, and more. These compounds reduce inflammation, mitigate oxidative stress, and lower uric acid levels, demonstrating potential in treating gout. However, challenges like poor bioavailability and rapid metabolism limit their clinical application. Strategies such as nanotechnology-based delivery systems and CRISPR technology for targeted pathway modulation are discussed as solutions to enhance the efficacy and specificity of phytoconstituents. This comprehensive analysis underscores the therapeutic potential of phytoconstituents in addressing gout's multifaceted pathology and outlines future directions for advancing their clinical utility through innovative technologies.

Keywords: Gout, phytoconstituents, cell signaling pathways, anti-inflammatory pathways, xanthine oxidase inhibition, nanotechnology, inflammasome

APPLICATION OF AQBD PRINCIPLES TO HPLC METHOD DEVELOPMENT: A SYSTEMATIC APPROACH

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Abstract:

This poster presents the principles of Analytical Quality by Design (AQbD) concept in HPLC method development. AQbD is applied to the method development and validation through the ICH Q14 guideline which is endorsed on 24 march 2022. A systematic approach covers all aspects of the life cycle of an analytical procedure. It includes a concept of the analytical target profile (ATP), knowledge management, risk management, analytical procedure control strategy, identification of critical method parameters, and selection of critical method attributes (CMAs). Robust method performance is ensured in the method operable design region (MODR) where multivariate combinations of elements meeting the CMA requirements are displayed. Design of Experiments (DoE) is an indispensable tool in pharmaceutical analysis as it simultaneously balances a number of chromatographic parameters to ensure optimal separation in High Pressure Liquid Chromatography (HPLC). Specifically, it discusses various design types and clarifying the various steps of the workflow involved in developing HPLC method, including factor optimization, method robustness assessment, and the selection of the significant factors. The systematic approach improved method robustness, reduced risk factors and time, enhanced method performance, increased efficiency, emphasises product and process understanding and process control based on the quality risk management and helps to compliance with the regulatory guideline requirements. The systematic AQbD approach application in HPLC method development plays a vital role for analysis of drug substances, degradation products, impurities, and metabolites.

KEYWORDS:AQbD, DoE, Pharmaceutical analysis, HPLC method development.

NANOEMULSIONS: A PARADIGM SHIFT IN HERPES VIRUS THERAPY

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Abstract

Virus infections are extremely common, recurrent, and clinically challenging including Herpes virus infection, a painful blister or ulcer is caused by the contagious herpes simplex virus (HSV). There are two varieties, which are also referred to as herpes: HSV-1 as well as HSV-2. HSV-1 is causes oral herpes or cold sores around the mouth but it can also cause genital herpes, sexually transmitted causes genital herpes called HSV-2. High dosages and frequent administration are common in conventional drug delivery system, which causes adverse effects and also comes many precautions causing inconvenience patient adherence. In recent time period, nanoemulsion-based drug delivery

systems have emerged as a promising strategy for the effective and targeted delivery of antiviral drugs. Nanoemulsion technology has nanoscale droplet size which obtains large surface area and enhanced solubility, permeability and stability and also bioavailability. This review examines the most recent developments in nanoemulsion formulations for the treatment of herpes virus infections. Furthermore, we hope to shed light on how antiviral medication might be transformed by nanoemulsion technology. All things considered, this review emphasises the novel methods in nanoemulsion formulation and their potential to develop efficient, patient-friendly treatments for herpes virus infections.

Keywords: Herpes Simplex virus, Nanoemulsion, Enhanced solubility and permeability.

MOLECULAR DOCKING STUDY OF ATR INHIBITORS WITH 5KVT: EVALUATING ELIMUSERTIB POTENTIAL IN NON-SMALL CELL LUNG CANCER

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Abstract:

Lung cancer remains the leading cause of cancer-related mortality worldwide and is classified into non-small cell lung cancer (NSCLC), accounting for 85% of cases, and small cell lung cancer (SCLC) a more aggressive form comprising 15% of cases. Targeted therapies, particularly tyrosine kinase inhibitors, have significantly improved treatment outcomes in various cancers by selectively inhibiting oncogenic signaling pathways. NTRK1 (PDB ID: 5KVT) is a key oncogenic in NSCLC, playing a crucial role in tumour progression, while ATR (Ataxia Telangiectasia and Rad3-related kinase) is involved in DNA damage and replication stress survival in SCLC. This study employed molecular docking to evaluate the binding affinity of Entrectinib (NSCLC FDA-approved drug) with ATR inhibitors (Elimusertib, Berzosertib, Ceralasertib, Lurbinectedin, and Topotecan), which are FDA-approved drugs for SCLC. The workflow included protein and ligand preparation, receptor grid generation, active site identification, docking study, and docking analysis. Among the tested compounds, Elimusertib demonstrated the strongest binding affinity with 5KVT, forming key interactions such as Van der Waals force (TYR591, GLY517, GLU518, PHE521, ASP596, and GLY595), hydrogen bonding (MET592), π-sigma interactions (LEU657), π-π T-shaped interactions (PHE589), and π-alkyl interactions (ALA542, VAL524). These findings suggest that Elimusertib could be repurposed for NSCLC treatment. However, further in vitro and in vivo studies are required to validate its therapeutic potential.

Keywords:NSCLC, Molecular Docking, 5KVT, NTRK1, ATR Inhibitors, Elimusertib, Drug Repurposing, Targeted Therapy

IN-SILICO SCREENING TO IDENTIFY PHYTOCHEMICAL INHIBITOR FOR BAX: A CRUCIAL INFLAMMATORY CELL DEATH MEDIATOR IN TYPE I DIABETES

Mohseen

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Abstract:

BAX (Bcl-2-associated X protein) is a pro-apoptotic protein that causes β-cell death in Type I Diabetes (T1D) via mitochondrial membrane permeabilization and inflammation-induced apoptosis. Natural inhibitors of BAX may offer a promising therapeutic method for reducing β-cell loss and improving disease outcomes. This study uses an in-silico approach to screen and discover putative BAX phytochemical inhibitors by molecular docking, molecular dynamics (MD) simulations, and pharmacokinetic analysis. Using AutoDock Vina, a library of bioactive phytochemicals from several medicinal plants was tested for binding to BAX. The top-scoring compounds with the highest binding affinities were then submitted to 100 ns MD simulations with GROMACS to assess stability, binding interactions, and conformational change. ADMET (absorption, distribution, metabolism, excretion, and toxicity) profiling was used to determine medication similarity and safety. Our findings identified lead phytochemicals with high BAX inhibitory activity, persistent interactions, and favourable pharmacokinetic characteristics. Natural substances may decrease apoptosis-mediated β-cell death by binding to BAX's BH3 domain. This study focusses on the therapeutic potential of phytochemicals as new BAX inhibitors for T1D therapy. Further in-vitro and in-vivo validations are needed to prove their effectiveness in preventing pancreatic β-cell death. Our findings add to the growing interest in natural product-based therapies for inflammatory metabolic illnesses, paving the possibility for novel approaches to T1D treatment.

Keywords: BAX, type I diabetes, apoptosis, phytochemicals, in-silico screening, molecular docking, drug discovery

ROLE OF NANOTECHNOLOGY IN TARGETED IN ALZHEIMER DISEASE

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Abstract:

Introduction: Millions of people worldwide suffer from Alzheimer's disease (AD), a crippling neurological illness. The buildup of beta-amyloid protein in the brain is one of the main pathogenic characteristics of AD. In the field of medicine, nanotechnology is widely used as nanomedicine. Certain nanoparticles may find use in targeted pharmaceutical goods, new diagnostic tools, imaging techniques Furthermore, biomarkers in the brain can be found using nanosensors, enabling an earlier diagnosis and course of treatment for AD.

Aim & Objective: In this study discusses the basic function of NMDA (N-Methyl-D-Aspartate) receptor antagonists and acetyl cholinesterase inhibitors (AChEIs) in traditional AD treatment, as well as its drawbacks with regard to brain-specific delivery. It explores the complexities of the p-glycoprotein-mediated efflux and blood-brain barrier that prevent drugs from reaching the central nervous system.

Methods: In order to better understand AD pathophysiology, nanotechnology can also be employed to create new imaging methods. For example, quantum dots can be used as fluorescent probes to see beta-amyloidal plaques in the brain. Therapeutics have been optimized by the use of nanotechnological treatment techniques, which include the development, characterization, manufacturing, and use of nanoscale drug delivery systems. Liquid crystals, solid lipid nanoparticles, polymeric nanoparticles, nanostructure lipid carriers, and micro emulsions are examples of these nanotechnologies.

Results: We describe the advancements and advantages of using nanomedicines to treat AD in this paper. Research in this area is being encouraged by the possibility that clinically accessible nanomedicines for the diagnosis and monitoring of AD and other central nervous system (CNS) disorders may be developed.

Conclusion: This study emphasizes how urgent it is to develop novel medication delivery strategies in order to get beyond obstacles in AD treatment. Solutions based on nanomedicine present a viable path toward successful CNS targeting, allowing for improved bioavailability and long-lasting therapeutic benefits.

Keywords: Alzheimer's disease; blood–brain barrier; brain targeting; cholinesterase inhibitors; nanomedicine; nanoparticles.

EVALUATING THE PROTECTIVE POTENTIAL OF IXORA CHINENSIS ON EXPERIMENTAL ANIMAL MODEL OF CARDIOTOXICITY

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Abstract:

Background: Cardiotoxicity, often induced by chemotherapeutic agents and environmental toxins, remains a significant challenge in cardiovascular health.Oxidative stress and myocardial damage play a crucial role in its progression. Ixora chinensis, a medicinal plant rich in flavonoids, phenolics, and antioxidants, is traditionally used for its cardioprotective properties. This study aims to evaluate the potential of Ixora chinensis in mitigating cardiotoxicity in an experimental animal model.

Objective: The objective of this study is to evaluate the cardioprotective potential of a ixora chinensis by analyzing its effects on biochemical markers, oxidative stress parameters, and histopathological alterations in a cardiotoxicity-induced animal model.

Methodology: An in vivo study will be conducted on Wistar rats, divided into normal control, doxorubicin-induced cardiotoxicity, and Ixora chinensis extract-treated groups (low, medium, and high doses). The treatment groups will receive ethanolic extract for a predetermined duration. Cardiac biomarkers (CK-MB, LDH, Troponin), oxidative stress markers (MDA, SOD, CAT, GSH), and cardiac histopathology will be assessed to evaluate cardioprotective effects.

Result: The study is expected to show that Ixora chinensis extract mitigates doxorubicin-induced cardiotoxicity. Biochemical markers of cardiac damage (CK-MB, LDH, Troponin-I) will likely decrease ($p < 0.05$), while antioxidant enzyme levels (SOD, CAT, GSH) are expected to rise, reducing lipid peroxidation (MDA) ($p < 0.05$). Histopathology should reveal preserved myocardial architecture with minimal fibrosis and necrosis, confirming its cardioprotective effects.

Conclusion: This study is expected to provide substantial evidence regarding the cardioprotective potential of Ixora chinensis. If proven effective, this plant extract could be explored as an adjunct therapy for preventing chemotherapy-induced cardiotoxicity. Further investigations, including clinical trials, will be necessary to confirm its efficacy and safety in humans.

Keywords: Cardiotoxicity, oxidative stress, Ixora chinensis, cardio protection, doxorubicin, cardiac biomarkers.

IMPLEMENTATION OF SUCCESSFUL TRAINING PROGRAM IN PHARMACEUTICAL INDUSTRY

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Abstract:

In the fast-paced and highly regulated pharmaceutical industry, the success of an organization hinges on the competence and compliance of its workforce. Despite significant investments in infrastructure and technology, many companies overlook the critical role of effective employee training, leading to costly errors, regulatory violations, and compromised product quality. This research delves into the root causes of training failures and presents a comprehensive framework for implementing successful training programs that ensure continuous skill development and regulatory compliance.

Our study highlights the importance of aligning training programs with organizational goals, individual job functions, and regulatory requirements. We emphasize the need for ongoing, targeted training that goes beyond one-time events, incorporating innovative methods such as interactive e-learning, hands-on simulations, and real-time feedback. By addressing common pitfalls such as inadequate trainer qualifications, insufficient resources, and lack of management commitment, we propose actionable strategies to enhance training effectiveness.

Through a detailed analysis of FDA 483 observations and case studies, we demonstrate how well-designed training programs can mitigate human errors, improve operational efficiency, and foster a culture of quality and compliance. Our findings underscore the necessity of regular assessments, tailored learning plans, and robust documentation to ensure that employees are not only trained but also proficient in their roles. Failing to judge the training level of their employees before assigning them specific responsibilities. This leads to reduction in the quality level of skills as well as final product of the company, as in compliance with the various regulations to be followed.

Keywords: Training programs, GMP compliance, employee proficiency, regulatory standards, pharmaceutical industry, root cause, documentation, skill level, consistency.

IMIDAZOLE DERIVATIVES WORK ON DNA REPLICATION

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Abstract:

Imidazole derivatives are a class of compounds that have demonstrated significant biological activity, particularly in the field of cancer research and antimicrobial therapy. These compounds interact with various molecular targets, including enzymes involved in DNA replication. The impact of imidazole derivatives on DNA replication has been an area of considerable interest due to their potential to inhibit or modulate key enzymes like DNA polymerases, topoisomerases, and helicases. These enzymes play critical roles in DNA replication, and their inhibition can result in the disruption of DNA synthesis, leading to the inhibition of cell division. Research suggests that imidazole derivatives possess antitumor and antimicrobial properties by interfering with the normal replication process. The mechanisms underlying their effects are still under investigation, but it is believed that imidazole derivatives can bind to the active sites of DNA replication enzymes, altering their function and preventing the proper replication of DNA. This offers a potential therapeutic strategy in the treatment of various diseases, including cancer and infectious diseases.

Keywords: Imidazole derivatives, DNA replication, DNA polymerase, Topoisomerases, Helicases, Antitumor, Antimicrobial, Cell division, Enzyme inhibition, Chemotherapy, Molecular targets.

POLYHERBAL FORMULATIONS FOR ANTI-INFLAMMATORY ACTIVITY: A COMPREHENSIVE REVIEW

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Abstract

Polyherbal formulations have been used for centuries in traditional medicine systems for the treatment of various ailments, including inflammatory diseases. These formulations typically consist of multiple herbs with anti-inflammatory properties, which are believed to work synergistically to provide greater therapeutic benefits than individual herbs alone. Preclinical studies have shown promising results in animal models of inflammation, and several clinical trials have demonstrated the effectiveness of polyherbal formulations in reducing pain and inflammation in patients with osteoarthritis, rheumatoid arthritis, and other inflammatory conditions. However, there is a need for further research to assess the safety and potential adverse effects of these formulations, as well as to better understand their mechanisms of action. Despite these limitations, polyherbal formulations hold great promise as a complementary approach to the treatment of inflammatory diseases, and may provide a safe and effective alternative to traditional pharmacological therapies.

Keywords: polyherbal formulations, anti-inflammatory, herbal medicine, clinical studies, safety, inflammation,

THE ROLE OF LIFESTYLE MODIFICATIONS IN PREVENTING AND MANAGING GIT[S] DISEASE

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Abstract:

Aim: This study to understand lifestyle modification's contribution towards prevention and management of gastrointestinal diseases using a non-pharmacological approach that may have potential impacts in maintaining the healthy functioning of GIT. **Objective:** To understand the impact of dietary changes, physical activity, stress management, and other behavior modifications in common GIT. conditions that include irritable bowel syndrome, gastroesophageal reflux disease, and IBD. **Results:** Findings are indicative of how a rich fiber, fruits, vegetables, and probiotics diet may lead to maintaining gut health, thus raising the chances of diminishing GIT diseases. dietary adjustments involving lowering the intake of trigger food, frequent but small intake, and lowering fat intake diminish the symptoms. Physical activity performed on a regular basis improves digestion of food, reduces bloating, and stop constipation. Stress management techniques, specifically mindfulness and relaxation exercises, were found to be significantly associated with lowered GIT symptoms in stress-related conditions, such as IBS. Weight management also contributed to reducing the severity of conditions, such as GERD and fatty liver disease. These lifestyle changes provide a holistic yet sustainable approach in the prevention and management of GIT diseases, potentially reducing the dependency on medication and improving the quality of life.

Keywords: GIT Diseases, Lifestyle Modifications, Diet, Physical Activity, Stress Management, Gastroesophageal Reflux Disease, Irritable Bowel Syndrome, Inflammatory Bowel Disease, Prevention, Symptom Management.

A NEW ERA IN TREATING GENETIC DISORDERS.

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Abstract:

Aim :- It explore and highlight the transformative potential of gene therapy in correcting genetic mutations and disease.

Objective :-Gene therapy has eme:rged as a groundbreaking approach in treating genetic disorders by directly modifying the patient's genetic material. This article reviews current methods of gene delivery, the challenges in targeting specific tissues, and the clinical applications of gene therapy for conditions such as cystic fibrosis, muscular dystrophy, and hemophilia, highlighting recent advancements and clinical trial outcomes. Recent advancements in gene delivery systems, including viral vectors and CRISPR-Cas9 technology, have made gene therapy more efficient and precise. Clinical trials and ongoing research demonstrate promising results in improving disease symptoms and offering long-term solutions. Gene therapy has ushered in a new era in the treatment of genetic disorders, offering the potential to directly correct or replace defective genes within a patient's cells. This abstract discusses the current progress, challenges, and future prospects of gene therapy as a transformative approach to treating genetic disorders, highlighting its potential to revolutionize healthcare and improve quality of life for patients worldwide.

Method-: Gene therapy involves introducing, removing, or altering genetic material within a patient's cells to treat or prevent disease.

Result:- Gene therapy has demonstrated significant potential in correcting genetic disorders, improving symptoms, and providing long-term disease management in some cases.

FORMULATION AND EVALUATION OF NEEM OIL BASED EMULGEL

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Abstract:

Introduction: A dosage form that obtained from the combination of the gel and emulsion are referred as emulgel. Together they provide dual controlled release system so we can say that emulgels provide dual controlled release of drugs. Since ancient times, neem oil has been utilized in traditional medicine due to its many biological properties, including antibacterial, antifungal, antiparasitic, anti -inflammatory, and antioxidant properties.

Aim & Objective: The goal of the present study was to develop and evaluate an emulgel for topical delivery of neem oil.

Methods: For the preparation of emulgel, various emulsions were prepared in different Smix ratios (surfactant: co-surfactant). All prepared emulsions were evaluated in terms of organoleptic properties, phase separation, zeta potential, PDI and particle size. The emulsion possesses a lower globule size and PDI has been chosen as the optimised emulsion to prepare emulgel. Emulsion incorporated into gel base for formulated emulgel in 1:1.

Result & Discussion: Formulations were prepared and evaluated in terms of pH, physical properties, drug content, spreadability, extrudability, viscosity, and stability. A Franz diffusion cell and dialysis membrane are used to perform in-vitro release studies. Among all the prepared formulations, the formulation F4 exhibits better release and high drug content, than others. The formulation F4 shows higher drug release (92.8 ± 2.30%) within 240 min.

Conclusion: Neem oil emulgel demonstrated the most encouraging outcomes for topical delivery of drug and treatment of infections. These results highlight the importance of continued research in this area and offer intriguing new opportunities for treatment of infection or infectious wounds.

Keyword: Neem oil ,Emulgel, Infectious wounds, Emulsion and Topical formulation.

A REVIEW ON ANTI-DIABETIC ACTIVITY OF DIANTHUS CHINESIS IN EXPERIMENTAL ANIMALS

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Abstract:

Dianthus Chinesis is an herb used in several dishes and traditional medicines. More recently, meals have started looking into the possible anti-diabetic use of Dianthus Chinesis on test animals. This Dianthus Chinesis on animal models.

A thorough search through the literature was performed scanning databases such as PubMed, Scopus and Web of Science. Included were the studies dealing with the use of Dianthus Chinesis's anti-diabetic activity in test animals.

This study encompasses 15 animal studies which reported the anti-diabetic effects of Dianthus Chinesis extracts, essential oils, and active compounds on linalool and beta-pinene showed hypoglycemic effects such as: -Decreased blood sugar levels -Increased insulin responsiveness. -Glucose retention in muscles. -Inhibition of alpha-glucosidase activity.

The analysis of the studies conducted suggest that animal models establish that Dianthus Chinesis has far-reaching anti-dabetic properties. The bioactive components of Dianthus Chinesis have the potential to bring about anti-diabetic effects and may do so through a variety of mechanisms further studies are needed to validate these outcomes and assess the utility of

Keywords: Dianthus Chinesis, anti-diabetic activity, experimental animals, traditional medicine, natural remedies.

FORMULATION AND EVALUATION OF HERBAL FACE TONER

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Abstract:

The formulation and evaluation of herbal face toner have gained significant attention in recent years due to the increasing demand for natural and safe skincare products. Herbal toners are preferred for their therapeutic benefits, offering antioxidant, anti-inflammatory, and moisturizing properties without the harsh chemicals found in conventional cosmetic products. This study focuses on the development of a herbal face toner using plant-based ingredients known for their skin-rejuvenating effects. The herbal face toner was formulated using a blend of natural ingredients such as aloe vera, rose water, green tea extract, and witch hazel. These components were selected based on their proven skin benefits, including soothing irritated skin, controlling oil production, improving skin tone, and providing hydration. The formulation was created by blending these ingredients in appropriate concentrations to achieve a balanced and effective product. The prepared toner was subjected to a series of evaluations to determine its safety, stability, and efficacy. Skin irritation tests, pH testing, and microbial contamination assessments were conducted to ensure that the product is safe for use. Furthermore, the toner was evaluated for its ability to hydrate, tone, and cleanse the skin through user trials and expert dermatological assessments.

Results from the evaluations demonstrated that the herbal toner exhibited excellent skin compatibility, with no significant irritation or adverse reactions. The toner provided noticeable improvements in skin texture, hydration, and a reduction in excess oil production. The findings suggest that the developed herbal face toner is an effective and safe alternative to synthetic products, offering numerous benefits for individuals seeking a natural skincare regimen. This research highlights the potential of herbal formulations in cosmetic products, particularly in promoting skin health while reducing exposure to harmful chemicals. Further studies could explore the long-term effects and broader application of herbal skincare formulations.

Keywords- Face Toner, Causes, Treatment, Patient Care, Skin care, Herbal

FORMULATION AND EVALUATION OF HERBAL FACE PACK FOR ACNE VULGARIS DISEASE

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Abstract:

Acne vulgaris is a common dermatological condition affecting individuals, especially during adolescence, and is characterized by the inflammation of hair follicles and sebaceous glands. Conventional treatments for acne, including topical agents and oral medications, often present side effects and may not be suitable for long-term use. As a result, there is a growing interest in natural, herbal alternatives that offer therapeutic benefits with fewer adverse effects. This study aims to formulate and evaluate a herbal face pack for the management of acne vulgaris. The formulation consists of a blend of medicinal herbs known for their anti-inflammatory, antimicrobial, and skin-healing properties. Key ingredients include Aloe vera, Neem, Turmeric, Tulsi, and Tea Tree oil, each of which has been traditionally used in acne management for their ability to reduce inflammation, prevent bacterial growth, and promote skin regeneration. The face pack is prepared in a powdered form, which is mixed with water or rose water to form a paste, and is intended for topical application. The evaluation of the herbal face pack includes a series of tests to assess its physical properties such as pH, consistency, and spreadability. The antimicrobial activity is evaluated using disc diffusion and the anti-inflammatory effect is assessed by in-vitro models. Furthermore, clinical trials are conducted to evaluate the efficacy and safety of the face pack in real-world usage, focusing on its impact on acne lesions, skin redness, and overall complexion. Preliminary results indicate that the herbal face pack demonstrates promising antibacterial and anti-inflammatory effects, with minimal side effects reported. This formulation could serve as an effective alternative or adjunct to conventional acne treatments, providing a natural, safe, and affordable solution for acne vulgaris management. Further studies are necessary to optimize the formulation and confirm long-term efficacy.

Keynotes- Acne Vulgaris, Face Pack, Herbs, Medicinal Plant, Treatment

DISSOLUTION STUDY OF EXTENDED RELEASE TABLET USING GEOMETRIC CORRECTION METHOD

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Abstract:

This Paper explores the dissolution testing of an extended-release isosorbide mononitrate tablet using a standard dissolution medium of 900 mL, with samples collected at 1, 2, 4,8,12 hrs intervals. The dissolution test measures the cumulative drug release over time, accounting for the reducing volume of the dissolution medium after each sampling event. Key calculations include determining the amount of drug dissolved at each time point based on HPLC peak responses, correcting for the amount of drug removed in previous samples, and ensuring that cumulative drug release is accurately measured. The concentration of the standard solution (0.1 mg/mL) was compared to the sample solution (0.11 mg/mL) to calculate the drug amount dissolved. The results show the necessity of correcting for the reduced medium volume and the drug removed with each sample to avoid underestimating drug release. By applying correction factors and cumulative calculations, the dissolution profile reflects both the drug remaining in the medium and the drug removed at earlier time points. The study highlights the importance of these adjustments in extended-release formulations to maintain accurate drug release profiles over time.

Keywords: Extended-release tablet, Dissolution testing, Cumulative drug release, HPLC peak response, Correction factor

REVIEW ON MICROEMULSION AND NANOEMULSION AS A DRUG DELIVERY SYSTEM IN RECENT TRENDS AND FUTURE APPLICATIONS

Durgesh Ray

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Abstract:

Microemulsion and Nanoemulsion are water based colloidal dispersion medium which usually means the delivery of drug and other substances. Many components are involves to make this formulation like oils, water, surface active gent and co- surfactant.

The main purposes of this review is to assess the potential of Microemulsion and Nano emulsion as effective in drug delivery systems which focusing on their formulation, strategies, therapeutic, applications, and effects on drug bioavailability and its efficacy. Lipids dosages form is attractive delivery system for hydrophobic drug molecules. Generally Microemulsion is thermodynamically stable dispersion of means droplets size about 100-400nm and Nano emulsion are thermodynamically unstable and its size range about 1-100 nm ranges. Advantages of micro emulsions and Nano emulsions in drug delivery are enhanced solubilisation of poorly water-soluble drugs, enhanced stability, ability to cross biological barriers like the blood-brain barrier and bioavailability of drug substances. It is a part of novel drug delivery system which lowers the concentration to achieve the desirable preservatives activity. Micro emulsion and Nano emulsion are lipid based pharmaceutical system with a very high potential to promote the penetration power of drug. Generally its dispersion are made up of two immiscible liquid phases which are mixed using mechanical shear and surfactant. Microemulsion and nanoemulsion have many applications in food, pharmaceutical, cosmetic and oil industry etc.

Keywords- Microemulsion, Nanoemulsion, Drug delivery system, Bioavailability, Colloidal Systems, Pharmaceutical Applications.

HUMAN ENDOCEUTICALS AS A SOURCE OF DRUG DEVELOPMENT FOR TREATMENT OF VARIOUS DISEASES

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Abstract:

Drug development is a complex, multidisciplinary process involving drug discovery, pharmacology, nonclinical safety testing, manufacturing, clinical trials, and regulatory submissions.The human body has a multifaceted structure that can release essential substances to restore balance under specific conditions. Neural systems stimulate glands to produce various endogenous compounds, including hormones, interleukins, and mediators, which can serve as therapeutic agents. Human endoceuticals naturally occurring substances are being explored as new sources for drug research and development, given their inherent biological activity and compatibility with human physiology. Example of human endoceuticalsPrasterone, also known as dehydroepiandrosterone (DHEA), is a steroid hormone produced by the adrenal glands, gonads, and brain. It serves as a precursor to both androgens and estrogens and has been formulated as a vaginal insert to manage pain during sexual intercourse associated with menopausal changes. This study explores the human body as a pharmaceutical company and drug delivery system, proposing a new perspective on health and treatment. It examines physiological relationships between ten biopharmaceuticals, focusing on three key factors influencing their release: environmental (chronobiology, hypoxia), psychological (stress, fasting), and immunological (leukocyte-stimulating antigens). The biopharmaceuticals, mainly proteins or glycoproteins, are categorized as growth hormones, hormone antagonists, and anti-anaemics. Notably, 80% are hormones, while 20% belong to the cytokine family. Human Endoceuticals are used in various disease such as cancer, diabetes mellitus, rheumatoid arthritis, Grave's disease, hypothyroidism, polycystic ovarian syndrome etc. The exploration of endogenous compounds like DHEA underscores the potential of human endoceuticals in developing therapies that leverage the body's natural biochemistry.

Keywords: Human body, endogenous, Endoceuticals, therapeutic, DHEA

ORAL DRUG DELIVERY SYSTEM ; EMERGING, TECHNOLOGY FOR ENHANCEMENT BIOAVAILABILITY

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Abstract:

Oral drug delivery systems have long been the most widely used method for administering therapeutic agents, owing to their convenience and patient compliance. However, one of the major challenges in oral drug delivery is the enhancement of bioavailability, as many drugs undergo extensive first-pass metabolism or are poorly absorbed in the gastrointestinal tract. Recent advancements in technology have led to innovative strategies for overcoming these limitations and enhancing the bioavailability of orally administered drugs. These strategies encompass a wide range of approaches including nano-technology, lipid-based formulations, and advanced polymers. Nano-formulations, such as solid lipid nanoparticles and liposomes, have shown promise in improving drug solubility and stability, thus enhancing absorption. Lipid-based drug delivery systems, including self-emulsifying drug delivery systems (SEDDS), facilitate the absorption of lipophilic drugs by promoting their solubilization in the gastrointestinal tract. Additionally, the use of advanced polymers in controlled-release formulations allows for the targeted release of drugs, reducing the impact of first-pass metabolism and ensuring prolonged therapeutic action.

Merging these technologies—such as combining nano-formulations with polymer-based delivery systems or lipid carriers—can provide a synergistic effect, significantly improving the drug's bioavailability and therapeutic efficacy. This integrated approach is poised to revolutionize oral drug delivery systems, offering improved outcomes in the treatment of various conditions, while minimizing side effects associated with poor absorption. Ultimately, these advancements will pave the way for more efficient and personalized therapies, enhancing patient care and the overall success of drug treatments.

Keynotes- Oral Drug Delivery, Bioavailability, Nano Formulation, Patients Care.

INTERACTION RISK: GREEN TEA CONSUMPTION IN PATIENTS TAKING ALPRAZOLAM

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Abstract

A developing area of clinical interest is the potential interactions between drugs and herbal products. The potential risk of an interaction between green tea (Camellia sinensis) and alprazolam, a benzodiazepine that is commonly recommended for anxiety disorders, is discusssed in this review. Numerous bioactive components included in green tea, including caffeine and catechins, may alter the pharmacokinetics of alprazolam by altering its metabolism, excretion, or absorption. It has been shown that green tea affects the activity of cytochrome P450 enzymes, particularly CYP3A4, which is involved in alprazolam metabolism. Green tea may increase alprazolam plasma levels and increase the likelihood of adverse effects, such as drowsiness or motor incoordination due to CYP3A4 inhibition, which will be studied from the existing literature and pharmacological evidence. While definitive clinical trials are limited, the aim of the review is to emphasize the necessity for increased awareness among healthcare practitioners and patients regarding potential drug-herb interactions, especially in individuals utilizing anxiolytic drugs along with green tea consumption. Additional clinical investigations are necessary to formulate solid guidelines for the safe consumption of green tea by those using alprazolam.

Keywords: Alprazolam, Green tea, Cytochrome P450, Drug-herb interactions, Pharmacokinetics.

ANTI-INFLAMMATORY PLANT NATURAL PRODUCTS FOR CANCER THERAPY

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Abstract:

Much of the current research in cancer therapeutics is aimed at developing drugs or vaccines to target key molecules for combating tumor cell growth, metastasis, proliferation, or changes in the associated stromal microenvironment. Studies on a wide spectrum of plant secondary metabolites extractable as natural products from fruits, vegetables, teas, spices, and traditional medicinal herbs show that these plant natural products can act as potent anti-inflammatory, antioxidant or anticancer agents.

The recent advances in genomics and metabolomics have enabled biologists to better investigate the potential use of immunomodulatory natural products for treatment or control of various cancerous diseases.

The cancer preventive or protective activities of the various immunomodulatory natural products lie in their effects on cellular defenses including detoxifying and antioxidant enzyme systems, and the induction of anti-inflammatory and antitumor or antimetastasis responses, often by targeting specific key transcription factors like nuclear factor kappa B (NF-kappaB), activator protein (AP-1), signal transducers and activators of transcription (STAT) and others.

This review presents recent findings and hypotheses on the molecular mechanisms through which various inflammatory activities are linked to tumorigenic processes and the specific immunomodulatory natural products that may suppress inflammation and the associated tumor progression and metastasis both IN VITRO and IN VIVO.

In addition to tumor cells PER SE, the various associated roles of myeloid-derived suppressor cells, stromal fibroblasts, myofibroblasts, and inflammatory immune cells, and the possible effects of phytomedicines on these cells in the tumor microenvironment will be discussed.

Keyword: Therapeutics, Tumor, Anti- Inflamatory, Kappa B, Transducers, In- Vitro, In- Vivo, Metastasis, Microenvrionment.

DESIGN DEVELOPMENT AND EVALUATION OF BUCCAL MUCOADHESIVE PATCH USING MECLIZINE HYDROCHLORIDE FOR ENHANCED THE TREATMENT OF MOTION SICKNESS

Ritika Bharti

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Abstract

The development and evaluation of a buccal mucoadhesive patch for the enhanced treatment of motion sickness using Meclizine Hydrochloride (MH) is explored in this study. Meclizine, an antihistamine commonly used for motion sickness, exhibits limited bioavailability due to its first-pass metabolism when administered orally. To overcome this limitation, a buccal mucoadhesive system is designed to deliver Meclizine directly through the buccal mucosa, providing improved therapeutic effects, enhanced patient compliance, and a faster onset of action. The formulation of the patch involves the use of biocompatible polymers such as hydroxypropyl methylcellulose (HPMC) and sodium alginate to create a stable, adhesive matrix capable of releasing Meclizine at a controlled rate. The patches are evaluated for various properties, including adhesive strength, in vitro drug release, swelling behavior, and mechanical properties. The pharmacokinetics and pharmacodynamics of the buccal system are assessed in comparison to traditional oral tablets. The findings indicate that the mucoadhesive patch significantly enhances the bioavailability of Meclizine, offering a promising alternative for the treatment of motion sickness with fewer side effects.

Keywords:- Buccal mucoadhesive patch, Meclizine Hydrochloride, motion sickness, drug delivery, bioavailability, controlled release, HPMC, sodium alginate, transbuccal administration, enhanced treatment.

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BIOSENSORS IN PHARMACEUTICAL ANALYSIS: EMERGING TRENDS AND APPLICATIONS

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Abstract

Biosensors have revolutionized pharmaceutical analysis by offering rapid, sensitive, and cost-effective detection of drugs, metabolites, and biomarkers. These analytical devices integrate biological recognition elements, such as enzymes, antibodies, or nucleic acids, with transducers to convert biochemical interactions into measurable signals. Recent advancements in nanotechnology, microfluidics, and artificial intelligence have significantly enhanced biosensor performance in terms of sensitivity, specificity, and real-time monitoring capabilities. Electrochemical, optical, and piezoelectric biosensors are widely employed for drug quality control, pharmacokinetics studies, and therapeutic drug monitoring. Emerging trends include wearable biosensors for continuous patient monitoring, lab-on-a-chip devices for point-of-care diagnostics, and AI-assisted biosensing platforms for data analysis. Despite their potential, challenges such as sensor stability, miniaturization, and regulatory approval hinder widespread commercialization. Future research should focus on improving biosensor reproducibility, integrating multi-analyte detection, and ensuring regulatory compliance. The continued development of biosensors is expected to enhance precision medicine, personalized therapy, and pharmaceutical quality assurance, making them indispensable tools in modern healthcare and drug development.

Keywords Biosensors, pharmaceutical analysis, nanotechnology, point-of-care diagnostics, drug monitoring.

A COMPREHENSIVE REVIEW ON : A BIGEL

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Abstract:

Bigels are innovative hybrid systems that combine the properties of gels and emulsions to give improved functioning in pharmaceutical, cosmetic, and food industries. A gel phase usually prepared with biopolymers or natural gelling agents, and an emulsion phase, in which oil droplets are distributed throughout an aqueous media, make up these systems. Bigels unique structure allows for the encapsulation of both hydrophilic and lipophilic active components, resulting in regulated release and stability. Bigels are made by carefully choosing emulsifiers, gelling agents, and other excipients to provide the best possible viscosity, texture, and stability. Bigels also provide advantages in terms of skin compatibility, regulated drug distribution, and focused therapeutic uses. The ability of loading both hydrophilic and lipophilic active agents increases the patient compliance. This system's adaptability makes it an ideal delivery vehicle for both cosmetic and medicinal formulations, helping to design next-generation products with multifunctional features. Bigels are semisolid formulations formulated by combining the two phases that is hydrogel and oleogel. This allows for the loading of both hydrophilic and lipophilic medications and improves the gel's durability, increased hydration properties, permeability, and the capacity to regulate the drug's release rate. This review gives a concise overview of bigels, including their types, traits, preparation methods, and applications. Bigels are intriguing semisolid formulations with superior qualities for a variety of uses, including medicinal and cosmetic systems.

Keywords: Gels, Bigels, Hydrophilic, Lipophilic, Topical Drug Delivery

THE ROLE OF LIFESTYLE MODIFICATIONS IN PREVENTING AND MANAGING DIABETES

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Aim: This study aims to explore the significance of lifestyle modifications in the prevention and management of diabetes, particularly Type 2 diabetes, and assess their effectiveness in improving patient outcomes.

Objective: The primary objective is to examine the impact of dietary changes, physical activity, weight management, and other lifestyle modifications on reducing the risk of diabetes onset and improving glycemic control in individuals already diagnosed with the disease. Additionally, the study aims to identify barriers to implementing lifestyle changes and strategies to overcome them.

Results: Lifestyle modifications, including a balanced diet, regular physical activity, and weight management, have proven to be highly effective in preventing Type 2 diabetes and managing existing cases. These modifications help improve insulin sensitivity, reduce blood sugar levels, and lower the risk of complications. However, adherence to these changes remains a challenge for many individuals, and tailored interventions, along with support from healthcare professionals, are essential to ensure sustained success.

Keywords: Diabetes, Type 2 Diabetes, Lifestyle Modifications, Prevention, Management, Diet, Physical Activity, Weight Management, Glycemic Control, Health Interventions.

AN UPDATED OVERVIEW ON DIABETES MELLITUS, MOLECULAR PATHWAY AND ITS TREATMENT

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Abstract

Diabetes mellitus (DM) is a chronic metabolic disorder characterized by hyperglycemia due to insulin resistance, impaired insulin secretion, or both. The pathophysiology involves dysregulation of glucose homeostasis, oxidative stress, and chronic inflammation. Molecular pathways include dysfunction in insulin signalling (PI3K/Akt pathway), increased gluconeogenesis (AMPK inhibition), and β-cell apoptosis (ER stress, mitochondrial dysfunction). Treatment strategies focus on insulin therapy, oral hypoglycemic (metformin, SGLT-2 inhibitors, DPP-4 inhibitors), and GLP-1 receptor agonists. Emerging approaches include gene therapy, nanomedicine, and herbal formulations for better glycaemic control and reduced complications. A multifaceted approach is essential for effective DM management.

ION CHANNELOPATHIES: UNRAVELING THEIR ROLE IN FUNCTIONAL GASTROINTESTINAL DISORDERS

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Abstract

Complex pathophysiological mechanisms at the molecular level are involved in functional gastrointestinal disorders (FGIDs), which are marked by motility abnormalities, visceral hypersensitivity, and altered gut-brain connections. The etiology of FGIDs is significantly influenced by ion channels, which are transmembrane proteins that control cellular excitability and ion flux. Modified sensory signals, secretion, and motility in FGIDs have been linked to dysfunctional ion channels, also known as ion channelopathies. Chloride channels including CLCA, BEST, TMEM16A, and CFTR are important participants because they control mucosal hydration and epithelial secretion; their dysregulation leads to inflammation and abnormalities in the epithelial barrier that are seen in IBD and other FGIDs. Abdominal discomfort and dysmotility are symptoms of potassium channels, particularly Kv and ATP-sensitive K^+ channels, which regulate excitability of neurons and smooth muscle contractility. Potential therapeutic targets are sodium channels, such as Nav1.5, Nav1.8, and Nav1.9, which affect visceral pain perception and neuronal excitability. Calcium channels, particularly voltage-gated L-type and T-type (Cav3.2) channels, are essential for smooth muscle contractions and visceral hypersensitivity. Furthermore, due to their involvement in sensory transduction and inflammation, transient receptor potential (TRP) channels, including TRPV1 and TRPA1, play a role in pain and motility issues. Kv7 activators, Nav blockers, Cav3.2 antagonists, and TRPV1 modulators are examples of new therapeutic approaches that target these ion channels and hold promise for individualized treatment of FGIDs. This review underscores the importance of ion channelopathies in FGID pathophysiology and advocates for innovative treatments addressing ion channel dysfunctions.

Keywords: Ion channels, visceral hypersensitivity, irritable bowel syndrome, TRP

PHYTOCHEMICAL SCREENING OF CALOTROPIS GIGENTIA AND BACOPA MONNIERI

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Abstract

Antifungal agents play a critical role in modern medicine by addressing fungal infections, which range from superficial conditions, such as athlete's foot, to life-threatening systemic infections in immunocompromised individuals.

Antifungals are categorized into several classes based on their mechanisms of action, including:

- **Polyenes** (e.g., amphotericin B) that disrupt fungal membranes.
- **Azoles** (e.g., fluconazole, itraconazole) that inhibit ergosterol synthesis.
- **Echinocandins** (e.g., caspofungin) that target fungal cell walls.
- **Pyrimidine analogs** (e.g., flucytosine) that interfere with fungal DNA synthesis

Phytochemical screening of Bacopa monnieri and Calotropis gigantea has revealed the presence of various bioactive compounds contributing to their medicinal properties.

Bacopa monnieri:

- **Phytochemicals**: This plant is rich in alkaloids, saponins, and sterols, Bacosides, Alkaloid.
- **Medicinal Properties**: It has been reported to moderate the secretion of collagen types I and III, improving collagen fiber organization and remodeling, which is beneficial in wound healing.

Calotropis gigantea:

- **Phytochemicals**: Ethanol extracts of C. gigantea leaves contain abundant secondary metabolites, including triterpenoids, steroids, Alkaloids, Flavonoids, Saponins, Tannins, Carbohydrate, Cardiac Glycosides.
- **Medicinal Properties**: These compounds exhibit antiproliferative activities against cancer cells, indicating potential anticancer properties.

These findings highlight the therapeutic potential of both plants, warranting further research to explore their applications in medicine.

Keyword- Antifungal, Calotropis gigantea, Bacopa monnieri, Phytochemicals screening,.

UNDERSTANDING ITS IMPACT AND TREATMENT APPROACHES OF DEPRESSION

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Abstract

Aim: The aim of this study is to explore the nature, causes, and effects of depression, as well as to evaluate the most effective treatment approaches for managing this common mental health disorder.

Objective: The primary objective is to identify the biological, psychological, and social factors contributing to depression, to examine various therapeutic options including pharmacological treatments and psychotherapies, and to assess the outcomes and effectiveness of these interventions.

Results: Depression is a multifactorial disorder that significantly affects individuals' emotional, cognitive, and physical well-being. Treatments such as cognitive behavioral therapy (CBT), antidepressant medications, and lifestyle changes have been found to be effective in managing symptoms. However, the success of treatment varies depending on the individual's specific circumstances and the severity of their depression. Early diagnosis and a combination of treatments tend to lead to better outcomes.

Keywords: Depression, Mental Health, Treatment, Cognitive Behavioral Therapy, Antidepressants, Psychological Factors, Social Factors, Lifestyle Changes.

EXPLORING THE ROLE OF CYTOKINES RECEPTOR MODULATION IN BIOCIDE INDUCED NEUROTOXICITY

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Abstract:

Neurotoxicity is a phenomenon of structural and functional modification of the CNS through physical, chemical, and biological agents. The main factors causative to neurotoxicity are genetic defects, trauma, stress, different simultaneous disease conditions, environmental pollutant, and heavy metals. Based on the location or the severity of neurotoxic damages, these can be accompanied by neurocognitive deficits that impact various aspects of daily life activities.

RECENT ADVANCEMENT OF PARKINSON'S DISEASE TREATMENT

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Abstract:

Parkinson's disease (PD) is a progressive neurodegenerative disorder characterized by motor and non-motor symptoms, primarily resulting from the loss of dopaminergic neurons in the brain. Recent advancements in PD treatment have focused on improving symptomatic relief, neuroprotection, and understanding the underlying disease mechanisms. Pharmacological treatments, such as dopamine replacement therapy with levodopa, remain the cornerstone of PD management. However, novel drug formulations, such as extended-release levodopa and dopamine agonists, aim to optimize the therapeutic window and reduce motor fluctuations. Recent research has also highlighted the potential of gene therapy approaches, including viral vector-based delivery of genes to restore dopamine production or modulate disease pathways. These experimental therapies hold promise for providing more durable and targeted treatment options. Deep brain stimulation

(DBS), an established surgical intervention, has shown continued effectiveness, with advancements in electrode technology and stimulation patterns improving patient outcomes. Next-generation DBS systems allow for real-time adjustments to stimulation parameters, offering personalized treatment tailored to individual patients. In addition to pharmacological and surgical approaches, cell-based therapies have garnered significant attention. Efforts to generate dopamine-producing neurons from stem cells, particularly induced pluripotent stem cells (iPSCs), are advancing rapidly. Early clinical trials are underway to determine the safety and efficacy of these cell-based treatments in replacing lost neurons. Furthermore, neuroprotective agents aimed at slowing disease progression, including antioxidants, mitochondrial enhancers, and compounds targeting protein aggregation (such as alpha-synuclein), are being actively investigated in clinical trials.

Another promising avenue involves advancing our understanding of the role of gut-brain interactions in PD. Recent studies have suggested that the gut microbiome may influence disease onset and progression, which could lead to novel therapeutic strategies targeting gut health. Overall, recent advancements in Parkinson's disease treatment are providing a multifaceted approach that combines pharmacological, surgical, genetic, and regenerative therapies, offering hope for improved quality of life and potentially slowing disease progression.

Keynotes- Parkinsons, Disease, Treatment, Patients Care, Approach.

NEEM (AZADIRACHTA INDICA): A NATURAL ANTIMICROBIAL AGENT

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Abstract

Neem (Azadirachta indica), a well-known medicinal plant in Ayurveda, has been extensively studied for its broad-spectrum antimicrobial properties. Various parts of the neem tree, including leaves, bark, seeds, and oil, contain bioactive compounds such as nimbin, azadirachtin, and gedunin, which contribute to its antimicrobial efficacy. Studies have demonstrated that neem exhibits significant antibacterial activity against Staphylococcus aureus, Escherichia coli, and Pseudomonas aeruginosa, as well as antifungal effects against Candida albicans and Aspergillus niger. The antiviral potential of neem has also been explored, particularly against viruses such as herpes simplex and dengue. Additionally, neem's antiparasitic activity makes it a valuable herbal remedy for conditions like malaria and helminthic infections. Due to its natural origin, neem is considered a safe and eco-friendly alternative to synthetic antimicrobial agents, with minimal risk of resistance development. It is widely used in traditional medicine, oral care products, and skincare formulations. Despite its promising therapeutic potential, further clinical studies are required to validate its efficacy and safety for large-scale medical applications. The integration of neem-based formulations into modern healthcare practices could provide a sustainable approach to combat microbial infections.

Keywords: Neem, Antimicrobial, Azadirachta indica, Herbal Medicine, Phytochemicals

ETHOSOME-LOADED TRANSDERMAL PATCHES: A NOVEL APPROACH FOR HYPERTENSION MANAGEMENT

Shiv Sharma, Dr. Kamal Saroha

Abstract

Hypertension is a long-term condition where blood pressure is consistently too high. It can damage the heart, brain, kidneys, and eyes. It is the major reason of deaths occur across the globe. About 10 million deaths per year occurs due to this disease. There are about 1.35 billion peoples suffering from this disease. The main reason 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, Transdermal patches are introduced to improve drug safety and efficacy, site specificity, dose accuracy because it uses skin as a carrier to deliver the drug at predetermined rate to particular targeted site of action for local or systemic effect. Ethosomes are the novel, non-invasive delivery carriers for lipid-based system that contains high concentration of ethanol that enables poorly soluble drug to deep penetrate into the skin to get desired therapeutic effect. Ethosomes have becomes a novel lipid vesicular system for transdermal delivery because of their high deformability, great transdermal penetration rate and great enmeshment efficiency.

FORMULATION AND EVALUTION OF PRONIOSOMAL GEL FOR TRETMENT OF SKIN INFECTION

Ritu Udan*1, Dr Suparna Bakhle2, Juhi Makode3

Priyadarshini J.L. College of Pharmacy, Electronic Zone Building, MIDC, Hingna Road, Nagpur-440016.

Abstract

A vesicular system such as proniosomes is one of the of emerging technology that has demonstrate the potential in improving oral bioavailability, targeting drug, drug release across stratum corneum. prolongs existence of drug in systemic circulation and finally reduces the toxicity .Clotrimazole is antifungal drug, were selected for drug delivery through skin, to treat the fungal infections topically. The present work investigated the formulation and development of a proniosomal topical drug delivery system by the Coacervation phase separation method by using a combination of non ionic surfactant and formulations was optimized by Design Expert Software. Central composite design was employed in the study where concentration of surfactant and cholesterol are selected ad factors and % entrapment efficiency as response. Formulations shows an entrapment efficiency range of 72.56% to 92.98%. and % Drug content was found to be in range of 63.65±1.5 - 89.90±1.6 and pH was found within a range of 4- 6 which is suitable to pH of skin. Spreadability was found to be in range of 30mm-50mm. The formulation was optimized based on evaluation parameters. The particle size was performed by using motic microscope and was found to be 434nm-536nm optimized batch shows the encapsulation efficiency 87.46%±0.3 vesicle size 368.0 nm and spherical in shape, drug content was 85.32%±0.1, drug release was 20%-90%, pH 4.2-6.2, viscosity was 63470cp+2cp, spreadability 38mm-46mm. Zeta Potential was found to be -48.0mV. The optimized batch shows better zeta potential value and there was no skin irritation while applying it on skin. Prepared formulations were stable at refrigerator temperature and showed no significant difference in entrapment efficiency, drug release after 1 month. This study provided the evidence that the proniosomal vesicles are valuable as the topical drug delivery to enhance the solubility and sustaining the drug release.

Keywords: Proniosomal gel, Liposome, Niosomes, fungal infection.

FORMULATION AND CHARACTERIZATION OF EFFERVESCENT MUCOADHESIVE TABLET FOR VAGINAL DELIVARY.

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Abstract

The vagina has some unique qualities that make it an effective site for drug administration. Medications with systemic effects may also be given vaginally. The benefit of the vaginal mucosa is that it allows medicine delivery systems to remain at the application site for the longest period of time of any mucosal membrane. The present research work was carried out with the aim of formulation and characterization of mucoadhesive effervescent tablet for vaginal delivery by using mucoadhesive polymer and effervescent agent. This effervescent tablet shows faster onset of action and more patient compliance. Clotrimazole drug belonging to BCS class II having a poor water solubility and this are the antifungal category of drug. In the current study, pre-formulation of the drug and excipients was carried out. This included organoleptic properties, melting point determination, wavelength selection, calibration curve, solubility studies and compatibility studies using FTIR and DSC. Postcompression parameter like hardness, weight variation, thickness, average weight of tablet, In vitro release study, swelling index, Ex-vivo mucoadhesive strength, Ex-vivo mucoadhesion time, Ex-vivo diffusion cell study & % drug content. software F4 formulation was optimised showing the best results. The optimize batch showed acceptable values of precompression and postcompression parameters. This result concludes that the incorporation of effervescent agent into the The results of 3^2 full factorial design revealed that the polymer ratio and amount of effervescent significantly affect the responses, mucoadhesive strength & % swelling. Hence, it can be said that QbD approach applied in the formulation of effervescent tablet of Clotrimazole was very useful as it reduced errors and was a time saving process.

FORMULATION AND EVALUATION OF A PERIODONTAL DRESSING CONTAINING AN ANTIBIOTIC AGENT TO OVERCOME POST-SURGICAL COMPLICATIONS OF PERIODONTAL SURGERY

Author Name: Harshal J. Raut[1]*, Dr. Y. N. Gholse[2], Dr. Kanchan P. Upadhye[3], Dr. Rahul H. Kasliwal[4], Nikita Shukla[5].

Priyadarshini J.L. College of Pharmacy, Nagpur.

Abstract:

Periodontitis is an inflammatory condition that affects tissues that support the teeth (i.e periodontium). One of the items that periodontitis use the most frequently is periontal dressings. To cover and protect the surgical wound surface caused by periodontal therapy following surgery, a periodontal dressing is employed. Ingredients used in the periodontal dressings are Metronidazole, zinc oxide, Gum Rosin, Lump Rosin, Almond oil : Eugenol. Preparation of periodontal dressing formulated with Response Surface Methodology by central composite design using Design Expert software 13. The selected factors were zinc oxide and gum rosin powder, A combination of both factors affect the strength of the dressing. The response was retention time. After applying DoE 11 runs has been generated. Evaluation of periodontal dressing containing antibiotics has been studied including organoleptic properties, setting time was found to be 25±2 min, Drug content

determination (49.59±2.41 %), % Cumulative drug release was recorded at 6 hours found to be 41.92±2.08. In-vitro drug release studies was found to be (41.92±2.08%), Antibacterial activity shows zone of inhibition was found to be 19±1mm to 21±2mm, Retention time was 8±1 days. Accelerated stability carried out for 1 month , the dressing was found to be unaffected. In addition Comparative study have been carried out between optimized batch and marketed formulation, the optimized batch shows 19±2 mm zone of inhibition higher than the cavibond(marketed formulation) which shows 3±2 mm zone of inhibition.

Keywords: Periodontal dressing, Response surface methodology, Cavibond, Gum Rosin, Metronidazole.

HERBAL HYDROGEL SYSTEMS FOR OPHTHALMIC DRUG DELIVERY IN THE MANAGEMENT OF DRY EYE DISEASE.

Neemu Singh

IIMT Collage of Pharmacy, Greater Noida, Uttar Pradesh, India (201310)

Abstract

Dry eye disease (DED) is a prevalent and multifaceted condition that significantly impacts the quality of life. Conventional treatments often struggle with limited bioavailability and rapid drug clearance from the ocular surface, emphasizing the need for innovative solutions. Herbal hydrogel systems have emerged as promising candidates for ophthalmic drug delivery due to their high biocompatibility, tunable drug release, and capacity to retain moisture. These hydrogels, derived from natural or synthetic polymers, can enhance corneal permeability and prolong drug retention, offering an effective alternative to traditional eye drops.

This review explores the potential of herbal hydrogels in addressing the challenges of DED management. Hydrogels loaded with anti-inflammatory and antioxidative herbal extracts, such as hyaluronic acid or chitosan-based formulations, offer dual therapeutic benefits by alleviating symptoms and reducing ocular inflammation. Advances in smart hydrogel technologies, including temperature-sensitive, pH-responsive, and ion-sensitive systems, provide tailored drug release and extended ocular surface contact, optimizing therapeutic outcomes.

Moreover, innovative applications such as hydrogel-laden contact lenses and biosensor-integrated hydrogels highlight the versatility of these systems. By leveraging their ability to mimic the physiological environment of the tear film, these systems not only enhance patient comfort but also improve treatment efficacy.

Future developments in polymer engineering, clinical trials, and regulatory pathways will be crucial for translating this promising technology into widespread clinical use. Herbal hydrogel systems hold immense potential to revolutionize the treatment landscape of DED, offering improved outcomes and quality of life for patients.

SUPERDISINTEGRANTS IN FAST-DISINTEGRATING GLIMEPIRIDE TABLETS: A COMPARATIVE EVALUTATION OF DISINTEGRATION AND DISSOLUTION PROPERTIES.

Nishita Nagpure, Dr. Rahul kasliwa, Dr. Yogesh Gholse, Dr. Dinesh Ghaple

J. L. College of Pharmacy, Nagpur-440016.

Abstract:

Glimepiride is the sulphonyl-urea used for the treatment of diabetics. It belongs to BCS II drug. The objective of the study is to formulate and evaluate fast disintegrating tablets of glimepiride with synthetic and with natural superdisintegrant.

Method: By using direct compression method fast disintegrating tablets are prepared. Prepared tablets are then evaluated for preformulation studies of powder for the flow property of powder. And tablets are evaluated for the thickness, firmness, friability, disintegration time and dissolution.

Result: Fast disintegrating tablets are prepared by synthetic and natural superdisinegrant and optimized batch show less than 1 min for disintegration this could be concluded with a scope that this tablet will help to control the sudden rise in the blood glucose level in the diabetic patient.

Keywords: Glimepiride, fast disintegrating tablet, Natural superdisintegrant, Synthetic superdisintegrant, Direct compression method.

PHYTOCHEMICAL INVESTIGATION AND CHARACTERIZATION OF BIOACTIVE EXTRACT OF SIDA ACUTA BURM.F.

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Raigarh College of Pharmacy, Raigarh (C.G.)

Abstract:

INTRODUCTION Acuta Sida Burm. f. is a small perennial shrub in the Malvaceae family, commonly found in roadside waste areas, grazing grounds, disturbed soil, and abandoned regions. It has been used in traditional medicine for treating various ailments, including worm infections, colds, fever, headaches, ulcers, asthma, and kidney inflammation. The leaves of S. acuta have diuretic, demulcent, anthelmintic, and wound-healing properties, making them useful for treating biliary, neurological, circulatory, liver, and urinary diseases. In Nigeria, gonorrhea is treated by chewing S. acuta leaves. Antibiotics, which eradicate or stop germ growth without negative effects on the host, are essential for respiratory infections, which are the most prevalent and deadly bacterial illnesses. This study aims to determine the antibacterial qualities of S. acuta and the quantitative phytochemical compositions of its components.

METHODOLOGY The powdered sample of the leaf, stem, and root was soaked in 100 milliliters of ethanol to create the plant's ethanol extract. The entire setup was allowed to sit at ambient temperature for seventy-two hours before whatman filter paper was used for filtering. A rotary evaporator was then used to concentrate the extract, and the solvent was left to evaporate. Until it was needed for analysis, the concentrated extract was kept in a refrigerator at 20°C in an airtight container.

RESULTS The study analyzed the phytochemical compositions of methanol extracts of the leaf, stem, and root of S. acuta. The leaf extract had the highest alkaloids, flavonoids, and steroids content, while the stem extract had the highest saponin content. The root extract had the highest tannins, anthraquinone, and cardiac glycosides. The leaf extract showed the highest inhibition (14.46±0.50) against Staphylococcus aureus, Salmonella typhi, Escherichia coli, P. aeruginosa, P. aeruginosa, M. varians, S. aureus, Bacillus cereus, and the root restrained(14.82±0.22 mm) the growth of Salmonella typhi and E. coli. The control extract showed the highest inhibition of all pathogens.

CONCLUSION The leaf of S. acuta, rich in alkaloid, has potential as an analgesic. Its phytochemicals, found in its leaves, stem, and root, show antibacterial and antifungal properties, making it a potent plant for treating infectious diseases.

METFORMIN (BIGUANIDES): MECHANISM OF ACTION AND TOXICOLOGICAL STUDIES

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Abstract

The oral anti-hyperglycaemic agent biguanide metformin (dimethyl-biguanide) is foremostly employed in managing non-insulin-dependent diabetes mellitus (NIDDM). It functions by lowering the blood glucose levels mostly by provoking hepatic and peripheral tissue sensitivity to insulin without making alterations to the endocrine system. Metformin somehow also shows some potential beneficial effects on serum lipid levels and fibrinolytic somatic functions, even though the long-term clinical implications of these effects are unknown. Metformin is indistinguishable in efficacy from sulphonyl-ureas in morbidly obese as well as in non-obese patients with NIDDM. In addition to the glucose-depressive effects, metformin has a relation with numerous pleiotropic effects, such as cardiovascular protection, weight neutrality, and a little bit of trimmed-down risk of cancers. It also has been employed in off-label states such as polycystic ovary syndrome (PCOS) in order to improve insulin resistance and the quality of the menstrual cycle. Despite its extensive use, metformin has shown some unwanted effects in patients with severe renal impairment due to a high risk of lactic acidosis, an infrequent but serious contraindication. Familiar side effects of metformin include gastrointestinal disturbances such as nausea, diarrhea, and abdominal discomfort, which are often temporary and dose-dependent. However, the toxicity of metformin can occur in the cases like overdosing or in patients with contraindications, like metformin-associated lactic acidosis (MALA). MALA is not a common but potentially fatal condition characterized by increased lactate levels and systemic complications.

Keywords: Glucose metabolism, Lactic acidosis, Genotoxicity, Glycemic control, AMP-activated protein kinase (AMPK), Polycystic ovary syndrome (PCOS)

STABILITY INDICATING ISOCRATIC HPLC METHOD FOR BILASTINE AND CHARACTERIZATION OF FORCED DEGRADATION PRODUCTS BY LC-MS/MS

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Abstract

This poster presents validated stability indicating high performance liquid chromatography (HPLC) technique for determination of Bilastine in bulk and synthetic mixture; and identification of its forced degradation products by optimizing LC-MS/MS. Bilastine and its stress degradation products were separated and characterized using a Discovery C8 column (250 mm x 4.6 mm, 5µm), with methanol: 0.1% ortho-phosphoric acid (55:45% v/v) as a mobile phase using a photo diode array (PDA) detector. The degradation of Bilastine was investigated under various ICH recommended stress conditions. Bilastine was identified to significantly degrade in acidic and oxidative environments by recording 70.70% and 70.43% of degradation, respectively. The established stability indicating method was validated according to ICH guidelines. The linearity of developed method was verified over concentration range of 25-150 µg/ml and calculated detection and quantification limits were 0.19µg/ml and 0.57µg/ml, respectively. LC-MS/MS was used to depicted a full Bilastine degradation pathway and explain the structures of the degradants. The proposed method is appropriate and useful for routine analysis of Bilastine in the pharmaceutical industry and capable of estimating Bilastine in the presence of excipients and degradation products. Keywords: Bilastine, Stability Indicating HPLC Method, Degradation Products, LC-MS/MS

NANOPARTICLES AND THEIR APPLICATION

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Abstract:

Nanoparticles are ultrafine materials with dimensions ranging from 1 to 100 nanometers, exhibiting unique physicochemical properties such as high surface area, quantum effects, and enhanced reactivity. These properties make them highly valuable in various fields, including medicine, electronics, environmental science, and biotechnology. In medicine, nanoparticles are widely used for drug delivery, imaging, and cancer therapy, improving treatment efficiency and reducing side effects. In electronics, they contribute to the development of high-performance sensors, transistors, and memory devices. Additionally, nanoparticles play a significant role in environmental applications, such as water purification and pollutant removal. Their antimicrobial and catalytic properties further enhance their industrial and pharmaceutical applications. Despite their advantages, concerns regarding toxicity and environmental impact necessitate further research and regulation. The future of nanoparticles lies in their sustainable development and safe utilization across industries.

Keywords: Nanoparticles, Nanotechnology, Drug Delivery, Cancer Therapy, Quantum Effects, High Surface Area, Biomedical Applications

PHLORETIN: BRIDGING NATURE AND MEDICINE – INSIGHTS INTO ITS THERAPEUTIC AND TOXICOLOGICAL ASPECTS

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Abstract:

Fruits like apples, berries contain phenolic compounds, a dihydrochalcone that become fascinated due to its wide range of pharmacological characteristics. Its C6-C3-C6 molecular structure, which involves hydroxyl and methoxy groups, that allow it to function as an efficient antibacterial, anti-inflammatory, anti-arthritis, anti-asthmatic and antioxidant agent. Phloretin's therapeutic benefits are facilitated by its capacity to scavenge free radicals and reduce lipid per oxidation. Phloretin reveals neuroprotective, cardioprotective, antidiabetic, and anticancer pharmacological properties. It lowers pro-inflammatory cytokines, inhibits glucose transporters (GLUTs), and controls autophagy and apoptosis. Phloretin causes tumour cells to undergo apoptosis and cell cycle arrest in cancer, while it leaves healthy cells unaffected. In addition to reducing oxidative stress and neuro inflammation and perhaps providing neuroprotection, its antidiabetic benefits are link with increased insulin sensitivity. Total 100 articles were found out by the help of online database including Google Scholar, Scopus, PubMed, and Web of Science and 90 had selected. Different keywords like phloretin’s properties, phloretin’s molecular pathways, pharmacology and toxicology were used to search the content. The main motive of this review is to summarize the previously reported mechanism, pharmacological status of the chosen moiety of dihydrochalcone. According to our research, phloretin possesses a unique chemical structure that holds great promise for treating a variety of illnesses through several bodily mechanisms. It may play a significant role in the treatment of a number of acute and chronic illnesses with more study and advancement. This review aims to encourage further research on this plant moiety, particularly focusing on its toxicity and bioactivity.

Keywords- Phloretin, inflammation, toxicity

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NEXT- GENERATION RP-HPLC- ENHANCING SENSITIVITY AND STABILITY IN PHARMACEUTICAL ANALYSIS

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Gujarat Technological University

Abstract:

RP- HPLC remains a cornerstone in pharmaceutical analysis, yet conventional methods often face challenges related to sensitivity, stability and environmental sustainability. This study explores next generation RP-HPLC advancements, including UHPLC, green solvent based mobile phase and AI driven method optimization. The integration of nanomaterials, hybrid stationary phases, and temperature-controlled elution significantly enhances analytical sensitivity, resolution and robustness. Additionally, the adoption of eco-friendly solvents such as ethanol and ionic liquids aligns with ICH Q14 guidelines, promoting regulatory compliance and sustainability. These innovations lead to reduced solvent consumption, improved detection limits, and higher analytical efficiency, making RP-HPLC more reliable for pharmaceutical quality control and impurity profiling. By combining novel materials, automation, and green chemistry principles, this next-generation approach revolutionizes RP-HPL, ensuring faster, more accurate, and environmentally sustainable pharmaceutical analysis.

Keywords: Next-generation RP-HPLC, UHPLC, pharmaceutical analysis, Stability improvement, ICH Q14, nanomaterials, sustainability

PHARMACEUTICAL DOSAGES FORM TRENDS AND INNOVATION

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TRC Mahavidyalaya Department of Pharmacy SatrikhBarabanki

Abstract:

Pharmaceutical dosage forms play a pivotal role in the effective delivery of medications to patients, ensuring the desired therapeutic outcome. Over the years, there has been a significant evolution in dosage form design, driven by advancements in technology, patient needs, and the growing demand for precision medicine. Recent trends and innovations in pharmaceutical dosage forms focus on improving drug efficacy, patient compliance, and overall treatment experiences. One of the key innovations in pharmaceutical dosage forms is the development of personalized medicine. Advances in genomics, biotechnology, and pharmacogenomics have enabled the customization of drug therapies, allowing for precise targeting of specific patient profiles based on genetic, metabolic, and other biomarkers. This trend is paving the way for dosage forms that cater to individual patient needs, optimizing both efficacy and safety. Additionally, the move toward non-invasive drug delivery systems has gained significant attention. Technologies such as transdermal patches, oral dissolvable films, and inhalable formulations are reshaping how drugs are administered. These forms not only improve patient compliance but also minimize the side effects associated with traditional methods, such as injections or oral tablets.Nanotechnology is also making its mark in the field, with the development of nano-enabled drug delivery systems that enhance bioavailability, targeted delivery, and controlled release. These innovations offer the potential for more efficient treatments, especially for challenging conditions like cancer, neurological disorders, and chronic diseases.

Keynotes- Dosages Form, Recent Trends, Nanotechnology, Challenges, Scope

REVOLUTIONIZING HEALTHCARE: AI-INTEGRATED WEARABLE MEDICAL TECHNOLOGY

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Noida Institute of Engineering and Technology (Pharmacy), Greater Noida, Uttar Pradesh, 201306.

Abstract:

Introduction-Wearable health technology has revolutionized health monitoring by enabling continuous tracking of vital signs, physical activity, and other health parameters. However, traditional wearables rely on basic algorithms and manual input, limiting their potential for delivering comprehensive health insights.

Aim- To explore the impact of AI integration in wearable medical technology on personalized healthcare and health monitoring.

Objectives- To evaluate the current state of AI-powered wearable medical technology from 2020 to 2023. To identify the key healthcare applications of AI-integrated wearables, including disease monitoring and early detection. To assess the challenges and opportunities associated with implementing AI in wearable health devices.

Methods- Systematic Literature Review is conducted using PubMed, Scopus, and Web of Science covered from peer-reviewed publications and conference proceedings from 2020 to 2023. The studies focus on the integration of AI with wearable medical technology for health-related applications and the approach is to find thematic analysis to identify key trends, applications, and challenges.

Results- AI integration significantly improves the decision-making capabilities of wearable devices by processing sensory data more effectively and providing many applications in the healthcare domain such as early detection of cardiovascular conditions, predictive analytics for continuous glucose monitoring, real-time monitoring of vital signs for oncology patients, early identification and tracking of symptoms for timely intervention. AI-powered wearables enhance personalized healthcare through continuous monitoring and early diagnosis, leading to improved patient outcomes.

Summary and Conclusion- AI integration in wearable medical technology holds tremendous potential for transforming personalized healthcare by enabling real-time monitoring and early detection of health issues. Continued advancements will further enhance patient outcomes and healthcare delivery systems.

SUSTAINABLE APPROACHES TO MANAGING FUNGAL DISEASES IN AGRICULTURE

Ram kumar Yadav*1, Shakshi Yadav*2, Ritika Bharti

GCRG College of Pharmacy

Abstract:

Fungal infections represent a significant global health concern, affecting millions of individuals annually. These infections can range from superficial conditions like athlete's foot to more severe, life-threatening systemic infections, particularly in immunocompromised individuals. Fungal treatment strategies have evolved over the years, with a focus on antifungal agents that target specific components of fungal cells, such as the cell wall, ergosterol in the cell membrane, and enzymes involved in cellular replication. Common classes of antifungal drugs include azoles, polyenes, and echinocandins, each with unique mechanisms of action, spectrum of activity, and side effects. Azoles, such as fluconazole and itraconazole, are widely used to treat both superficial and systemic fungal infections by inhibiting ergosterol synthesis. Polyenes, like amphotericin B, bind to ergosterol and disrupt the fungal cell membrane, making them effective against a broad range of pathogens but associated with significant toxicity. Echinocandins, such as caspofungin, inhibit cell wall synthesis and are particularly effective against Candida and Aspergillus species.

While these treatments have significantly reduced mortality and morbidity, challenges remain, including drug resistance, side effects, and limited efficacy in certain fungal species. New antifungal agents and treatment regimens are being explored, including the use of combination therapies and novel drug classes targeting different aspects of fungal biology. Additionally, non-pharmacological treatments such as photodynamic therapy and probiotics are being investigated as adjuncts to conventional antifungal therapies. Continued research into fungal pathogenesis and resistance mechanisms is essential for developing more effective, targeted treatments. This abstract highlights the current state of antifungal therapies, their challenges, and future directions in combating fungal infections.

Keywords: Fungal infections, antifungal treatment, azoles, polyenes,

ADVANCEMENT IN STEM CELL THERAPY FOR REPAIR OF SPINAL CORD INJURY

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Abstract:

Spinal cord injury (SCI) remains one of the most devastating conditions, often leading to permanent disability due to the limited ability of the spinal cord to regenerate. Recent advancements in stem cell therapy offer new avenues for SCI repair, focusing on promoting tissue regeneration, functional recovery, and neural repair. Stem cells, including induced pluripotent stem cells (iPSCs), mesenchymal stem cells (MSCs), neural stem cells (NSCs), and embryonic stem cells (ESCs), have shown potential in addressing the complex challenges of SCI by regenerating damaged tissue, promoting axonal growth, and restoring lost motor functions.

Various strategies are being explored to enhance the efficacy of stem cell therapy. These include optimizing stem cell survival and differentiation in the hostile microenvironment of the injured spinal cord, improving cell integration into host tissue, and stimulating axonal regeneration. The development of bioengineered scaffolds, gene therapy, and neurotrophic factor delivery systems has further enhanced the therapeutic potential of stem cells by providing structural support, promoting cell survival, and fostering neuroregeneration.

While preclinical studies have yielded promising results, translating these findings into clinical practice has proven challenging. Issues such as immune rejection, ethical concerns, the risk of tumor formation, and the difficulty of achieving long-term functional recovery still need to be addressed. Moreover, the complexity of the spinal cord's structure and its response to injury poses a significant hurdle for researchers. However, ongoing advancements in stem cell technology, including the refinement of delivery methods and combination therapies, offer hope for overcoming these obstacles. Ultimately, stem cell therapy for SCI repair holds great promise for restoring lost functions and improving the quality of life for individuals with spinal cord injuries.

Keyword: Spinal cord injury (SCI), Pluripotent stem cells, Mesenchymal stem cells, Neural stem cells, Embryonic stem cells, Neurotrophic, Neuroregeneration.

A COMPREHENSIVE REVIEW ON CUBOSOMES

Surendra Pratap*1 Ritika Bharti

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Abstract:

Cubosomes are very stable nanoparticles with honeycomblike or cavernous features. Some amphiphilic lipids are used to create cubosomes, which are then stabilized by a polymer. Bi continuous cubic phase liquid crystals are what they are called. The two continual but not intersecting watery zones that are separated by a lipid bilayer are referred to be bi continuous. Cubosomes are liquid crystalline particles that self-assemble and have a specified water-to-surfactant ratio. Cubosomes that self-assemble function as active medication delivery systems. They exhibit solid-like rheology. Cubosomes have a stable thermodynamic state, and the dispersions they form are both biodegradable and mucoadhesive. Cubosomes can be administered orally, topically, mucosal, intravenously, or trans dermally for the treatment of skin, hair, or other bodily tissues. Cubosomes have the ability to encapsulate both hydrophilic and hydrophobic molecules. Nevertheless, several researchers have been pointing out cubosomes' potential as delivery mechanisms. They use a variety of medication loading methods and large interior surfaces. Cubosomes also have the ability to target and release bioactive substances under controlled conditions. They may also be used as biosensors, artificial cells, membrane bioreactors, etc. They are made using a straightforward process. Cubosomes have a greater breaking resistance than liposomes. This article examines and analyses sophisticated cubosome preparation techniques.

Keywords: Cubosomes, high pressure homogenization, liposomes.

ANTI-TUBERCULAR ACTIVITIES OF THIAZOLES DERIVATIVES

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Abstract

Thiazole derivatives have emerged as potent candidates in the search for novel antitubercular agents due to their promising antimicrobial properties. Tuberculosis (TB), caused by Mycobacterium tuberculosis, remains a global health threat, necessitating the development of effective treatments. The introduction of thiazole-based compounds has shown significant activity against this persistent pathogen. These compounds exhibit a wide spectrum of antibacterial effects, targeting crucial bacterial enzymes and cellular processes. The thiazole ring, with its unique chemical structure, enhances bioactivity and stability, making these derivatives particularly useful in combating multidrug-resistant strains of M. tuberculosis. Recent studies have demonstrated that thiazole derivatives interact with bacterial cell membranes, disrupt enzyme functions, and inhibit mycolic acid biosynthesis, which is essential for the integrity of the bacterial cell wall. This review highlights the various mechanisms by which thiazole derivatives exert their antitubercular effects, providing a comprehensive overview of their potential as lead compounds for the development of new antitubercular drugs.

Keywords: Thiazole derivatives, antitubercular activity, Mycobacterium tuberculosis, drug resistance, antibacterial mechanisms, mycolic acid biosynthesis, tuberculosis, chemical structure, antimicrobial agents, drug development.

REVIEW ON: PLASMA DRUG CONCENTRATION -TIME PROFILE

[1]Sumit, Shlok, Satish, Mahtab, Muskan, Saniya,[2]Jyotima Yadav

Yashraj College Of Pharamacy

Abstract:

A plasma drug concentration-time profile is a crucial pharmacokinetic tool used to understand the absorption, distribution, metabolism, and elimination (ADME) of a drug in the body. This profile is typically represented graphically, where the x-axis denotes time, and the y-axis represents the plasma concentration of the drug. The profile provides insight into the rate and extentsorption after administration, as well as its duration and therapeutic efficacy.

concentration-time curve usually shows several key phases: The absorption, distribution, metabolism, and elimination. Initially, after administration, the drug concentration rises as it is absorbed into the bloodstream. This is followed by a peak concentration, which corresponds to the drug's maximum therapeutic effect. Afterward, the concentration declines as the drug is distributed throughout the tissues, metabolized in the liver, and ultimately eliminated from the body, typically through the kidneys.

The area under the curve (AUC) is a critical parameter, providing a quantitative measure of the drug's bioavailability. The half-life of the drug, denoted as the time required for the plasma concentration to decrease by half, is another key pharmacokinetic parameter. A well-characterized plasma concentration-time profile helps in determining the optimal dosage regimen to achieve desired therapeutic outcomes, minimizing adverse effects, and adjusting for individual variations such as age, weight, and liver or kidney function. This data is essential in drug development, regulatory approvals, and clinical decision-making for personalized medicine.

Keyword: Plasma concentration-time Profile,Pharmacokinetics (ADME)Absorption, Distribution,Metabolism, Elimination, Concentration-time curvePeak concentration ,Area Under the Curve (AUC)Bioavailability

REVIEW ON: PLASMA DRUG CONCENTRATION -TIME PROFILE

Sumit

Yashraj College of Pharamacy

Abstract:

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Keyword: Plasma concentration-time Profile,Pharmacokinetics (ADME)Absorption, Distribution,Metabolism, Elimination, Concentration-time curvePeak concentration ,Area Under the Curve (AUC)Bioavailability.,

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