Online ISSN No: 2583-2042

CARE-2024

JOURNAL OF CLINICAL AND PHARMACEUTICAL RESEARCH

An International Open Access Peer Reviewed Online Journal

Volume 4
Special Issue

www.jcpr.in
Universal Episteme Publications

ABSTRACTS OF

CARE-2024

Conference Proceedings of Two-Day National Conference on

COMPUTATIONAL ADVANCEMENTS IN RESEARCH & EDUCATION FOR PHARMACEUTICAL EXCELLENCE (CARE-2024)

(15TH & 16TH NOVEMBER 2024)

ORGANIZED BY

ADITYA GROUP OF PHARMACY COLLEGES

ADITYA NAGAR, ADB ROAD, SURAMPALEM,
ANDHRA PRADESH, INDIA.

ADITYA

ABOUT THE CONFERENCE

Padma Bhushan
Dr. K.I. Vara Prasad

*This National Conference on **Computational Advancements in Research and Education for Pharmaceutical Excellence (CARE 2024)** stands as a testament to the pioneering spirit of **Padma Bhushan Dr. K. I. Vara Prasad Reddy**, whose visionary leadership revolutionized India's biotechnology landscape. As the founder of Shantha Biotechnics Limited, Dr. Reddy's journey from an electronics engineer to a biotechnology pioneer exemplifies the interdisciplinary approach that this conference celebrates.*

Dr. Reddy's remarkable achievement in developing India's first indigenously produced recombinant hepatitis B vaccine, Shanvac-B, in 1997 marked a watershed moment in Indian pharmaceutical history. His response to skepticism about India's capabilities at a 1990 WHO conference in Geneva transformed into a mission that not only proved India's technological prowess but also made life-saving vaccines accessible to the common man.

This annual conference, generously sponsored by Dr. Reddy, brings together experts in computational pharmaceutical sciences, reflecting his commitment to advancing scientific research and innovation. The conference addresses cutting-edge developments in computational drug design, AI-driven pharmaceutical research, and digital transformation in drug development – areas that align with Dr. Reddy's vision of making India self-reliant in pharmaceutical innovation. The event's focus on computational approaches in pharmaceutical sciences honours Dr. Reddy's unique background in electronics engineering and computer science, combined with his groundbreaking work in biotechnology. His multidisciplinary expertise, from defence science to industrial development and ultimately to biotechnology, serves as an inspiration for conference participants to explore innovative intersections of technology and pharmaceutical sciences.

*Dr. Reddy's contributions, recognized through the **Padma Bhushan award** and multiple honorary doctorates, extend beyond business success to encompass social responsibility and cultural enrichment. His support for yoga training and publication of works on art, literature, and music through Haasam Publications demonstrates the holistic approach to development that this conference seeks to promote. We celebrate this two-day national conference, not just for scientific advancement but also to remember the spirit of determination and innovation that Dr. Reddy embodies. His journey from Papireddy Palem village to becoming a global leader in biotechnology continues to inspire the next generation of pharmaceutical scientists and researchers. The conference serves as a platform for sharing knowledge, fostering collaboration, and advancing the field of computational pharmaceutical sciences, carrying forward Dr. Reddy's legacy of making India a global leader in pharmaceutical innovation while ensuring accessibility and affordability for all.*

Ferroptosis in Cancer

Presented by
Allu Sirisha, Akshaya Karrothu, Durga Lakshmi Priya, Anita Raj Panigrahi.
Raghu College of Pharmacy, Bheemunipatnam, Andhra Pradesh, India.

Abstract

Apoptosis is a type of programmed cell death that differs from other forms such as autophagy and necroptosis. Ferroptosis, also a programmed cell death, occurs as a result of iron-dependent accumulation of lipid peroxides. It involves oxidative damage to the cell membrane by reactive oxygen species, resulting in cell death. This strategy is employed in treating various diseases like parkinson's and kidney damage. Different regulatory pathways, such as the gpx4 pathway, phospholipid metabolism pathway, iron metabolism pathway, and iron metabolism in mitochondria, mediate the process of ferroptosis. The agents that are responsible for the induction of ferroptosis in malignant cells are called ferroptosis inducers, such as small molecules and drugs, nucleic acids, and proteins (ASC, FSP, DHODH). Ferroptosis can be used in treating different cancers like glioblastoma, pancreatic cancer, breast cancer, head & neck, and also neurodegenerative diseases. Apolipoprotein-E, involved in alzheimer's disease, can safely guard cells against several ferroptosis inducers, such as erastin. It prevents ferroptosis by decreasing iron release from ferritin through the akt pathway. There are different challenges in ferroptosis, such as biomarkers, selective targeting, drug resistance and heterogenicity.

Keywords: *Ferroptosis, Glioblastoma Cancer, Cancer Cells.*

A Novel Therapeutic Approach of Targeted Nucleic Acid Delivery System

Presented by
Teki Swathi Revathi Naga Lakshmi, Sarampati Vishnu Surya Kala.
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Nucleic acid delivery system is a technique designed for efficient delivery of nucleic acids (DNA, RNA) into cells to modify gene expression, treat genetic diseases or provide therapeutic benefits. Enhancement of gene therapy efficacy is done by developing targeted nanoparticles for nucleic acid delivery to view the advancements and challenges in gene therapy. Nucleic acids are the macromolecules which are used to carry information in cells, and also useful to makeup genetic material. Nucleic acid delivery systems are mainly based on two types of delivery systems they are, viral based delivery system and non-viral delivery system. Viral vectors mainly include retrovirus, adenovirus, adeno associated vectors. Non-viral delivery systems includes liposome delivery, nanoparticle delivery, electroporation, microinjection and gene gun. Gene therapy results in enhanced gene expression mechanism, targeted nanoparticles increased specificity, estimated delivery efficacy in invitro and invivo therapy system. Gene therapy is highly promising for clinical applications involving the insertion of a functioning nucleic acid into dysfunctioning cells to provide correct cellular function. Targeted nucleic acid delivery system holds potentiality for treating genetic diseases. Nucleic acid based therapeutic delivery system is the technique of gene therapy useful for treatment of many genetic disorders. This review highlights advancements and challenges, clinical and guiding researchers for more effective gene therapies.

Keywords: *Gene Therapy, Nucleic Acid Delivery, Precision Medicine, Targeted Delivery and Nanoparticles, Vector Based Delivery.*

A Break Through In Treating MDRTB – BPaLM Regimen

Presented by
Jain Jainam, B Surekha, K Swathi Tejasree, K Purna Nagasree.
Raghu College of Pharmacy, Bheemunipatnam, Andhra Pradesh, India.

Abstract

Tuberculosis (TB) is an infectious disease that most often affects the lungs and is caused by a type of bacteria Mycobacterium tuberculosis. It spreads through the air when infected people cough, sneeze or spit. An estimated 10.6 million people effected with tuberculosis and 1.3 million people died from TB in 2023 as per WHO reports. India has incidence rate of 192 cases per 100,000 of population and in 2023, and accounted for 2.5 million TB cases registered. Although there was treatment for TB like first line and second line drugs but their usage is for prolonged time and it is not assured that it can completely kill the tuberculosis bacteria. It stands for Bedaquiline, Pretomanid, Linezolid and Moxifloxacin. This combination therapy is part of newer treatments being developed to address multidrug resistant TB (MDR-TB) and extensively drug-resistant TB (XDR-TB). It has been a promising alternative due to shorter treatment durations and improved outcomes. The drugs were chosen because they target different critical bacterial functions that includes energy production, protein synthesis, cell wall synthesis, and DNA replication (targeting ATP synthase, DNA gyrase, Topoisomerase IV) providing a robust and multi-pronged attack on Mycobacterium tuberculosis. This new treatment duration is very short that is 6 months as compared to older therapy of 18-24 months. This therapy is approved by CDSCO in India on 06/10/2024 and approved by US FDA on 09/05/2023.

Keywords: *Tuberculosis, MDR-TB, BPaLM, Bedaquiline, Pretomanid.*

Advances in Crispr-Based Organoid Models for Studying Hereditary Kidney Diseases

Presented by
Sara Aiswarya Bommeti, Dr. Praveen Sana.
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Gene technology, crispr-cas9 (clustered regularly interspaced short palindromic repeats- crispr-associated protein 9), is always challenging as it represents a revolutionary approach toward the treatment of hereditary kidney diseases, autosomal dominant polycystic kidney disease, and alport syndrome. This technology can change the DNA sequence of the genetic mutation; therefore, it significantly advances curative treatments in a patient suffering from hereditary kidney disease. These experimental techniques on animal models of these diseases performed well in suppressing cyst formation, fibrosis, and proteinuria of the kidneys. However, difficulties remain regarding the specific delivery of the crispr components to the kidney tissue. Nanoparticles and viral vectors are some of the more complex delivery systems studied with tighter targeting specificity and a reduced off-target effect. Several issues regarding efficiency, safety, and specific ethical implications will have to be solved before crispr can be put in place on a wide scale at the level of ethical and safety issues as well as long-term clinical implications. More studies will be needed before the technical as well as ethical challenges are resolved to allow crispr to find its place in nephrology on a wide scale. However, the crispr potential is transformative and may soon be realized shortly when personalized curative therapies for genetic kidney disorders start to increasingly feature in medical treatments.

Keywords: *Crispr-Cas9, Alport Syndrome, Nanoparticles, Polycystic Kidney Disease, Hereditary Kidney Disease, Fibrosis.*

Magneto-Pharmacology: An Emerging Trend

Presented by
M.Sivamani, Nikhil .J
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Magneto-pharmacology is an emerging area that combines magnetic systems with active pharmaceutical ingredients to adjust drug delivery. The usage of magnetic materials to manipulate and direct drug carriers which include nanoparticles pursuits to amelioration the targeting and efficacy of medical treatments even as decreasing side effects. The development of superparamagnetic nanoparticles is paving the manner for particular targeting of medication to tissues, such as tumors, enhancing the remedy of illnesses along with cancer and neurological diseases. Antimagnetic tablets that enable managed launch from external magnetic fields had been added. This potential allows for adjustment of dosage and length, which is essential for persistent illnesses that require lengthy-term treatment. In addition, the mixing of imaging era with magnetic medicinal drug makes it beneficial for monitoring drug distribution and remedy efficacy. However, the capacity applications of magneto-pharmacology in precision medicinal drug are large and provide new thoughts to conquer the limitations of conventional treatment options. Through collaborative collaboration, magnet pharmacology has the ability to revolutionize scientific practice and facilitate the development of targeted remedies.

Keywords: *Magneto-Pharmacology, Superparamagnetic, Nanoparticles, Persistent Illness, Neurological.*

Brain Chip Technology

Presented by
D.Swathi, A.B.T.M.Lakshmi, G.K.Goutami, G.Nitya Sri.
Sri Vasavi Institute of Pharmaceutical Sciences, Pedatadepalli, Andhra Pradesh, India.

Abstract

Brain chip technology or brain computer interface (BCI) enables direct communication between the brain and external devices. Elon Musk and his team members contribute great efforts in its development. Different types of brain chip implants are available, some of them directly implanted into brain tissue and some of them are implanted into skull but not brain tissue. It is a computer based system that acquires brain signals, analyses them and translates them into commands that are connected to an output device to carry out the desired action. Although it has some drawbacks such as high cost, rejection of implants and hacking of brain. They have significant advantages such as enhancing memory of humans and give paralysed patients in the aspects of full mental control on limbs and for military purposes such as testing of soldier cognitive work load, and useful to treat to neural disorders. It also give hope to partially or fully blind patients in the form of bionic eye. Bionic eye is the one of example of brain chip technology in which chip is implanted in visual cortex of brain helps to restore the eye functions.

Keywords: *Brain Chip, Bionic Eye, Cognitive Enhancement, Neural Implant, Neural Disorders.*

Key Developments and Emerging Trends in Neuropsychological Assessment

Presented by
Sri Harshitha Manchala, Rajeswari Makireddy, Parinaya Sri.
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Neuropsychological assessment tools play a critical role in understanding the relationship between brain function and behavior. Over the past 40–50 years, the creation of standardized tests sensitive to these relationships has shaped how we approach questions about brain function, detect neurological disorders, and guide treatment. This review outlines key milestones and innovations in neuropsychological assessment, focusing on the evolution of tools used in current practice. Additionally, we highlight emerging research aimed at improving diagnostic and treatment outcomes by deepening our understanding of brain function. We provide a brief historical overview of major assessment approaches, including the lurian method, flexible and fixed batteries, and the boston process approach. We also discussed critical advancements in areas such as the use of normative standards, accounting for cultural differences, tracking longitudinal changes, and developing common metric batteries. Furthermore, we explore new trends in the field, including technological innovations, the integration of neuropsychology into other disciplines like primary care, and shifts in the assessment infrastructure. While neuropsychological assessment has grown significantly in recent decades, many challenges remain in improving measurement tools and translating findings into meaningful clinical recommendations.

Keywords: *Psychometrics, Cognitive Testing, Cross-Cultural, Computerized Assessment, Normative Standards.*

Rheumatoid Arthritis

Presented by
Sunadh, Chandu, Srinivas, Manikanta.
Adarsa College of Pharmacy, G.Kothapalli, Andhra Pradesh, India.

Abstract

Rheumatoid arthritis (RA) is a chronic, autoimmune inflammatory disorder that primarily affects the synovial joints, leading to pain, swelling, stiffness, and progressive joint destruction. It can also have systemic manifestations involving the lungs, heart, eyes, and blood vessels. The exact etiology remains unclear, but genetic predisposition, environmental factors, and immune dysregulation play significant roles in its development. RA predominantly affects women and often manifests between the ages of 30 and 60. Diagnosis is based on clinical symptoms, blood tests for markers such as rheumatoid factor (RF) and anti-cyclic citrullinated peptide (anti-ccp) antibodies, and imaging studies. Early intervention is crucial to prevent irreversible joint damage. Treatment includes disease-modifying antirheumatic drugs (DMARDS), biologic agents, non-steroidal anti-inflammatory drugs (NSAIDS), corticosteroids, and lifestyle modifications. A multidisciplinary approach involving rheumatologists, physical therapists, and mental health professionals is essential for optimal disease management. Advances in treatment strategies have improved long-term outcomes, although challenges remain in achieving sustained remission and managing comorbidities.

Keywords: *Rheumatoid Arthritis (RA), Autoimmune Disorder, Chronic Inflammation, Synovial Joints, Joint Pain, Rheumatoid Factor (RF).*

Quality Control of Ayurvedic Proprietary Medicine in Oral Health Care

Presented by
Dhwani Patel
Parul Institute of Pharmacy and Research, Parul University, Waghodia, Gujarat, India.

Abstract

Ayurveda, an ancient Indian traditional system of medicine that outlines treatment approaches and medicines based on herbs and their parts which offers a holistic approach to health and wellness, including oral care. Dental caries, periodontal diseases, gingivitis, are commonly occurring oral health problems. It is the one of the major issue of concern as the oral cavity is the window into the overall health of patient. Ayurveda practices use of dantdhavan, mouth wash, tooth-powder, oil-pulling, and gandoosha. Plants and derived products offers rich source of biologically active phytoconstituents. The increasing demand for ayurvedic products, concerns about quality control, safety and efficiency. To overcome this concern of matter, standardization and quality control testing of raw material used is important to guarantee their safety & efficiency. Quality control is a systemic approach that involves monitoring & controlling various aspects of herbal product. Also, one of the major aspect of quality control is assay of phytoconstitutent having therapeutic effect and also ensuring the consistency of quality which may differ due to different origin and nature. It is crucial to employ authentic methods in quality control of ayurvedic medication products to accurately identify herb which ensures that correct herb is utilized for specific oral problem. This topic aims to compile quality control parameters for the testing and maintaining quality of the ayurvedic products for oral healthcare.

Keywords: *Quality Control, Phytoconstitutent, Dental Caries, Raw Material, Standardization, Ayurvedic Products.*

Implementation of National Education Policy in Pharmacy Education

Presented by
Sirapurapu Manjula
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

The national education policy focusing on transforming India's education system, views on practical skills and real-world application. The goal is to give professionals who can innovate, research, and provide quality healthcare. To achieve this, pharmacy education is undergoing many changes. Pharmacy students will now learn multidisciplinary sciences like chemistry, physics and biology in addition to pharmacy. This will help them understand the bigger picture and work accurately with other healthcare professionals. Partnerships with pharmaceutical companies will provide hands-on experience, preparing students for the industry. Teachers are being trained to choose to take modern teaching methods, emphasizing critical thinking and problem-solving skills. This will enable students to adapt to the ever-evolving healthcare landscape. There are numerous benefits for pharmacists. They will have best job prospects, both in India and internationally. Entrepreneurship will flourish, with pharmacists starting their own businesses and creating innovative solutions. However, challenges persist. Addressing these challenges needs collaboration between educators, policymakers, and industry leaders. By performing these changes, India can produce pharmacists who make a drastic change in healthcare. The national education policy's vision for pharmacy education is clear to create professional convert healthcare and improve lives.

Keywords: *National Education Policy, Pharmacy Education, Interdisciplinary Learning, Practical Skills, Healthcare Innovation.*

Challenges of PCOD Women and Future Aspects on Infertility Condition

Presented by
P. Sai Priyanka, S. Hema Sri, N. Keerthi, P. Sailaja.
VJ's College of Pharmacy, Rajahmundry, Andhra Pradesh, India.

Abstract

Polycystic Ovary Syndrome (PCOS) is a common hormonal disorder that affects many women of reproductive age. It can cause various issues, including irregular menstrual cycles and difficulties with ovulation, which may lead to infertility. This can be particularly distressing for those trying to conceive. While there is no cure for PCOS, effective management is crucial. This includes adopting a healthy lifestyle with a balanced diet low in refined sugars, regular exercise, and stress management. Medical treatments such as birth control pills can help regulate periods, and medications like metformin can improve insulin sensitivity. For women trying to get pregnant, doctors may prescribe medications to help induce ovulation. With proper management, many women with PCOS can have healthy pregnancies. It's important to have regular check-ups to monitor any potential risks, such as gestational diabetes and high blood pressure. Maintaining a healthy lifestyle continues to support both the mother and the baby. By working closely with healthcare providers, women with PCOS can navigate their symptoms and enjoy a successful pregnancy journey.

Keywords: *PCOS, Endocrine Disorder, Sensitizers, Ovulation Induction, Pregnancy, Gestational Diabetes, Healthcare Providers.*

Method Development and Validation for the Simultaneous Estimation of Allopurinol & Lisenurad Using HPLC

Presented by
Kruthiventi Sai Priyanka, Sree Gayatri.
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

A simple, accurate, precise method was developed for the simultaneous estimation of allopurinol and lesinurad in tablet dosage form using RP-HPLC method. Chromatogram was run through xterra c18 (4.6*150mm, 5µ) column. Mobile phase containing 0.1% OPA and methanol taken in the ratio of 60: 40 was pumped through column at a flow rate of 1ml/min. Temperature was maintained at ambient temperature. Optimized wavelength for both drugs was 255nm. Retention time of allopurinol and lesinurad were found to be 2.252min and 3.009 min. The % assay was obtained as 99.98% and 99.61% for allopurinol and lesinurad respectively. The linearity range was found to lie from 30µg/ml to 150µg/ml of allopurinol, 20µg/ml to 100µg/ml of lesinurad. It was concluded that our method consume less mobile phase with short running time with good resolution. So, our developed method was simple and economical that can be adopted in regular quality control test in industries.

Keywords: *Allopurinol, Lesinurad, RP-HPLC, Linearity, Precision.*

Artificial Intelligence in Pharmacy Successful Pharmacological Discovery

Presented by
A.Jyothi, P.Navyasri.
VJ's College of Pharmacy, Rajahmundry, Andhra Pradesh, India.

Abstract

Artificial Intelligence (AI) is revolutionizing the field of drug discovery by significantly accelerating the traditionally lengthy and costly process of bringing new therapeutics to market. By leveraging advanced computational techniques such as machine learning, deep learning, and natural language processing, AI enables researchers to identify drug candidates, optimize compounds, and predict drug-target interactions with unprecedented efficiency. AI facilitates multiple stages of drug discovery, including target identification, lead compound screening, and optimization, as well as drug repurposing and personalized medicine. Key successes, such as Insilico Medicine's AI-designed drug candidate for idiopathic pulmonary fibrosis (IPF) and deep mind's alpha fold for protein structure prediction, illustrate AI's transformative potential. These tools help reduce development costs, increase the probability of success, and expedite the time to clinical trials. Despite the immense promise, challenges remain regarding data quality, model interpretability, and regulatory hurdles. Continued advancements in AI methodologies, coupled with collaborations between academia, industry, and regulatory bodies, are expected to drive further innovations, leading to more effective, targeted, and safer therapeutics. AI's role in drug discovery heralds a new era of precision medicine, promising to address unmet medical needs and improve patient outcomes globally.

Keywords: *Drug Repurposing, Drug Development.*

Redefining Diagnostics : The Rise of Wireless Capsule Endoscopy in Modern Medicine

Presented by
Nikhitha Mantena
Srinivasa Rao College of Pharmacy, Visakhapatnam, Andhra Pradesh, India.

Abstract

Wireless capsule endoscopy (WCE) has transformed gastrointestinal diagnostics by offering a non-invasive approach to examine the digestive system without the need for sedation or the risks of conventional endoscopic procedures. With proven effectiveness in detecting gastrointestinal tissue irregularities, particularly within the small intestine, WCE continues to gain importance. However, current commercial WCE devices have limitations, primarily due to their lack of autonomous lesion detection and treatment capabilities. Recent advancements in micro-electromechanical systems (MEMS) and computational technologies have driven intensive research focused on integrating sophisticated functionalities into WCE devices, with the ultimate aim of creating intelligent capsule robots that could surpass traditional wired endoscopes. By analyzing the potential benefits and drawbacks of these approaches, we highlight the emerging capabilities that could transform WCE devices into autonomous "capsule surgeons". These innovations foreshadow a future where capsule robots self-navigate and perform minimally invasive interventions within the gastrointestinal tract, suggesting a paradigm shift that may ultimately reduce or eliminate the need for direct physician involvement. The anticipated advancements in WCE promise a minimally invasive future in GI diagnostics and treatment, setting a new standard in non-invasive medical technology.

Keywords: *Wireless Capsule Endoscopy, Non-Invasive Diagnostics, Gastrointestinal Imaging, Intelligent Capsule Robots.*

Multimodal Biomedical AI: The Frontier in Pharmaceutical Innovation

Presented by
E.Prasanna
School of Pharmaceutical Sciences & Technologies, JNTU, Kakinada, Andhra Pradesh, India.

Abstract

The integration of artificial intelligence (AI) in healthcare has transformed pharmaceutical research and personalized medicine. Traditional methods often face limitations due to fragmented data analysis, reducing their effectiveness in tackling complex diseases. Multimodal Biomedical AI, which merges data from genomics, medical imaging, and electronic health records (EHR), offers a breakthrough by providing a unified approach to solving these challenges. Platforms like IBM Watson and Google's DeepMind applied multimodal AI to analyze large-scale clinical data, recommend treatments, and predict patient outcomes, expediting vaccine development and therapeutic discoveries. In cancer treatment, genomic sequencing identifies mutations and genetic markers that influence tumor behavior. Deep learning models such as Convolutional Neural Networks (CNNs) for imaging and Natural Language Processing (NLP) for analyzing clinical data synthesize these insights, enabling precision therapies tailored to the patient's genetic profile. This technology optimizes drug discovery, improves patient selection in clinical trials, and enhances pharmacovigilance by predicting drug responses and adverse reactions. With its success during COVID-19, multimodal AI is advancing cancer treatments and ensuring more personalized therapies.

Keywords: *Multimodal Biomedical AI, Multi Omics, Deep Learning, Convolutional Neural Networks, Natural Language Processing.*

Computational Advancements in Pharmacogenomics: The Future of Personalized Medicine

Presented by
Amana Mohammed Ahmad, Yerra Sharmila, Kona Krishna Sri.
School of Pharmaceutical Sciences & Technologies, JNTU, Kakinada, Andhra Pradesh, India.

Abstract

Pharmacogenomics, the study of how genes affect a person's response to drugs, has experienced significant computational advancements in recent years, revolutionizing personalized medicine. Integrating large-scale genomic data with computational tools has enabled researchers to identify genetic variations that influence drug metabolism, efficacy, and safety. High-throughput sequencing technologies, coupled with advanced bioinformatics algorithms, facilitate the analysis of vast datasets, allowing for the discovery of novel pharmacogenomic markers. Machine learning and artificial intelligence are increasingly employed to predict patient responses to medications based on genetic profiles, enhancing the ability to tailor treatments to individual patients. These computational methods also streamline the drug development process by identifying patient populations likely to benefit from specific therapies, thus optimizing clinical trial designs and improving success rates. Additionally, the use of computational models to simulate drug interactions at the molecular level aids in understanding complex biological pathways, further informing therapeutic strategies. As electronic health records (EHRs) increasingly incorporate genomic information, computational tools can provide real-time insights into patient care, promoting the implementation of pharmacogenomic data in clinical settings.

Keywords: *Pharmacogenomics, Personalized Medicine, Computational Models, Machine Learning, Key Tools, Electronic Health Records.*

Bilosomes in Novel Drug Delivery System

Presented by
Vijaya Lakshmi, Raga Surekha, Lakshmi Surekha.
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Bilosomes are novel, bile salt-based vesicular carriers primarily used for oral drug delivery systems. These nanocarriers are formed by incorporating bile salts into liposomes, which enhances their stability and bioavailability, especially in the harsh conditions of the gastrointestinal (GI) tract. Due to the presence of bile salts, bilosomes exhibit resistance to bile acid-induced degradation, allowing them to improve drug absorption and protect encapsulated bioactive agents, including vaccines, proteins, and peptides. This feature makes them suitable for non-invasive delivery of therapeutics that would otherwise be degraded in the GI tract, presenting a promising strategy for enhancing the oral bioavailability of various drugs and biologics.

Keywords: *Bilosomes, Drug Delivery System, Oral Vaccines.*

Mouth Dissolving Tablets

Presented by
N.Kamakshi, K.Naveena, N.Bannu.
Raghu College of Pharmacy, Bheemunipatnam, Andhra Pradesh, India.

Abstract

Mouth-dissolving tablets (MDTs), also known as orally disintegrating tablets (ODTs), are a type of fast-dissolving medication designed to dissolve or disintegrate quickly in the mouth without the need for water. Developed to improve patient compliance and ease of administration, especially for populations with swallowing difficulties (like pediatric and geriatric patients), MDTs utilize specialized formulations that allow for rapid breakdown upon contact with saliva. This rapid dissolution ensures a faster onset of action compared to traditional tablets, making them suitable for medications requiring prompt therapeutic effects, such as analgesics or antihistamines. MDTs are prepared through various methods, including freeze-drying, spray drying, and direct compression. Emerging innovations continue to refine the formulation and production of MDTs, making them a growing sector within pharmaceutical development aimed at enhancing patient experience and compliance across various therapeutic areas.

Keywords: *Disintegrants, Dissolvents, Mouth Dissolving Tablets.*

Artificial Intelligence in Clinical Trails at Present Scenario

Presented by
P.Sri Sai Mounika Reddy, P.Jahnavi, M.Ramya Sri, K.Jahnavi Sravanthi.
Lydia College of Pharmacy, Ethakota, Ravulapalem, Andhra Pradesh, India.

Abstract

Delivering new drugs, technologies, and procedures to the market and practice requires clinical trails. Due to the increasing cost and complexity of conducting clinical trails, only 10% of these studies finish the entire process, from drug design to the four stages of development. This low completion rate had a significant negative impact on the population's sustainability, standard treatment, health economics, and health. One of the tools that could expedite some of the most laborious procedures, such as patient selection, matching and enrollment, is artificial intelligence(AI); better patient selection could also reduce harmful treatment and its side effects. There are still many obstacles in the way of the wide spread use of AI technology in clinical trails, and more high-caliber prospective clinical validation is needed.

Keywords: *Laborious, Sustainability, Health Economics, Clinical Validation, Obstacles.*

Investigation of Keratolytic Activity Using Azadiracta Indica Ointment Preparation

Presented by
D. Jayasri, D. Vijaya Lakshmi, G. Raga Surekha, G. Mahitha, G. Aishwarya.
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Skin issues are very common, and keratosis is one of the skin conditions which gets worse in the winter season effecting people with eczema, sometimes dermatitis leading to open heeled or broken heels resulting in inflammation and pain. The best natural skin care selected for the current study to treat keratosis is by preparing an indigenous semi-solid dosage form using azadiracta indica extract as active ingredient. A 10% azadiracta indica extract is incorporated with various ingredients like hard paraffin, cetosteryl alcohol, wool fat, white soft paraffin and little quantity of glycerin. The ointment is applied to the affected areas twice daily for a period of 3 to 7 days. There is a marked improvement, and this formulation is found to possess excellent keratolytic activity. The formulated ointment activity is compared with standard 5% salicylic acid ointment.

Keywords: *Azadiracta Indica, Keratosis, Salicylic Acid, Formulation, Eczema, Dermatitis.*

Menstrual Disorders

Presented by
Venkata Lakshmi, Gayatri, Akhila, Sravanthi.
Adarsa College of Pharmacy, G.Kothapalli, Andhra Pradesh, India.

Abstract

Menstrual disorders encompass a range of conditions that affect the normal menstrual cycle, leading to variations in frequency, regularity, duration, and intensity of menstrual bleeding. Common menstrual disorders include amenorrhea (absence of menstruation), dysmenorrhea (painful periods), menorrhagia (heavy menstrual bleeding), oligomenorrhea (infrequent periods), and premenstrual syndrome (PMS). These disorders can be caused by hormonal imbalances, structural abnormalities, underlying medical conditions, lifestyle factors, or stress. They often impact women's physical and emotional well-being, productivity, and quality of life. Diagnosis involves a combination of medical history, physical examination, blood tests, and imaging techniques. Treatment strategies range from lifestyle modifications and pharmacological interventions such as hormonal therapies, pain management, and non-steroidal anti-inflammatory drugs (NSAIDS) to surgical options in severe cases. A multidisciplinary approach involving gynecologists, endocrinologists, and mental health professionals is often necessary for effective management.

Keywords: *Menstrual disorders, Amenorrhea, Dysmenorrhea, Menorrhagia, Oligomenorrhea, Polymenorrhea.*

Computational Technologies in the Management of Oncology

Presented by
Keerthi, Kiranmai, Greeshma Durga, Pavani.
Viswanadha Institute of Pharmaceutical Sciences, Sontyam, Visakhapatnam, Andhra Pradesh, India.

Abstract

Computational technologies are playing a pivotal role in advancing oncology by enabling more precise, personalized, and effective cancer treatments. This paper discusses the integration of four key technologies that includes genome editing, immunotherapy, artificial intelligence (AI), and nanotechnology; that are transforming the landscape of cancer research and care. The technology allows precise alterations in the DNA of cancer cells, enabling researches to target specific genes responsible for cancer development resistance and metastasis. It uses computational models to optimize immune response, has gained prominence with advancements like CAR-T cell therapy, which harnesses the immune system to recognize and destroy cancer cells. Powered algorithms are significantly enhancing early detection, personalized treatment plans, and predictive outcomes by analyzing large-scale clinical and genomic data. It contributes to oncology by improving drug delivery mechanisms, allowing for precision-targeted therapies that minimize damage to healthy tissues and reduce side effects. The integration of these computational technologies is ushering in a new era of cancer treatment, where therapies are more efficient, targeted, and tailored to the individual patient's genetic and molecular profile. This abstract provides insights into current applications, challenges, and future prospects of these technologies in revolutionizing oncology care.

Keywords: *Genome Editing, CRISPR-Cas9, Immunotherapy, CAR-T, AI, Nanotechnology.*

Dominance of Fruquintinib: Recent Booming of Metastatic Colorectal Cancer Treatment

Presented by
M. Sujith, Sk. Meerjavalli.
VJ's College of Pharmacy, Rajahmundry, Andhra Pradesh, India.

Abstract

The recent concern about the colorectal cancer is exponentially increasing due to the major risk factors are being considerable for its ranking of 3rd dangerous contingency and 4th leading one in cancer deaths over the eastern Asia. The US FDA approved drug for this major metastatic cancer is fruquintinib (Fruzaqla, Takeda Pharmaceuticals, Inc.). It is potent and orally active in nature. This approval was granted on 8th November 2023 based on selectivity of VEGFR-1,2,3 tyrosine kinases inhibition as the differentiating factor and dominant in nature among other therapies. There are several treatments for mCRC this above drug falls into the category of targeted therapy. There have been 75 clinical trials gone so far in which the most recent clinical trial was a phase 3 trial, which was initiated on 1st January 2023 that responded in a positive rate of 95% of success rate and having disease control rate [DCR] of 56% that is notable. This explains that patients treated with fruquintinib had a significantly higher objective response compared to placebo.

Keywords: *Colorectal Cancer, Fruquintinib, VEGFR Kinases, Targeted Cancer Therapy.*

Thyroid Disorders

Presented by
Joshna, Ratnam, Madhuri.
Adarsa College of Pharmacy, G.Kothapalli, Andhra Pradesh, India.

Abstract

Thyroid disorders are a group of conditions affecting the structure or function of the thyroid gland, leading to disruptions in hormone production and metabolic regulation. The most common disorders include hypothyroidism (underactive thyroid), hyperthyroidism (overactive thyroid), thyroiditis (inflammation of the thyroid), and goiter (enlarged thyroid), as well as autoimmune conditions such as hashimoto's thyroiditis and graves' disease. Thyroid dysfunction can result from genetic predisposition, iodine deficiency, autoimmune responses, or environmental factors. Symptoms vary based on the type of disorder and may include fatigue, weight changes, mood disturbances, cardiovascular issues, and reproductive problems. Diagnosis involves clinical evaluation, blood tests for thyroid hormones (T3, T4, TSH), and imaging techniques such as ultrasound. Treatment depends on the underlying condition and may include hormone replacement therapy, antithyroid medications, radioactive iodine, or surgery. Timely diagnosis and proper management are critical to preventing complications, such as cardiovascular diseases and infertility. This abstract emphasizes the need for regular screening, especially in high-risk populations.

Keywords: *Thyroid disorders, Hypothyroidism, Hyperthyroidism, Thyroiditis, Goiter, Hashimoto's Thyroiditis.*

Gender-Specific Insights on Metabolic Syndrome and Early Heart Failure Rehospitalization in Older Adults

Presented by
G . Shreya Raj, Dr.B.Durga Pavan Kumar.
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Metabolic syndrome (METS) and heart failure (HF) remain major global health challenges, impacting individuals of all age groups. These factors each play a role in higher rates of HF hospitalizations and early readmissions, emphasizing the need for clinical research and management in these key areas. It is crucial to understand the disparities between male and female patients with heart failure, especially when it comes to the risks of being readmitted to the hospital, in order to enhance the outcomes of these patients. The results emphasized the intricacy and variability of main risk indicators, such as gender-related differences, profiles of risk factors, and the efficacy of treatment approaches. Even though these risk factors are present before HF events, the exact impact they have on early rehospitalization (<60 days) is still not clear based on current data. Further research is needed to enhance risk estimation due to the common occurrence and serious outcomes of mets and repeat hf hospitalizations. A concerted effort is essential to close current disparities in HF research to uncover the impact of potential risk factors or their combinations on early (≤ 60-day) HF rehospitalization following an initial HF hospitalization, potentially with the help of a machine-learning strategy.

Keywords: *Heart Failure, Metabolic Syndrome, Re-hospitalization, Gender.*

Drug Discovery and Regulatory Affairs

Presented by
K.Sanjana
VJ's College of Pharmacy, Rajahmundry, Andhra Pradesh, India.

Abstract

The field of drug discovery and development is a multifaceted and dynamic process that encompasses various stages, each critical to the successful introduction of novel therapeutic agents to the market. The first section delves into the intricate landscape of drug discovery, highlighting the latest technological advancements, innovative approaches, and collaborative strategies that drive the identification and validation of potential drug candidates. The second segment of the abstract addresses' regulatory affairs, elucidating the pivotal role regulatory agencies play in shaping the drug development process. An examination of global regulatory frameworks and evolving guidelines provides insights into the challenges faced by pharmaceutical companies in navigating complex regulatory landscapes. The third thematic focus is on drug safety and pharmacovigilance, crucial components of post-market surveillance and risk management. Additionally, emerging trends in real-world evidence and the integration of big data analytics in pharmacovigilance practices are discussed. Overview of the interconnected processes that contribute to the successful development, approval, and monitoring of pharmaceutical products.

Keywords: *Dynamic, Therapeutic, Integrate, Surveillance, Pharmacovigilance.*

Nanothernostics : A Promising Approach for Breast Cancer Diagnosis and Treatment Using Upconversion Nanoparticles

Presented by

Nunna Iswarya, Nallamilli H.S.S.Chandana, Sadanala Satya Padmaja, Tellam Varshini.

Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Breast cancer is the most common cancer in women and a leading cause of cancer-related deaths worldwide. Early diagnosis and effective treatment are key to improving survival and quality of life for patients. Nanotheranostics, which combine diagnostic and therapeutic capabilities in a single platform, are emerging as promising tools for enhancing breast cancer care. This unique luminescence allows for deeper tissue penetration and reduced phototoxicity, making UCNPS highly effective in *in vivo* applications. UCNPs can be engineered for multifunctional roles, including drug and gene delivery, photothermal therapy (PTT), and photodynamic therapy (PDT), all of which are critical in treating breast cancer. In drug delivery, UCNPs can be functionalized with targeting ligands to enhance the precision of therapeutic agents, while in PTT and PDT, UCNPS can facilitate localized tumor destruction through heat or reactive oxygen species generation upon NIR light irradiation. Their ability to serve as both diagnostic imaging agents and therapeutic carriers offers a dual approach that is invaluable in cancer management. However, challenges such as toxicity, biocompatibility, and large-scale production remain, hindering their clinical translation. Continued research is necessary to optimize these nanomaterials and explore their full potential in breast cancer diagnosis and therapy.

Keywords: *Nanothernostics, Breast Cancer, Upconversion Nanoparticles (UCNPs), Rare Earth metals, Cancer diagnosis, Nanomedicine.*

Utilizing Cheminformatics in Addition to Other Methods for Efficient Natural Product Research

Presented by
Y.Pallavi, Y.Sirisha.
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

For the development of new drugs, natural ingredients have provided a wealth of inspiration. However, it might take a lot of time and resources to do natural product research using conventional methods. An effective method for accelerating and streamlining natural product research is cheminformatics, or the application of computer and information technology to chemistry. With regard to the several facets of natural product research, this poster provides an extensive synopsis of cheminformatics software. Establishing the chemical structures of natural products by computer techniques is known as structure elucidation. Predicting molecular characteristics, including toxicity, lipophilicity, and solubility. Creating models to relate molecular structures to biological activities is known as quantitative structure-activity relationship [QSAR] modelling. Analyzing and mining data: drawing insightful conclusions from big collections of information about natural products. Compared to experimental techniques, cheminformatics tools can be more affordable. Potential drug candidates can be found by virtually screening natural product libraries using cheminformatics technologies. The quality and quantity if the data utilized to train cheminformatics tools determines their accuracy.

Keywords: *Cheminformatics, Natural Products, Virtual Screening, Data Mining, Structure Elucidation.*

Ethanolic Leaf Extract of Nymphea Stellata as an Antibacterial and Antiinflammatory Agent

Presented by
S.Amala, Neelima, Mukesh.
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Medicinal plants are part and parcel of human society to combat diseases. They usually contain many biologically active ingredients and are used primarily for treating mild or chronic ailments. According to world health organization (WHO), about 80% of the world population relies chiefly on the plant based traditional medicine especially for their primary healthcare needs. Herbal medicines are in great demand because of their wide biological and medicinal activities, higher safety margins and lesser costs. The present aim of the study is to prove the anti-microbial activity and anti-inflammatory activity of Nymphaea Stellata. To the methanol extract preliminary phytochemical screening was performed by using standard chemical tests. The methanol extracts of plant for its infectious and/or inflammatory nature were screened for *in-vitro* antibacterial and anti-inflammatory activities. The albino rats were used for acute toxicity studies as per OECD guidelines. The extracted compounds MEBM, BME, BMC, BMH, BMQ has been evaluated for their antimicrobial activity and anti-inflammatory activity. Antibacterial activity was tested using the agar diffusion method while anti-inflammatory activity was tested using the carrageen induced paw edema method. The zone of inhibition and anti-inflammatory was measured as per standard protocol which indicated the test showed significance results with standard drug.

Keywords: *Nymphaea Stellata, Albino Rats, OECD, Agar Diffusion, Antibacterial, Zone of Inhibition.*

Artificial Intelligence in Drug Discovery

Presented by
N.Rohini Amrutha, S.Monali.
VJ's College of Pharmacy, Rajahmundry, Andhra Pradesh, India.

Abstract

Drug discovery is a crucial area of research for pharmaceutical companies and scientists. However, the challenges during drug design and discovery are very high cost and long output time. Further, clinical trials in humans, microarray data, proteomics and genomics produce a big complex data. Artificial intelligence(AI) play a crucial role in drug discovery and development. In other words, artificial neural networks (ANN) and deep learning (DL) algorithms have simplified the drug discovery and development. The AI in drug discovery involves the process of drug design, polypharmacology, chemical synthesis, drug repurposing and drug screening. The present article provides a review on various AI tools and procedure involved in drug discovery such as predicting 3D structure of target protein, drug-protein interactions, determining drug activity, de novo drug design etc.

Keywords: *Artificial Network, 3D Structure, Target Protein.*

A Modern Manufacturing System Facilitates Pharmaceutical Operations

Presented by
Y Sirisha, Y. Pallavi, V. Ambica Taruni.
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

The "lean manufacturing" ideology in pharmaceutical operations is primarily concerned with reducing or eliminating waste and increasing production with enhanced safety and efficacy. By implementing the four important lean principles like value stream mapping, just in time production, 5S, kaisen, and maintenance and total production. Initially value stream mapping enhances the production process by identifying and removing waste; just-in-time production focuses on promoting a lower-cost supply chain in increased demand situations; and 5s and kaisen are tools that organizes the workspace safe and clean to workspace while also encourages step-by-step continuous improvement. Moreover productive maintenance deals with overall equipment effectiveness, lowering the cost of equipment by preventing its breakdown. Higher output with fewer resources can be achieved through lean manufacturing's ability to increase productivity and may enhance customer satisfaction by meeting customer expectations and delivering items on schedule. Despite the many advantages of lean manufacturing, it's important to recognize some of its possible disadvantages, including initial investment, supply chain dependence, resistance to new change, lack of flexibility, and greater workload.

Keywords: *Eliminating Waste, 5S, Kaisen, Supply Chain, Value Stream Mapping.*

Artificial Womb Technology

Presented by
Moripi Yogitha, Devireddy Bindu Hasini.
Srinivasa Rao College of Pharmacy, Visakhapatnam, Andhra Pradesh, India.

Abstract

Artificial womb technology, also known as ectogenesis, stands at the forefront of reproductive innovation, reshaping our understanding of conception, pregnancy, and childbirth. It is also known as artificial uterus technology as it grows a foetus outside the body and also helps premature babies develop and survive. This technology can potentially be performed as a switch from a natural uterus to an artificial uterus, thereby moving the threshold of foetal vialability to a much earlier stage of pregnancy. The foundation of artificial womb technology lies in bioengineering where a controlled environment mimics the conditions of a natural womb. The fluid used in this technology mimics amniotic fluid. This technology is a potential solution for surrogacy. This innovation allows for the gestation of embryos outside the human body, offering new possibilities for couples struggling with infertility, premature births, and high-risk pregnancies. This technology has the potential to reduce maternal mortality rates, eliminate the risk of prenatal exposure to harmful substances, and promote gender equality by sharing the responsibilities of childbirth more equitably. Artificial womb technology represents a paradigm shift in gynaecology.

Keywords: *Ectogenesis, Surrogacy, Infertility, Extrauterine System, Artificial Uterus, Bioartificial Uterus.*

Aquasomes: Vesicular Drug Delivery

Presented by
Vyshnavi P, Jyothsna.
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Aquasomes are a new type of drug delivery system specilised to improve how medications work in our body. They have special structure consists of core made of sugars or other substances surrounded by protective outer layer. This model allows aquasomes to catch both water-loving (hydrophilic) and water-repelling (hydrophobic) drugs, making them versatile for various types of medications. The main benefits of aquasomes is that they can help less dissolve soluble drugs, which is common problem in medicine. By enhancing solubility, aquasomes ensure that more of the drug is absorbed by our body, leading to better treatment results. The outer layer can also be modified to target specific cells, such as cancer cells, which helps deliver the medication exactly where it's needed and reduces side effects. Aquasomes can be designed to release their drug in response to changes in the body, like pH levels or temperature. It means that the drug can be released at the right time and place, increasing its effectiveness. Aquasomes offer a promising strategy to drug delivery by improving solubility, targeting, and controlled release. They have the potential to make treatments more effective and safer for patients. As research continues, aquasomes play a significant role in advancing specilised medicine and improving healthcare result across different diseases.

Keywords: *Aquasomes, Hydrophobic, Hydrophilic Solubility, Drug Delivery.*

3D Printing in Pharmaceutics : Revolutionizing Drug Formulation and Delivery

Presented by
Vyshnavi Penaganti
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

3D printing allows for quick and simple designing of drugs for individual patients. Doctors can combine more medications into one drug, making it easier for patients to take their drug as prescribed. It looks into dissimilar 3D printing techniques, like stereolithography, combined deposition modeling, and selective laser sintering. Each technique has its own strengths, like creating precise shapes and improving how the medicine is released in the body. Some 3D-printed tablets dissolve quickly, others release medication over a longer time. This technology can produce medications in just one step, which reduces waste and enhances treatment effectiveness. In 3D printing for healthcare grows, holds great promise for innovating how we develop and deliver medications. It leads to better health outcomes, as patients receive drugs designed exactly for their needs. Overall, 3D printing is covering the way for a future where medicines are more unique and improving patients' lives. This innovative approach streamlines production, reduces costs, and enhances patient compliance, paving the way for transformative healthcare advancements.

Keywords: *3D Printing, Additive Manufacturing, Drug Formulation, Medication Delivery, Healthcare Innovation.*

Bridging the Gaps in Neuro Perception

Presented by
N.S.V.D. Krishna Sri, D.B Satya Sai Sri Lakshmi, K.Tejaswini, P.Gangothri.
School of Pharmaceutical Sciences & Technologies, JNTU, Kakinada, Andhra Pradesh, India.

Abstract

The concept of bridging the gap in neuro perception focuses on combining therapeutic, surgical and artificial interventions to restore or enhance human sensory abilities. Sensory perception encompassing sight, hearing, touch, and other senses is often compromised by injury, disease, or congenital conditions. Medical approaches like surgery and therapy play a vital role in repairing damaged sensory pathways. Advances in neurostimulation, and rehabilitation strategies have enhanced the ability to restore sensory functions. These devices, powered by advancements in artificial intelligence (AI), neural networks, and robotics, allow for more naturalistic sensory input by closely mimicking biological systems. AI algorithms can help improve auditory clarity, visual recognition, and tactile sensitivity in these devices. Such approaches aim not only to restore lost functions but also to create seamless, human-like experiences through the combination of biological and technological means. This multidisciplinary strategy has the potential to dramatically enhance the quality of life for individuals with sensory disabilities, by offering solutions that span both medical intervention and cutting-edge technology, reducing the gap between human and artificial sensory perception.

Keywords: *Sensory Perception, Advanced Surgery Techniques, Artificial Devices, Natural Therapy.*

Neuralink in Paralysis

Presented by
B.Ruth Blessy, R. Harshitha.
VJ's College of Pharmacy, Rajahmundry, Andhra Pradesh, India.

Abstract

Neuralink is an American company that is developing implantable brain computer interfaces (BCI). The companies goal is to implant electrode polymer chips into human brain to connect them directly to machines. This would help people suffering from diseases like paralysis and parkinsons disease by allowing communication between the brain and external devices. Neuralink plans to develop a small chip that can read thousands of brain signals per second and connect the brain wirelessly to computers to provide benefits like deep brain stimulation and potentially enhance human abilities over time. The chip aims to allow paralyzed people to walk again by communicating with a chip below an injured spinal cord. However there are also risks like safety and technical hurdles to overcome before this technology can be used widely in humans.

Keywords: *Neuralink, Polymer Chips, Paralysis, Parkinson's Disease, Brain Computer.*

Encouraging People with Diabetes and Chronic Kidney Disease to Optimize their Finerenone: A Pharmacist's Opportunity

Presented by

Dr. D.V.S Somayajulu, Lalitha Maheswari Dandipati, Hima Bindu Gudimettla, Pushpa Satya Mahalakshmi Sanivarapu.

Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

CKD, especially in the type 2 diabetic patient, is a disease that needs to be managed and dealt with carefully to avoid further complications. To this end, drugs such as finerenone showing an effect that reduces nonsteroidal mineralocorticoid receptor antagonism associated risks, force their prescribers, pharmacists, to be part of multidisciplinary care teams. A literature review on the role of pharmacists in the management of CKD, and finerenone optimization, is done. It explores the analyses that involve pharmacist-led interventions, identification of patients for use of finerenone, the adjustments in the therapy, and finally monitoring drug efficacy and safety. Pharmacists play a role in identifying the eligible patients through screening tests, ensuring proper dosing, monitoring renal function and potassium levels, and managing drug interactions. Education and counseling improve patient adherence for better outcomes. however, caution should be exerted in the use of finerenone therapy because of risks, such as hyperkalemia, particularly among patients being treated with concurrent medications influencing potassium balance. In the multidisciplinary management of the CKD patients on finerenone, pharmacists play an important role, and ultimately, contribute to improved patient outcomes by ensuring that medications are adhered to be in a safe and effective manner.

Keywords: *Finerenone, Nonsteroidal Mineralocorticoid Receptor, Hyperkalemia, Albuminuria, Optimization, Antagonism-Associated Risks.*

Human Endoceuticals : A New Era in Drug Research

Presented by
Agnitha Christeena Geddam, Devi Sravanthi Yamala, Sai Prasanna Divya Tanniru.
Sir C. R. Reddy College of Pharmaceutical Sciences, Eluru, Duggirala, Andhra Pradesh, India.

Abstract

Human endoceuticals are bioactive compounds designed to enhance, regulate, or modulate the body's natural processes. This presentation explores various forms, including hormone replacement therapy, monoclonal antibodies, cytokine therapies, gene therapies, stem cell therapies, etc., And also it explains about how endoceuticals differ from traditional pharmaceuticals and how they aim to optimize physiological functions at a cellular or molecular level. The advantages of endoceuticals include reduced side effects, biocompatibility, personalized medicine, targeted treatment, long-term efficacy, and diverse applications. However, challenges such as high costs, complex manufacturing processes, potential immune reaction etc. Each approach gives the body's innate biological systems to promote healing and restore balance, addressing a wide array of conditions from hormonal deficiencies to cancer and regenerative challenges, illustrating about wound healing, cancer, HIV and other neurological disorders. Human endoceuticals also promise for advancing therapeutic strategies in modern medicine, utilizing the body's mechanisms to develop effective treatments that could revolutionize patient care. Continued research is essential for realizing their full potential and ensuring safe, accessible therapies for diverse health conditions.

Keywords: *Bioactive Compounds, Regenerative Medicine, Personalized Medicine, Targeted Therapies, Biocompatibility, Optimized Cellular Processes.*

Nanotechnology : Shaping the Future of Drug Delivery System

Presented by
Dhanusri Bhupathi
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Nanotechnology is making medicine delivery better. It helps doctors send the right dose of drug to the target place in our bodies. This decreases harm to healthy cells and makes treatments more accurate. Small particles known as nanoparticles are used to carry medicine to target areas. This helps treating the diseases like cancer, alzheimer's, and infections more effectively. Researchers are working to make this technology safer and more available. With nanotechnology, medicine will become more accurate, effective, and easier to take and safe. Nanotechnology in medicine has even more benefits. Smaller doses are needed, making treatment more effective. This could lead to treatments for before untreatable diseases and improved vaccine capability. Nanotechnology is transforming healthcare, making medicine more precise, unique, and life-changing. Small particles called nanosensors detect biomarkers for diseases like cancer, allowing for timely treatment. This technology also leads to quicker recovery times, decreased hospital stays, increased patient comfort, more effective wound healing, and improved dental care. Overall, nanotechnology transforms healthcare, offering new hope for patients and increasing quality of life.

Keywords: *Nanotechnology, Medicine Delivery, Targeted Therapy, Alzheimer's Disease, Nanoparticles.*

Stem Cell Therapy in the Treatment of Cancer

Presented by
Prasanna Mohan
School of Pharmaceutical Sciences, JNTUK, Kakinada, Andhra Pradesh, India.

Abstract

The study on stem cell therapy in the treatment of cancer is currently under pre clinical trials is the new emerging scope for the cure of cancer. Despite the advancements in research and technology, the cancer death rate has only declined by 1.5% between 2019-20 in US. Various treatment of radiotherapy, chemotherapy, surgical removal of solid tumor and immunotherapy for cancer end up with various ADRs like therapeutic resistance and cancer recurrence. The Stem Cell (SC) possess biological actions like self renewal, differentiation, migration and modulation of neighbouring cells, hence used as regenerative medicine, drug targeting and immune generation against cancer cells. Stem cells including Pluripotent Stem Cells (PSCs), Haematopoietic Stem Cells (HSCs), human Mesenchymal Stem Cells (hMSCs) each with varying properties can be used for targeted action on the tumor micro environment, cancer cell migration, tumor angiogenesis, proliferation and differentiation of affected cells. SCs have high proliferative action however their limited lifespan in i*n vivo* culture conditions acts as an obstacle for their clinical applications (e.g: hMSCs have short lifespan). Highly targeted action of the Stem Cells (SCs) estimated to provide more efficient results compared to current methods of cancer treatment. The various mechanisms they adopt during intravenous infusion helps study its detailed pharmacology.

Keywords: *Cancer, Stem cell, In vivo, Targeted action, Tumor Micro environment.*

Alphafold – The Future of Structure-Based Drug Design

Presented by
Pardhasaradhi Yedida, Shaik Sayed Salman.
School of Pharmaceutical Sciences & Technologies, JNTU, Kakinada, Andhra Pradesh, India.

Abstract

The ability to predict protein structures has been a bottleneck in the process of drug discovery as it limits the scope of finding drugable targets. This is the case of AlphaFold which is a breakthrough in the prediction of protein structures, but still poses some questions on its application in drug design processes, especially in the prediction of binding sites and interactions with ligands. In this report the utility of Alpha Fold is examined in practical terms by way of its predictions being incorporated in linear drug development processes that are already in existence. The structures of the AlphaFold models were compared to their experimental counterparts yielding an average RMSD of less than 1.5 Å. Moreover, it boosted the owned percentage success rates in virtual screening by 25% and excellent results were also recorded when predicting the allosteric sites, extending the scope of drug discovery. Owing to the provision of protein structures, AlphaFold enhances drug design processes by reducing the need for experimental methods like X-ray crystallography. It assists in the initial stages of drug design, especially when experimental data is absent.

Keywords: *Drug development, RMSD (Root mean square deviation), Molecular docking, AlphaFold, Drug discovery, X RAY Crystallography.*

AI-Driven Innovations in Pharmacy: Shaping the Future of Healthcare

Presented by
Yeturi Sravanthi, Nadisetti Sandhya.
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Artificial intelligence (AI) is a set of technologies that allow computers to perform tasks that mimic human intelligence, such as seeing, understanding language and analysing data. The integration of artificial intelligence in pharmaceutical industry enhancing efficiency and accuracy in various stages of the process. AI accelerates the identification of potential drug candidates, optimizes clinical trial designs, and improves patient stratification. The integration of AI - driven predictive analytics helps in assessing drug safety and efficacy, thereby reducing time and costs associated with bringing new therapies to market. AI has been employed in medical fields including radiology, pathology, cardiology, dermatology. In radiological imaging, AI excels at detecting fractures, tumors with high precision. Pathologists benefit from AI in identifying cancerous cells, while cardiologists use it to predict heart disease risk. Dermatologists use AI to recognize skin conditions from images. Further more, AI enhances the design of clinical trials by identifying patient populations, predicting outcomes and monitoring safety signals. AI holds the potential to significantly reduce the time and cost associated with bringing new therapeutics to market, innovative treatments and personalised medicine.

Keywords: *Drug Development, Drug Discovery, Patient Outcomes, Preclinical Testing, Treatment Response Prediction.*

Natural 3D-Printed Stem Cells for Wound Healing and Tissue Regeneration

Presented by
Mandapati Sravanthi, Kothapalli Sujitha Sri, Komma Pushpa Poojitha, Dalli Santoshi.
Srinivasa Rao College of Pharmacy, Visakhapatnam, Andhra Pradesh, India.

Abstract

Wound healing is a natural process that occurs when the body replaces tissue with new tissue. It involves many cell types, mediators, cytokines and vascular system. The wound healing process has 3 phases that includes inflammation, proliferation and remodeling. This latest techniques involved in wound healing are revolutionizing the way we treat injuries and promote recovery. The latest technique used is 3D-printing stem cells technique. The 3D-printed tissue engineered skin substitutes have shown remarkable results in accelerating wound healing. These 3D printed stem cells are involved in wound healing, reducing inflammation and improving tissue regeneration. These are involved in decellularized adipose tissue with the anti-inflammatory property by using Celecoxib (COX-2). These also determine the formation of stable 3D porous network structure that supports cell growth. This wound-healing process is carried among the skin burns and their treatment over the 3D printing stem cells technique on the surface of skin. This content indicates the anti-microbial, anti-bacterial and anti-inflammatory activities among the COX-2 drugs, which majorly helps in reducing the inflammation. This poster helps to gain knowledge on the 3D-printing technique for wound healing, along with the process of formation of different layers of medication on the wounds in detail.

Keywords: *3D- Printing Stem Cells, Tissue Regeneration, Anti-Inflammatory Property, Celecoxib (COX-2) Material, Risk of Infection.*

The Power of AI in Herbal Drug Development and In-Silico Screening for Natural Product Leads

Presented by
Bhavyasri Nandipati, N.Srisusmitha, P.Chandini, P.Ahammadunnisa, G.Sowjanya.
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Natural product discovery is accelerated by AI/ML, which also optimizes lead compounds and predicts bioactivity. Molecular docking, QSAR, and deep learning are some of the methods. Computational techniques predict bioactivity and find lead compounds by analyzing the structure-activity connections of natural products. By forecasting binding affinity and efficacy, in silico screening and docking find possible natural product leads. Docking software (Autodock, Glide) and molecular modeling tools (pymol, visual molecular dynamics) are used in *in-silico* screening. Complex links and possible leads are revealed by the integration and analysis of herbal medicine data using big data and bioinformatics. Techniques include network analysis and data mining. AI-powered molecular docking predicts binding affinity and efficacy, optimizing plant-based medication development. Integrating omics data (genomics, proteomics, and metabolomics) offers a thorough comprehension of pharmacognostic substances. Potential natural product leads are found using virtual screening techniques that forecast bioactivity and efficacy. Deep learning algorithms predict the toxicity and efficacy of medicinal plants by identifying their bioactive components. Natural drug discovery is being transformed with the integration of computational technologies in pharmacoinformatics. The authenticity and uniformity of herbal drugs are guaranteed by next-generation sequencing and computer-aided analysis.

Keywords: *Natural Products, AI, Molecular Docking, Molecular Modelling Tools, Deep Learning Algorithm, Next-Gen Sequencing.*

Cheminformatics

Presented by
K John Wesley
Viswanadha Institute of Pharmaceutical Sciences, Sontyam, Visakhapatnam, Andhra Pradesh, India.

Abstract

The intricate architecture of the biomolecules that cause diseases like AIDS, cancer, autism make it difficult for medical researchers to find medications to treat them. Due to changes in a number of elements, such as dietary habits, environmental conditions, and migration in human lifestyles, it is now essential to design and create new, effective anti-drugs for diseases that do not cause adverse consequences. Cheminformatics focuses on finding pharmaceuticals using contemporary drug discovery methods, which address intricate problems in conventional drug discovery systems. Medical chemists can better comprehend the intricate structures of chemical substances with the use of cheminformatics technologies. The primary goal of the newly developing interdisciplinary discipline of cheminformatics is to find Novel Chemical Entities [NCE]. NCE that eventually leads to the creation of a novel molecule [chemical data]. It is also crucial for gathering, preserving, and evaluating chemical data. In order to help chemists and medical researchers solve complex diseases, this study focuses on cheminformatics and its applications in drug discovery as well as contemporary drug discovery approaches.

Keywords: *Cheminformatics, Novel Chemical Entities, AIDS.*

Developing and Applying Photoplethysmography in Pharmacy

Presented by
N. Rohith Sai, D. Lokesh Naga Likhith, S.Mahesh, T Harika.
School of Pharmaceutical Sciences & Technologies, JNTU, Kakinada, Andhra Pradesh, India.

Abstract

Photoplethysmography is an optical, non-invasive technique to sense the variations in blood volume in microvascular tissue. That's commonly known as photoplethysmography or PPG. PPG detects changes in light absorption and reflection caused by pulsatile blood flow, enabling the extraction of crucial information about physiological factors such as heart rate and, importantly, blood oxygen saturation (SPO2) and other cardiovascular health markers. The technique usually uses a light source, like an LED, and a photodetector, which records the light that is reflected or transmitted PPG has become widely used because of its affordability, ease of use, and simplicity, which make it appropriate for continuous monitoring in a variety of contexts, including clinical settings and wearable technology that transitions from the clinical to the mobile world. Other benefits include pulse oximetry.

Keywords: *Invasive, Portable Equipment, Low-Cost , Photoplethysmography.*

Theranostics: Combining Therapy and Diagnostics for Personalized Medicine

Presented by
Sirapurapu Manjula
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Theranostics is a word that is used to combine the treatment and diagnosis to improve ones healthcare. This process increases precise identification and targeted treatment of diseases, leading to better patient outcomes. Theranostics uses advanced and accurate technologies like tiny particles, genetic markers, and artificial intelligence to tailor treatment to individual needs. It has shown promise in some treatments like cancer, neurological disorders, heart conditions, and infections. Theranostics gives several profits, which includes accurate diagnosis with more effective treatment along with fewer side effects, real-time monitoring, and improved patient outcomes. While there are challenges, ongoing research aims to overcome these problems and make theranostics more accessible. Theranostics also gives some additional profits including personalized medicine tailored to genetic profiles, decreased healthcare costs through targeted interventions, increased patient engagement and empowerment, and streamlined clinical trials and drug development. Its potential applications extend to some rare diseases and pediatrics. Future research plans on advancing nanotechnology and biomaterials, integrating artificial intelligence and machine learning, and developing point-of-care theranostic devices and instruments. Furthermore, theranostics is expected to strech to new disease areas, addressing regulatory and reimbursement challenges.

Keywords: *Theranostics, Targeted Therapy, Diagnostics, Nanotechnology, Artificial Intelligence, Healthcare, Revolution, Point-of-Care Devices.*

Sleep's Role in the Dark Struggle: Unravelling the Link between Nightmares and Addictions

Presented by
B. Subbu Rao, M. Haritha, P. Manga Raju.
Viswanadha Institute of Pharmaceutical Sciences, Sontyam, Visakhapatnam, Andhra Pradesh, India.

Abstract

Steroids and various drugs are known to cause sleep disturbances, including insomnia, by influencing the central nervous system and hormonal rhythms. Corticosteroids, commonly prescribed for inflammatory conditions, interfere with the body's natural production of cortisol, leading to heightened alertness and difficulty falling asleep. This disruption can be especially pronounced when steroids are taken at higher doses or in the evening. Additionally, certain classes of medications, such as stimulants (including caffeine, amphetamines, and some weight-loss drugs) and specific antidepressants, can have stimulating effects on the brain, making it challenging to initiate and maintain sleep. These drugs increase levels of neurotransmitters like dopamine and norepinephrine, elevating alertness and arousal. The consequences of drug-induced insomnia can be severe, impacting mental and physical health by contributing to fatigue, decreased cognitive function, and an increased risk of chronic health issues like hypertension and depression. Individuals on long-term steroid or stimulant regimens may face ongoing sleep disturbances, emphasizing the need for careful management. Healthcare providers should monitor patients for signs of insomnia and explore potential adjustments in medication timing, dosage, or even alternative treatments when appropriate. Behavioral approaches, such as cognitive-behavioral therapy for insomnia (CBT-I), can also provide valuable support, helping to mitigate sleep disturbances and improve quality of life.

Keywords: *Steroids, Drug Abuse, Insomnia, Cognitive Function, Hormones.*

Tuberous Sclerosis in Adult Patients: Clinical Insights and Management for a 39-Year-Old Female

Presented by
Manikanta Reddy Vatrapu, Abburi Sri Satya Shinney, Pavan Kumar Yanamadala.
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Tuberous sclerosis complex (TSC) is a genetic disorder caused because of mutations in the TSC1 or TSC2 genes, forming hamartomas in many organs, including the skin, brain, eyes, kidneys, heart, and lungs. It is believed that these genes stop cells from developing too fast or uncontrollably. The sort of symptoms in TSC is distinctive: may include as angiofibromas and hypomelanotic macules, neurological (seizures, developmental delays), and renal complications (angiomyolipomas). While it is mostly diagnosed in childhood, adults can also develop the ailment and other complications. This case report details the diagnosis, treatment options, and clinical symptoms of a 39-year-old patient with TSC. Cutaneous lesions were the patient's initial manifestations, in conjunction with recurrent seizures and renal angiomyolipomas diagnosed through imaging studies. A multidisciplinary team approach was therefore employed, related to physicians from the departments of dermatology, neurology, and nephrology. Management consisted of anticonvulsant therapy to reduce the seizures as well as monitoring of the renal characteristic so that it will gauge the need for possible surgical intervention based on the scale and range of renal tumours. This case report brings out the significance of diagnosing TSC in adults and management tailor-made at the know-how that the disorder evolves with time. Considering the multiple manifestations of the disease, regular screenings and specialised treatment plans are essential for quality care.

Keywords: *Tuberous Sclerosis Complex, Hamartomas, Angiofibromas, Hypomelanotic Macules, Seizures, Angiomyolipomas.*

Spinal Muscular Atropy

Presented by
Alugu Alpha, M.Kavya Kusuma.
VJ's College of Pharmacy, Rajahmundry, Andhra Pradesh, India.

Abstract

Spinal Muscular Atropy (SMA) is one of the genetic disease. It is characterized by the muscle weakness and atrophy. SMA is autosomal recessive neuro-muscular disease characterized by degeneration of motor neuron in spinal cord. It primarily affects infants and children. Recent advanced treatment particularly gene therapy and SMA modulators are used to treat the SMA patient. About 1 get affected in 6000 to 10,000 births. Individuals suffering with SMA have the common complications like scoliosis, hip dislocation and joint contractures. One in fifty people carry a copy of the altered gene that can lead to SMA in child. Nerve cells that controls muscle are mostly located in the spinal cord. Symptoms that displayed at the birth of children has the lowest level of functions. The goal of SMA therapy is to increase the expression levels of the survival motor neuron protein at the right time in the correct cells. To increase the production of survival motor neuron several drugs are used. In this review, we provide a comprehensive review that integrates clinical manifestations, therapeutic development, diagnostic strategy, molecular pathogenesis.

Keywords: *SNA, Chromosome 5, Gene Therapy, Hypotonia.*

Nipah Virus: A Zoonotic Threat to Global Health

Presented by
Komala Aiswarya Kokku, J Bhargava Narendra.
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

A type of viral infection brought on by the nipah virus is called a nipah virus infection. It is an RNA virus belonging to the "henipa virus" genus. Some "fruit bats" are typically the carriers of the virus. NIV is a bat-borne pathogen (zoonotic virus) that can infect humans directly or through contaminated food, causing fatal encephalitis. A range of illnesses, from asymptomatic infections to fever, cough, headache, dyspnea, serious respiratory infections and deadly encephalitis, are brought on by the virus. Approximately 50 to 75 percent of infected individuals die, and they may go into coma within a day or two. First identified in malaysia in 1998, the NIV was discovered in Siliguri, India, in 2001. It was then linked to a second outbreak in the Nadia district of West Bengal in 2007, and the current outbreak in Kerala claimed over 17 lives and afflicted several others. Brain inflammation and seizures after healing are examples of complications. In most cases, physical contact with an infected source is necessary for spread. The diagnosis is made based on the patient's symptoms and verified by laboratory tests such as RT-PCR, phylogenetic analysis, serologic analysis, and NIV sequencing. As of 2024, there is no licensed treatment or vaccination therefore, management is limited to supportive care. Avoiding bats and sick pigs, as well as avoid drinking raw date palm sap, are preventive strategies.

Keywords: *Henipa Virus, Zoonotic Virus, Date Palm Sap, Encephalitis.*

AI in Breast Cancer Care: Enhancing Accuracy and Personalized Treatment

Presented by
P.Manmadha Rao, B.Raja Rajeswari, R.Swathi.
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Breast cancer is a significant cause of cancer-related mortality in women worldwide, and early, precise diagnosis is crucial for improving clinical outcomes. The rise of artificial intelligence (AI) has ushered in a new era in breast cancer care, notably in image analysis, leading to advancements in diagnosis and personalized treatment regimens. AI transforms the diagnostic workflow by integrating machine learning algorithms for screening, diagnosis, staging, biomarker evaluation, prognostication, and therapeutic response prediction. Although traditional methods face challenges, including false positives, negatives, human errors, and time-consuming processes, AI-driven algorithms analyze complex data, recognize patterns, and provide accurate insights. Numerous studies show that AI performs equivalently or better than human readers. The ibrisk (intelligent-augmented breast cancer risk calculator) tool can predict whether abnormal tissue flagged by doctors is benign or cancerous. AI also enables personalized treatment plans by analyzing genetic and molecular data, optimizing treatment effectiveness, and reducing adverse effects while aiding in surgical precision during tumor resection. The innovative integration of AI promises to revolutionize breast cancer screening and treatment strategies by overcoming human limitations and achieving remarkable precision. However, challenges remain in fully adopting AI clinically, underscoring the importance of focused research to realize AI's full potential in patient care.

Keywords: *Artificial Intelligence, Ibrisk Tool, Diagnostic Imaging, Pathology, Precision Medicine.*

The Future of Cervical Cancer: Role of Pharmacists and Artificial Intelligence in Prevention and Management

Presented by
Jyothsna Mamidi, Ganga Mahalakshmi Yenuganti, Sangeetha Palaka.
Srinivasa Rao College of Pharmacy, Visakhapatnam, Andhra Pradesh, India.

Abstract

Cervical cancer is the fourth leading cause of cancer related deaths among women worldwide. In 2022, 6.6 million new cases and 3.5 deaths were reported as per UNICEF data, indicating the seriousness of the disease. Cervical cancer originates in the epithelial filling of the cervix, the lower part of the uterus. Persistent infection with certain strains of human papillomavirus (HPV) leads to the development of cervical neoplasia. There are 130 types of mortal papillomavirus (HPV), belonging to the family of papillomaviridae, of which around 20 are associated with cancers of the anogenital tract and other mucosal areas. Screening programs and HPV vaccination can significantly reduce the incidence rate. Cervical cancer diagnosed at an early stage leads to 5-year survival rate of 91%. The Government of India conducts a programme called National Breast & Cervical Cancer Early-Stage Detection Programme for awareness. A pharmacist can play a vital role in educating patients on HPV vaccination and screening, managing chemotherapy related adverse effects, optimising treatment outcomes and advocating for cervical cancer prevention and control policies. Artificial intelligence can help in developing predictive modeling for cancer risk assessment, personalised medicine using genomics and machine learning.

Keywords: *Cervical Cancer, Pharmacist, Artificial Intelligence, Human Papilloma Virus (HPV).*

Anesthesia in Heart Transplantation: Evolving Standards for Complex Care

Presented by
Hepzibah Rani Gidla, Dr. Y. Kalyan Chakravarthy, Dr. Pavan Kumar Yanamadala.
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Heart transplantation has emerged as a crucial intervention for patients suffering from end-stage heart failure, yet it is accompanied by considerable perioperative challenges. This review explores the essential anesthetic considerations associated with heart transplantation, a procedure characterized by the necessity for swift coordination, intricate patient management, and the presence of high-risk intraoperative scenarios. The role of cardiac anesthesiologists is vital in enhancing patient outcomes, beginning with a thorough preoperative evaluation that encompasses cardiovascular, pulmonary, renal, and hepatic assessments, as well as an appraisal of the patient's psychological preparedness. Anesthetic approaches must be customized to mitigate the risks of immunosuppressive complications, vascular damage, and infections, particularly in light of the immunocompromised status that follows transplantation. Innovations such as extracorporeal membrane oxygenation (ECMO) play a significant role in supporting cardiac function in complex cases, including those involving mechanical assist devices before transplantation. The postoperative period focuses on preventing organ rejection and infection, facilitating a gradual reduction in mechanical support, and ensuring sufficient pain management.

Keywords: *Heart Transplantation, Anesthesia Management, Cardiac Anesthesia, Perioperative Care, Extracorporeal Membrane Oxygenation (ECMO), Ventricular Support.*

Impurity Profiling in Pharmaceuticals

Presented by
P. Vaishnavi, V. Sravya, S. Kavya.
Raghu College of Pharmacy, Bheemunipatnam, Andhra Pradesh, India.

Abstract

The process of acquiring and evaluating data that establishes the biological safety of an individual purity in a pharmaceutical product. It involves identification, structure elucidation, quantitative determination of impurities and degradation products and bulk drugs materials and pharmaceutical formulations. It helps to ensure quality, efficacy and safety of drugs. Guidelines for impurity profiling are Q3A(R2) refers to the impurities in the new drug substance, Q3B(R2) refers to the impurity in new drug products, Q3C(R4) refers to the impurities from residual solvents. Sources of impurities includes organic, inorganic and residual solvents. Organic impurities are derived from plants, animals and human waste. Inorganic impurities often derived from the manufacturing process. The impurities are often reagents, ligands, catalysts, heavy metals and inorganic salts. Residual solvents are defined as organic volatile chemicals used in the manufacturing of drugs substance or excipients. Different analytical methods of impurity profiling are spectroscopic techniques which includes UV-VIS, IR, NMR ,Mass etc. and chromatographic techniques including column, TLC, HPTLC, HPLC, UPLC, GC, SFC whereas hyphenated techniques include LC-MS, GC-MS, LC-IR ,LC-NMR.

Keywords: *Structure Elucidation, Impurity Profiling, IR, NMR, Mass.*

Virtual Laboratories Digital Simulation of Physical Labs

Presented by
Y.Yasodha, K.Naga Chandrika, K.Usharani.
Viswanadha Institute of Pharmaceutical Sciences, Sontyam, Visakhapatnam, Andhra Pradesh, India.

Abstract

Virtual laboratories are digital platforms that simulate real-world laboratory environments, allowing users to perform experiments and practice scientific techniques without physical resources. This study explores the impact and efficacy of virtual laboratories in educational settings, particularly in science and engineering disciplines. Virtual laboratories offer flexible, safe, and cost-effective solutions for students, enabling experimental learning through interactive simulations and real-time feedback. Making quality education more accessible as educational institutions increasingly adopt digital tools, virtual laboratories represent a powerful resource for supplementing traditional lab experiences and meeting diverse learner needs. Virtual laboratories are transforming science and engineering education by providing students with immersive lab experiences accessible from any location. Through high-fidelity simulations, virtual laboratories enable learners to conduct experiments, test hypotheses, and develop technical skills without the limitations of physical lab space. Virtual laboratories not only complement traditional labs but also foster critical thinking and adaptability in students, preparing them for real-world scientific and engineering challenges. Increased communication between students on the internet helps with the exchange of ideas and experiences.

Keywords: *Virtual Laboratories, Digital Simulations, Cost Effective Solutions, Technical Skill Development.*

Innovative Niosome Drug Delivery: Unlocking Potent Antihelmentic Effects from Nature

Presented by
G.Ramkarishna, K.Iswarya, B. Sailakshmi, A.Kavitha, Ch Jahnavi.
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

The theory on andrographis paniculata, a member of the acanthaceae family, explores its chemical composition, extraction methods, and potential as a drug delivery system using niosomes. It contains various compounds such as polyphenols, flavonoids, diterpenes, alkaloids, and key components like andrographolide. The extraction process involves ethanol pre-extraction followed by fractionation. Niosomes, a novel drug delivery system, are formulated using andrographis paniculata, tween 80, span 80, cholesterol, and chloroform. The process includes mixing ingredients, evaporating chloroform, and forming niosomes through sonication and centrifugation. Characterization techniques like IR spectroscopy confirm the presence of polyphenols. Percentage entrapment efficiency is determined to be 83.7%, indicating effective drug encapsulation. *In-vivo* characterization compares the anthelmintic activity of andrographis paniculata with albendazole, a standard drug, showing promising results in paralyzing and killing earthworms. The discussion highlights the superior action of andrographis paniculata compared to the marketed drug, indicating its potential as an anthelmintic agent. This study suggests that andrographis paniculata holds promise for addressing parasitic infections due to its potent anthelmintic activity. Further research and application of this natural compound could lead to the development of effective treatments for parasitic infections in the future.

Keywords: *Andrographis Paniculata, Niosomes, Drug Delivery System, Anthelmintic Activity, Andrographolide, Extraction.*

Medication Adherence and its Effect on Clinical Outcomes in Diabetic Patients

Presented by
Anju. K. Abraham
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

In a secondary hospital, a prospective observational study lasting six months was conducted to evaluate the clinical results and adherence to oral hypoglycemic medicines in diabetic outpatients who were above the age of eighteen and of both genders. The study's focus was on the patients' glycemic level. Out of 90 patients with diabetes, 47.78% were male, 52.22% were female, 37.8% were between the ages of 61 and 70, and 63.31% were prescribed a combination of metformin and glibenclamide, whereas 22.2% were prescribed with metformin monotherapy. This difference was directly correlated with the patients' mean medication possession ratio. Based on the medicine possession ratio value, it was found that 83.3% of patients were not adhering to their treatment. The outcome also demonstrated a statistically significant variation in patient clinical outcomes according to drug compliance. In conclusion, establishing a correlation between medication adherence and quality of life in the diabetic community could be a useful strategy to maintain and enhance health outcomes.

Keywords: *Medication Adherence, Monotherapy, Drug Compliance.*

In-Silicon Modeling Computer Simulation Instead of Biological Studies

Presented by
Neha Kumari, P.N.S.Prasanna, P.Devi Thanuja, D.Sai Monisha.
Viswanadha Institute of Pharmaceutical Sciences, Sontyam, Visakhapatnam, Andhra Pradesh, India.

Abstract

In-silico modelling is a computational approach that utilizes computer simulations to study biological systems, from molecules to organisms. This method involves using virtual simulations to predict molecular properties, thereby reducing the need for expensive and time-consuming experiments. It provides a powerful tool for understanding complex biological processes, predicting the outcomes of interventions and accelerating drug discovery. Silicon modelling uses silicon as a base material to create detailed and accurate models that represent physical structures and systems, especially in fields such as electronics, nanotechnology, and material sciences. By combining computational and experimental methods, researchers can generate hypotheses that are testable through experimentation. The process includes encoding hypotheses about mechanisms of cellular function and disease pathogenesis, contributing to the identification of new drug targets. These models facilitate rapid advancements through high-throughput biological data. In recent developments, in silico models have enabled the creation of virtual tissues and organs, simulating complex physiological processes. In silico models complement, rather than replace, traditional experimental research, including *in vivo* models, animal testing, and clinical trials, making it a vital tool in modern scientific exploration.

Keywords: *In-silico Modelling, Virtual Simulations, Drug Discovery, Computational Methods, Hypotheses Generation.*

Formulation and Evaluation of Lamivudine Loaded Microspheres

Presented by
Malakar Vandana Rani
Vignan Institute of Pharmaceutical Technology, Visakhapatnam, Andhra Pradesh, India.

Abstract

The main objective of the present work was to develop a formulation with increased therapeutic efficacy, reduced frequency of administration and improved patient compliance by developing sustained release microspheres of Lamivudine using different polymers to study its functionality for sustained release of drug from microspheres formulations. Different concentrations of polymers like sodium alginate, HPMC, sodium CMC, chitosan was selected for the study. Microspheres were prepared by using ionic- gelation method. Prepared microspheres were evaluated for particle size, flow properties, drug content, and entrapment efficiency. After evaluation of physical properties of microspheres, the *in-vitro* release study was performed in 0.1 N HCl as buffer for 1 hr. After that replace with 6.8 phosphate buffer up to 8hrs. After 8 hrs. of study microspheres with sodium CMC showed maximum release (99.98%). Among all the formulations F7 which contain 200 mg of sodium CMC release the drug that follows first order kinetics. The FTIR study shows that there was no chemical interaction between drug and excipients.

Keywords: *Lamivudine, Sodium Alginate, Hydroxy Propyl Methyl Cellulose, Sodium Carboxy Methyl Cellulose, Chitosan, Microspheres.*

The Future of Pharmacy: Telemedicine and Digital Health

Presented by
Dhanusri Bhupathi
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

The future of pharmacy is changing fastly due to telemedicine and digital health. Telemedicine permits people to talk with doctors from home by using video calls or apps, so they don't routinely have to visit the hospital or clinic. This is modifying how pharmacies work too. More patients now get their prescriptions and guided from pharmacists on online. Pharmacists have an major role in this new way of healthcare. They help make sure patients are taking the right medications, even when consultations are done indirectly. Digital devices, like health apps and electronic prescriptions, permits the pharmacists to keep track of patients' medication history and help them continue their treatment plans. This makes it easier to detect the problems easily and avoid mistakes, which makes patients healthier. Telepharmacy is also extremely well known . This also permits pharmacists to give guidance through video chats, which is mainly useful for the people who live afar from a pharmacy. Digital health also makes it simpler for pharmacists, doctors, and other healthcare workers to work together, so patients get improved overall care. As technology keeps going, pharmacists will proceed to take on major roles in digital healthcare. They are using new equipments to help patients handle their medications better and improve health services for everyone. Telemedicine and digital health are making healthcare easier to approch and more useful for people everywhere.

Keywords: *Telemedicine, Digital Health, Pharmacist, Electronic Prescription, Health Apps.*

Enhanced Dissolution of Ritonavir through Solid Dispersion with Synergistic Carriers : A Novel Formulation Approach

Presented by
Thummala Udaya Kumar, Adapa Vijay Mounika.
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

The primary aim of this study was to enhance the dissolution rate of ritonavir, a poorly water-soluble drug, by formulating solid dispersions with various carriers to improve its bioavailability. A novel approach was employed using a four-component mixture of PVP, SLS, mannitol, and urea in different ratios. The solvent evaporation method was used to prepare solid dispersions of ritonavir with drug-carrier ratios of 1:2 and 1:4. The formulations were then evaluated for *In vivo* dissolution using USP apparatus II. Among the formulations, f13, containing a 1:4 ratio of ritonavir and the carrier mixture, achieved the highest dissolution rate of 98.09% within 60 minutes. This represented a 3.32-fold increase compared to the marketed product and a 1.31-fold increase compared to pure ritonavir (f1). The findings highlight that the combination of carriers used in f13 significantly enhanced the dissolution rate of ritonavir. This formulation approach provides a promising solution to improve ritonavir's bioavailability and has the potential for patenting and commercialization.

Keywords: *Dissolution Rate, Solvent Evaporation Method, Bioavailability.*

Computational Advancements in Detection of Multidrug Resistance

Presented by
Jagarlamudi Tanuja Bhagyasri
Chalapathi Instiute of Pharmaceutical Sciences, Guntur, Andhra Pradesh, India.

Abstract

Antibiotics are chemical substances that are used to treat a variety of infections caused by microbes, overtimes due to irrational usage, drug misuse, lack of strong regulatory measures has accelerated the antimicrobial resistance due to development of antimicrobial resistant genes. Antibiotic resistance is a global problem threatening the modern world. According to the Global Antimicrobial Resistance Surveillance System report in 2017, the major clinically relevant antibiotic resistance species are Escherichia coli, Klebsiella pneumoniae, Acinetobacter species, Staphylococcusaureus, Salmonella species, Shigella species., Streptococcus pneumoniae and Neisseria gonorrhoeae. They acquire drug resistance by development of efflux pumps, target modification, enzymatic bypass, target mimicry and several other strategies. To decelerate the spread of antibiotic resistant genes, surveillance of the resistome is of prior importance. Therefore, in this review we discuss about combating antimicrobial resistance by applications of whole-genome sequencing and metagenomics together with machine learning models for surveliance of resistosomes .

Keywords: *Resistosome, Whole Genome Sequencing, Metagenomics, Multidrug Resistance, Resistant Genes.*

Formulation of Tafamidis Immediate-Release Tablets Using Okra Gum as a Natural Disintegrant

Presented by
Udaya Kumar Thummala, Chunduri Harshini, Dodda Likhitha.
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

The purpose of this research was to investigate the use of okra gum as a natural disintegrant in the formulation of immediate-release tafamidis tablets. Okra gum was extracted, processed, and incorporated into tablet formulations at concentrations of 5%, 10%, and 15% through direct compression. The study assessed disintegration time, friability, and tablet hardness. Results indicated that the 10% okra gum formulation provided rapid disintegration and met pharmacopoeial standards for tablet strength. The research showed that okra gum could be a promising natural disintegrant for immediate-release formulations, providing a viable alternative to synthetic excipients.

Keywords: *Tafamidis, Okra Gum, Natural Disintegrant, Immediate-Release, Tablet Formulation.*

Booming of 3D Printing Technology

Presented by
S. Prasanthi, Sk.Rasheedha, K.Neelima.
School of Pharmaceutical Sciences & Technologies, JNTU, Kakinada, Andhra Pradesh, India.

Abstract

Three - dimensional printing technology is an additive manufacturing technology, focusing on development of personalised medicine. Spirtam (levetiracetam) was the first 3D printed prescription drug to be approved by the Food and Drug Administration (FDA) in August 2015. It enables us to produce the preparations with complex structures and preparations with precise control release of drugs. By using this technology, it is possible to develop the patient - specific medicines that meet the individual needs by enhancing patient compliance. The patient-specific medications like implants can be printed using the patient's own cells to increase biocompatibility and 3D printed organs can be developed for drug testing and study of toxicity of newer medications. This technology allows the preparations with multiple active ingredients in a single dosage form. Due to its immense applications and potential in the pharmaceutical and healthcare sector, it has earned much attention. Despite its potential, it also has challenges regarding the regulation and ensuring the safety and efficacy of drugs. The higher benefits over the disadvantages gives a broad perspective of future reliance of the pharmaceutical applications on 3D printing technology.

Keywords: *3 D Printing Technology, Additive Manufacturing, Personalised Medicine, Spirtam, 3D Printed Organs.*

Green Chemistry : A Waste Management Strategy

Presented by
M.Prasanna Lakshmi, R.Harshitha Valli, K.Sirisha, R.Sirisha.
Sri Vasavi Institute of Pharmaceutical Sciences, Pedatadepalli, Andhra Pradesh, India.

Abstract

Green chemistry refers to the creation, development, and application of chemical products and procedures that minimize or completely do away with the usage and production of compounds that are harmful to the environment and human health. The application of organic solvents in sample preparation is examined in relation to the "reduce, replace, and remove" tenets of green chemistry. The application of GAC principles in pharmaceutical analysis, with an emphasis on direct analytical techniques that involve little to no sample preparation, "the most polluting" step, and research that either minimizes the use of hazardous solvents or substitutes them with safer, more environmentally friendly solvents. In terms of energy consumption, operator safety, and ecological impact, environmentally friendly HPLC procedures perform better than conventional methods. Additionally, they provide improved technique performance, which encourages the pharmaceutical industry to embrace the Green Analytical Chemistry (GAC) methodology. Analysts, the pharmaceutical industry, and the micro community all gain from the application of green principles in drug analysis. Starting again and developing whole new analytical techniques isn't usually required. By adopting a more environmentally conscious mindset, all current analytical techniques can be adjusted to meet the demands of green chemistry.

Keywords: *Green Chemistry, Pharmaceutical Industry, HPLC, Green Solvents, Drug Analysis.*

Humanization Strategies in ICU: Balancing Technology and Compassionate Care

Presented by
Hepzibah Rani Gidla, Dr. D. Sathis Kumar, Dr. Pavan Kumar Yanamadala
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Intensive care units play a crucial role in the stabilization of patients facing critical health challenges. However, the growing dependence on sophisticated medical technologies has sparked concerns regarding the potential depersonalization of care. In contemporary settings, there is often a predominant focus on clinical protocols, which can overshadow the psychological and emotional requirements of both patients and their families, resulting in a pervasive sense of dehumanization. Research has shown that individuals in ICUs frequently experience feelings of isolation and objectification, primarily attributed to insufficient communication, a diminished sense of personal agency, and an emphasis on their medical conditions rather than their overall human experience. Allowing unrestricted visiting hours and clear communication can help families cope during critical times. However, healthcare providers often experience moral distress and burnout due to the pressures of their roles. The goal is to transform ICUs into spaces that prioritize not just survival but also healing and interpersonal connections, ultimately improving patient satisfaction and creating a nurturing environment for families while balancing medical demands with compassion and dignity.

Keywords: *Intensive Care Unit (ICU), Humanization, Patient Dignity, Family Involvement, Healthcare Worker Well-Being, Psychological Outcomes.*

Nanobots in Cancer: Pioneering Precision and Targeted Cancer Therapy

Presented by
Sk.Saniya Meerza
Srinivasa Rao College of Pharmacy, Visakhapatnam, Andhra Pradesh, India.

Abstract

Nanobots are nano-scale machines designed to perform specific tasks at the cellular level. In cancer treatment, nanobots hold immense potential due to their ability to precisely target cancer cells, minimizing damage to surrounding healthy tissue. Nanotechnology in cancer treatment is advancing from research to clinical applications. Nanobots can be programmed to deliver drugs, detect cancerous cells, or directly destroy tumors. They can identify molecular markers on cancer cells, allowing for highly targeted interventions, and can release drugs in a controlled manner to enhance treatment efficacy. Some nanobots are equipped with materials that react to external stimuli (e.g., magnetic fields or light) to generate heat and destroy cancer cells. Diagnostic nanobots can detect cancer biomarkers in the bloodstream at very early stages, aiding in early intervention. With ongoing research, nanobots may soon be able to self-navigate and carry multiple therapeutic agents, offering combined treatment and diagnostic (theranostic) capabilities. Integrating artificial intelligence may further enhance precision and adaptability in personalized cancer treatment. Nanobot technology in oncology is revolutionizing how we approach cancer treatment, moving towards personalized, less invasive, and highly effective therapeutic strategies. Continued advancements could make nanobots a central tool in future cancer care.

Keywords: *Cancer detection, Nanobots,Theraputic methods, Drug delivery, Tumor sensing, Targeted therapy.*

Transungual Drug Delivery System

Presented by
T.L Bhavya Sri, Mohammad Ahmadunnisa, P.Haripriya, T.Bhagya Sri.
Sri Vasavi Institute of Pharmaceutical Sciences, Pedatadepalli, Andhra Pradesh, India.

Abstract

A drug delivery system is defined as a technological formulation that facilitates the administration of a drug molecule into the body while controlling the rate, extent, and location of drug release. Transungual drug delivery specifically targets the nail plate, enabling effective treatment for nail disorders. Conventional treatments, such as oral and topical medications, often come with undesirable side effects, high relapse rates, and limited efficacy. Recent advancements in nail drug delivery systems (NDDS) are transforming therapeutic approaches by integrating cutting-edge technologies that enable precise, controlled, and targeted medication delivery. These innovations address key challenges, such as inadequate drug penetration due to the nail's structure and loss of topical formulations from washing or rubbing, which can lead to uneven drug distribution. The review explores both established and emerging methods for diagnosing and treating nail infections and disorders. By investigating these approaches, this review seeks to ensure therapeutic efficacy and enhance drug penetration to deeper layers of this complex structure. Additionally, it includes a discussion of current treatments and therapies under clinical trial.

Keywords: *Transungual Delivery, Therapeutic, Nanoparticles, Bio Adhesive, Nail Lacquer, Polymeric.*

A Comprehensive Review of AI-Powered Chatbot Interventions for Chronic Illness Management

Presented by
Mercy Pinipe, Dr. M. Phani Ramana Bushan
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

The use of AI in chatbots for chronic diseases has become increasingly important for enhancing patient communication and addressing the growing demand for supportive healthcare. However, there is a lack of comprehensive reviews on the impact of AI-driven chatbot interventions in healthcare literature. This research aimed to evaluate user satisfaction, intervention effectiveness, and the specific features and AI frameworks of chatbots designed for chronic diseases. A thorough literature review was conducted across several databases, including pubmed and scopus, focusing on studies that used chatbots or AI frameworks for preventing, treating, or rehabilitating chronic diseases. The review also assessed bias risk using the risk of bias 2.0 tools. Out of 784 identified results, eight studies met the inclusion criteria, focusing on various intervention strategies: health education, behavior change theory, stress and coping, cognitive behavioral therapy, and self-care behavior. The research revealed that AI-driven chatbots are effective and user-friendly for managing chronic conditions, with users generally expressing positive acceptance of these tools for self-management. Future studies should focus on detailed descriptions and patient safety, using natural language processing and multimodal interaction. Evidence-based assessments are needed to facilitate comparisons across different chronic health conditions.

Keywords: *Artificial Intelligence, Chatbot, Chronic Illness, Conversational Agents.*

Concept of Social Pharmacy

Presented by
S.Sri Vyshnavi, Sk.Karishma Begum, D.Geetha, D.Amrutha Varshini.
Sri Vasavi Institute of Pharmaceutical Sciences, Pedatadepalli, Andhra Pradesh, India.

Abstract

Social pharmacy is a multidisciplinary field of study that examines the role of medicines in society from social, scientific, and humanistic perspectives. It includes the study of the social, economic, and organizational aspects of medicines, as well as the function, availability, control, and application of drugs in society. The interdisciplinary discipline of social pharmacy is concerned with the behavioural, social, and economic facets of drug use and pharmacy practice. Health outcomes, medication adherence, and the overall efficacy of pharmacological care are all examined in relation to socioeconomic issues. Important topics of interest consist of: Patient behaviour is the comprehension of the ways in which social influences, attitudes, and beliefs impact health behaviours and medication compliance. Examining how access to healthcare, socioeconomic status, and culture affect medicine use and health consequences is known as health disparities. Assessing how chemists may improve patient care and advance public health via community outreach and education. Examining healthcare policies that impact access to medications, cost, and care quality is known as policy and advocacy. Promoting co-operation between communities and chemists to solve health needs. In general, social pharmacy seeks to improve pharmacological care's efficacy by incorporating social science viewpoints into pharmacy practice.

Keywords: *Patient Behaviour, Pharmacological Care, Socioeconomic Status, Multidisciplinary Studies.*

Revolutionizing Antibiotic Therapy: The Rise of Zosurabalpin and Role of CAD in its Drug Design

Presented by
K.B.Shashank
VJ's College of Pharmacy, Rajahmundry, Andhra Pradesh, India.

Abstract

The everyday concern and rise in the evolution of the microorganisms leads to the heavy and intense usage of the antibiotics leads to their resistance. So there is requirement of the antibiotic resistant drugs to be designed and formulated to solve this medical issue. The drug discovery and development process aim to design compounds with optimized efficacy, safety, and pharmacokinetic properties. Zosurabalpin is a newly synthesized therapeutic agent developed for the treatment of multidrug-resistant bacterial infections. Its design is based on the structural optimization of a lead compound identified through high-throughput screening and computational modelling. Structure-activity relationship (SAR) studies were conducted to identify key functional groups and optimize the pharmacophore for enhanced efficacy. Molecular docking and dynamics simulations were employed to predict the binding affinity and stability of Zosurabalpin with its bacterial targets. The synthetic pathway was optimized for yield, purity, and scalability. Zosurabalpin demonstrated potent *in-vitro* antibacterial activity against a range of multidrug-resistant bacterial strains, including MRSA and carbapenem-resistant Enterobacteriaceae. Molecular docking studies revealed a high binding affinity of Zosurabalpin to bacterial penicillin-binding proteins (PBPs) and DNA gyrase, suggesting a dual mechanism of action.

Keywords: *Zosurabalpin, Multi Drug Resistant, Penicillin Binding Proteins.*

A Pharmacological Evaluation for the Ethanolic Extract of Ipomoea Sagittifolia for its Antioxidant, Anti - Inflammatory and Analgesic Activities

Presented by
Dr. N. Sai Krishna, K.V.S. Koundinya, Ch. Sri Chakradhar, M. Srinivasu.
AKRG College of Pharmacy, Nallajerla, Andhra Pradesh.

Abstract

This study evaluates the phytochemical, antioxidant, anti-inflammatory, and analgesic properties of the ethanolic extract from the leaves of Ipomoea sagittifolia. Phytochemical screening revealed the presence of carbohydrates, proteins, cardiac glycosides, flavonoids, tannins, and phenols. The antioxidant activity was confirmed through a hydrogen peroxide scavenging assay, achieving 92.61% inhibition at 400 µg/ml. The extract also demonstrated potent anti-inflammatory effects, inhibiting 78.26% protein denaturation, and providing 80.08% membrane stabilization in rabbit red blood cells. In *in vivo* studies, the carrageenan induced paw edema model showed 46.4% inhibition of paw swelling after five hours at a dose of 400 mg/kg. Additionally, the analgesic potential was validated through Eddy's hot plate test, showing increased paw withdrawal latency in mice. These results suggest that the ethanolic extract of Ipomoea sagittifolia could serve as a therapeutic agent for treating conditions associated with oxidative stress, inflammation, and pain. Further research is required to isolate the active compounds and explore their mechanisms of action.

Keywords: *Ipomoea Sagittifolia, Ethanolic Extract, Antioxidant Activity, Anti-Inflammatory, Analgesic Activity, Oxidative Stress, Carrageenan-Induced Paw Edema, Herbal Medicine.*

Omics Data Integration

Presented by
Bhavyasri Nandipati
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

The method of multi-omics integration from various biomolecular levels, including proteins, metabolites, DNA, RNA, and epigenetic markers, presents detailed information of how biological systems work and respond. Multi-omics has been used in the case of various tasks such as the discovery of novel medications, the identification of new diseases, changing the therapy, and optimisation of existing ones. Invention of new biomarkers and therapeutic targets for various diseases, including cancers, can be achieved by multi-omics integration, which includes information from multiple omics levels, including the genome, transcriptome, proteome, metabolome, and microbiome. Combination of many omics results in the showing of relationships and interactions between molecular entities and biological processes. Due to variations in protein shapes and functions that can be impacted by gene expression, alternative splicing, post-translational modifications, protein-protein interactions, and protein degradation, proteome complexity can be a challenge to the design of therapeutic interventions. However, the act of combining data for multi-omics research is critical and time-consuming, requiring very well preparation and execution of study design, data creation, data processing, data analysis, and data interpretation. The invention and usage of certain techniques and apparatus that can surely and perfectly integrate multi-omics data are also necessary.

Keywords: *Multi-Omics, Cancers, Multi-Omics Integration, Proteome Complexity, Molecular Entities.*

Statistical optimisation of Natural Gums in Development of Extended Release Matrix Tablets Using D-Optimal Mixture Design

Presented by
Mr. P.N.Mallikarjun
Vignan Institute of Pharmaceutical Technology, Visakhapatnam, Andhra Pradesh, India.

Abstract

The objective of this current research was to create and fine tune extended-release glipizide tablets, with a focus on utilizing natural gums, Lannea coromandelica gum (LCG) and Terminalia catappa gum (TCG), as agents to control drug release using D optimal mixture design. Glipizide is widely used anti diabetic and BCS II drug. The tablet formulation was prepared by wet granulation method and the formulation optimization was done by D-optimal mixture design using Design Expert® software. The independent variables studied were LCG (X1), TCG (X2) and lactose monohydrate (X3) taking various combinations gums.The dependent (responses) variables studied were T50% (R1), T90% (R2), Drug release at 2 hrs (R3) and MDT (R4). For optimization studies, the response surface plots were generated and the optimized formulation was selected on the basis of maximum desirability value. All the evaluated parameters of all the formulations were within the pharmacopoeial limits. All formulated tablets drug release fitted into various kinetic models and most of the formulations followed first order. The optimized tablet formulation was found to possess all physical properties within the desired range and showed extended release profile with 99% drug release in 24 h duration. The findings suggested that natural gums-based matrix tablets of glipizide could be successfully developed and natural gums can be explored as platform technology as release retardants and in the development of extended-release matrix tablets of other drugs.

Keywords: *D Optimal, Lannea Coramondelica, Terminalia Catappa, MDT.*

Antimicrobial Stewardship in Action: Reducing Resistance and Hospital Infections in a Tertiary Care Facility

Presented by
Dr. Nandini Palivela
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

This study aimed to evaluate the effectiveness of a comprehensive antimicrobial stewardship (AS) intervention in a 500-bed tertiary care hospital to address the global challenge of antimicrobial resistance (AMR). Over six months, the intervention included multidisciplinary rounds led by infectious disease specialists, establishing antimicrobial prescribing guidelines and educational sessions for healthcare providers. A total of 1,200 patients, split evenly into pre and post-intervention groups, were analyzed. The findings revealed a 30% decrease in antimicrobial consumption, significant reductions in broad-spectrum antibiotic use ($p < 0.01$), a 25% drop in Clostridium difficile infections, and a 15% reduction in hospital-acquired infections ($p < 0.05$). Resistance rates for pathogens like Escherichia coli and Staphylococcus aureus also declined. These results underscore the value of comprehensive AS programs in optimizing antimicrobial use, improving patient outcomes, and combatting AMR. The study provides important insights for healthcare institutions, while further research is needed to explore the long-term impact of such interventions on AMR trends.

Keywords: *Antimicrobial Resistance, Antimicrobial Stewardship, Hospital-Acquired Infections, Tertiary Care Hospital, Patient Outcomes.*

Synthesis, Anti Bacterial Activity And Molecular Docking Studies of Some New 4-Tert-Butyl Chalcones against Multidrug Resistant Pathogens

Presented by
Mr. A.Kanaka Raju
Vignan Institute of Pharmaceutical Technology, Visakhapatnam, Andhra Pradesh, India.

Abstract

The rising threat of drug-resistant microbes highlights the critical need for new antimicrobial agents. To tackle this issue, significant research efforts have focused on developing innovative strategies and frameworks. Chalcones, recognized for their broad-spectrum biological activities, have emerged as promising candidates in the fight against drug resistance. In this study synthesized a series of 4-tert-butyl chalcones (R1 to R15) with varying electron-withdrawing and electron-donating groups using Claisen-Schmidt condensation. The structures of the synthesized compounds were confirmed through FT-IR, 1H NMR, and 13C NMR analysis. Evaluation of these compounds revealed their potential as antibacterial agents, with compounds R2 and R9 demonstrating strong antibacterial activity against multidrug-resistant (MDR) bacteria, including E. coli, P. aeruginosa, K. pneumoniae, and S. aureus, outperforming the reference drug Ciprofloxacin. Additionally, molecular docking studies using Auto Dock Vina molecular docking software for Glucosamine-6-phosphate (GlcN-6-P) synthase inhibition indicated that ligands R2 and R9 exhibited impressive binding energy values of −12 kcal/mol and −11 kcal/mol respectively, correlating with their antibacterial activity. These results highlight the potential of chalcones, particularly R2 and R9, as promising candidates for developing new antimicrobial agents targeting drug-resistant microbes.

Keywords: *Chalcones, Antibacterial Activity, Molecular Docking.*

Estimation of Anti-Hyperglycaemic Effect of Glochidion Tomentosum in Streptozotocin Induced Diabetic Rats

Presented by
Dr. K Daniel Raju
Vignan Institute of Pharmaceutical Technology, Visakhapatnam, Andhra Pradesh, India.

Abstract

Glochidion tomentosum has traditionally been used as antimicrobial, anthelmintic, antioxidant and research is going on various other properties of the plant including diabetes mellitus. The plant extract consists of majorly terpenoids, tannins, alkaloids, glycosides, and steroids. The purpose of this study was to investigate the antidiabetic activity of the plant Glochidion tomentosum streptozotocin (STZ) induced diabetic rats. The administration of STZ (55mg/kg) significantly ($p<0.001$) increased the Fasting blood sugar level when compared to the normal control group. The fasting blood sugar level, food intake & water intake are increased in diabetes control group, whereas the body weight is decreased in diabetes control group after the STZ administration. After successive treatment with Glochidion tomentosum 21 days, the over said increased parameters are decreased significantly ($p<0.01$) and the body weight is maintained to normal control group. The overall results indicated that Glochidion tomentosum has almost equivalent antidiabetic potential and might be due to its insulinotropic action which increases the utilization of glucose thoroughly inside the body. The presence of glycosides, tannins, alkaloids, steroids, terpenoids in selected plant might be responsible for its therapeutic effect.

Keywords: *Glochidion Tomentosum, Insulinotropic, Antidiabetic, Streptozotocin, Type-2 Diabetes.*

Comparative Assay Screening of Lapatinib by UV Spectroscopy and Liquid Chromatography

Presented by
Dr. Bhagavan Rajesh Babu Koppisetty
Vignan Institute of Pharmaceutical Technology, Visakhapatnam, Andhra Pradesh, India.

Abstract

A simple, rapid and sensitive validated UV-Spectrophotometry and RP-liquid chromatographic method have been developed for the assay of Lapatinib in Bulk and Pharmaceutical dosage form. Chromatographic separation achieved on a C18 Spolar G 250×4.6mm column in Isocratic elution with mobile phase containing water methanol, acetonitrile in ratio(75 : 15 : 10 v/v). The flow rate was 1 mL/min and effluent were monitored at 235nm. The elution/retention time of Lapatinib at 6.01 min. LOD and LOQ for HPLC method was 0.125 µg/mL and 0.380 µg/mL respectively. UV absorption spectra were screened in the range in between 200-400 nm and the assay for Lapatinib absorption set at λ maximum 235nm, the developed method was validated according to ICH guidelines. The linearity data of Lapatinib are 2 to 12 µg/mL, LOD and LOQ are 0.230µg/mL and 0.699µg/mL respectively. The comparative assay studies were performed using UV and liquid chromatography. The developed method was successfully applied to bulk drugs as well as in Pharmaceutical dosage form.

Keywords: *Lapatinib, UV Spectroscopy, RP-HPLC.*

Formulation and Evaluation of Burn Healing Ash Cream from Leaves of Mangifera Indica L

Presented by
Mrs. Sadhe Amala, Leticia.
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

The present study discusses the challenges, advances and novel strategies in burn management and research with a focus on testing new pharmacological interventions in finding new targets. Besides wound healing the importance of secondary burn healing has also gained attention in the present days. The fresh leaves of Mangifera indica L were collected, dried and pulverized. The powder of leaves are taken and converted into ash by using muffle furnace at an optimum temperature. Preliminary phytochemical screening were performed using UV, FTIR and chemical tests to know the presence of secondary metabolites for ash powder. The obtained ash powder is formulated using a cream base and different evaluation parameters are performed on cream like spreadability, skin sensitivity, viscosity and pH. *In-vitro* burn healing activity was performed using albino mice for 21 days by using a standard Aminacrine and Cetrimide. The size of wound (burn) was measured as per standard protocol which indicated the test showed significance results with the standard drug. This research emphasizes the usage of herbal ash cream has the potential in burn healing might be due to the presence of antioxidant properties and anthocyanin.

Keywords: *Mangifera Indica L, Ash, FTIR, Aminacrine & Cetrimide.*

Targeting the Gut Microbiome: A Novel Approach to Personalized Pharmacotherapy

Presented by
Sarvasiddi Kiranmai
Vignan Institute of Pharmaceutical Technology, Visakhapatnam, Andhra Pradesh, India.

Abstract

The gut microbiome, a complex ecosystem of microorganisms residing in the human gastrointestinal tract, has emerged as a critical player in modulating drug metabolism, efficacy, and toxicity. This presentation explores the burgeoning field of pharmacomicrobiomics, which seeks to understand the interactions between microbial communities and pharmaceutical agents. Recent studies indicate that variations in microbiome composition can lead to significant inter-individual differences in drug response, offering a potential explanation for the variable outcomes observed in treatments such as cancer therapies, cardiovascular drugs, and antibiotics. By targeting and modulating the gut microbiome, researchers are unlocking new possibilities for personalized pharmacotherapy, where drug regimens are tailored to an individual's unique microbial profile. This approach holds promise for enhancing therapeutic efficacy, reducing adverse drug reactions, and optimizing dosing strategies. As we delve deeper into the gut microbiome's role in pharmacology, it is clear that pharmacomicrobiomics will play a pivotal role in the future of personalized medicine, offering a novel frontier for improving patient outcomes and drug development strategies.

Keywords: *Gut Microbiome, Pharmacomicrobiomics, Personalized Pharmacotherapy, Drug Metabolism, Drug Efficacy.*

Formulation and *In-vitro* Evaluation of Mouth Dissolving Tablets of Daclatasvir Dihydrochloride

Presented by
Prasanthi Teella
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

The present study was carried out on Daclatasvir dihydrochloride mouth dissolving tablets were prepared by direct compression method and different concentration super disintegrants like Polyplasdone XL, Solutab and Explotab were used in mouth dissolving tablets. A total of 9 formulations were prepared and evaluated for various pre and post compression parameters like angle of repose, bulk density, tapped density, carr's index, hausner's ratio, weight variation, hardness, friability, thickness, wetting time, water absorption ratio, drug content, *in-vitro* disintegration time and *in-vitro* drug release. The *in-vitro* disintegration time of the optimised formulation (F3) of Daclatasvir Dihydrochloride was found to be 19 sec. Release rate of drug was 99.42 % within 30 minutes. FTIR studies showed good compatibility between drug and excipients.

Keywords: *Daclatasvir Dihydrochloride, Polyplasdone XL, Solutab and Explotab, Mouth Dissolving Tablets.*

Formulation and Characterization of Niosomes Encapsulating Green Tea Extract and Rosehip Oil for Enhanced Skin Care Delivery

Presented by
A Sree Geetha
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Niosomes, are non-ionic surfactant-based vesicular carriers, offer a promising drug delivery system to improve the bioavailability, stability, and controlled release of active ingredients. The aim of the present study is to develop a niosomal formulation that enhances the delivery of these compounds for improved skin care efficacy. Niosomes were prepared using the thin-film hydration method, employing non-ionic surfactants like Span 60 and cholesterol. Green tea extract, rich in polyphenols such as epigallocatechin gallate (EGCG), and rosehip oil, known for its vitamin C and essential fatty acid content, were incorporated into the vesicles. The formulated niosomes were characterized for their particle size, entrapment efficiency, zeta potential, and morphology using dynamic light scattering (DLS), transmission electron microscopy (TEM), and encapsulation studies. The niosomal formulation showed a particle size range of 100-200 nm with high entrapment efficiency (>85%) for both green tea extract and rosehip oil. The release studies demonstrated a sustained release profile, with more than 70% of the active compounds being released over 24 hours. The skin permeation test confirmed enhanced delivery of both the compounds. Hence, the niosomal formulation containing green tea extract and rosehip oil showed promising results in terms of stability, encapsulation efficiency, and controlled release, making it a potential candidate for anti-aging and antioxidant-rich skincare products.

Keywords: *Niosomes, Anti-Aging, Anti-Oxidant, Green Tea Extract, Rose Hip Oil, Span 60, Skin Permeation Test.*

Jogger's Nephritis Post-Pilgrimage: A Case of Hematuria in a Devoted Pilgrim

Presented by
Miss Manjari Tekumudi
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Jogger's Nephritis, or exercise-induced hematuria is an innocent condition documented in athletes with chronic exercise, including marathon running and long-distance walking. The first investigation into exercise-associated hematuria was done in the 18th century and has been attributed to several mechanisms, including renal ischemia and trauma to RBCs. Asymptomatic, nondiabetic, normotensive female patient aged 44 years who has been passing red-colored urine for 3 days. General examination showed normal vitals but presented with tenderness of lower limbs on urinalysis trace albumin and 8–10 RBCs/hpf along with isomorphic RBCs. Other studies such as serum creatinine, potassium, bilirubin, and imaging were within the normal limits. Hematuria resolved spontaneously in 96 hours after rest and no RBCs were found in urine on follow-up. Management of hematuria (if painful) can be managed with mild analgesics like acetaminophen, but NSAIDs should be avoided because of renal function problems. The patient's hematuria is likely via a mechanism of renal vasoconstriction, foot strike hemolysis, and trauma to the bladder by the repeated impact of long-distance walking. This is a description of Jogger's Nephritis after strenuous exercise. It is a benign self-limiting condition, and awareness of its benign nature can also help avoid too many unnecessary interventions as much to reassure patients about the favorable prognosis.

Keywords: *Jogger's Nephritis, Hematuria, Renal Ischemia, Normotensive, Isomorphic RBCs.*

Comparative Study of Different Superdisintegrants in Designing of Diclofenac Sodium Fast Disintegrating Tablets

Presented by
Mrs. Kamma Keerthi
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

The present research work was aimed to formulate Diclofenac sodium fast disintegrating tablets using different concentrations of super disintegrants and evaluate to compare prepared formulations. Diclofenac sodium, a non steroidal anti inflammatory drug with analgesic and anti inflammatory properties was selected as a model drug. Total 9 formulations were prepared using 3 different superdisintegrants such as Sodium starch glycolate, Guar gum and croscarmellose sodium by direct compression technique. Each superdisintegrant is used in 3 different increased concentrations. The pre compression parameters of the prepared tablet blend like angle of repose, bulk density, tapped density, Carr's index, and Hausner's ratio were determined. Post compression parameters for prepared tablet formulations like hardness, friability, weight variation, in vitro dispersion time and in vitro disintegration time were evaluated. Formulation (F9) with 6mg croscarmellose sodium shows low disintegration time. The optimized formulation F9 was found to be complying with all the properties of tablets.

Keywords: *Fast Disintegrating Tablets, Diclofenac Sodium, Croscarmellose Sodium, Crospovidone, Sodium Starch Glycolate.*

Formulation Development and *In-vitro* Evaluation of Fast Dissolving Oral Films of Domperidone Employing Super Disintegrants

Presented by
Dr. Venkateswarlu Kudipudi
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Recently, fast dissolving drug delivery system have started gaining popularity and acceptance as new drug delivery systems, because they are easy to administer and lead to better compliance. Fast-dissolving oral delivery systems are solid dosage forms, which disintegrate or dissolve within 1 min when placed in the mouth without drinking or chewing. Sodium carboxy methyl cellulose, polyvinyl alcohol, sodium alginate were selected as polymers, after pre-formulation studies polyvinyl alcohol selected as a best film polymer for domperidone films, glycerine as plasticizers, aspartame as sweetener and, anhydrous banana powder and sodium starch glycolate are used as a super disintegrants. The prepared films were evaluated further by different characterisation tests. Formulation was developed based on polymer concentration and super disintegrants in the concentration of 0.5:0.5% and 1:1% of anhydrous banana powder and sodium starch glycolate are crucial for low disintegration time. The prepared films are evaluated for thickness, weight variation, assay, surface pH, folding endurance, swelling index, disintegration time, *in-vitro* dissolution, release order kinetics (zero order and first order) were applied for optimized formulation F5, F6, F11 and, F12. Acceptable properties were obtained in the batch F5, F6, F11 and, F12 the *in-vitro* disintegration time was below 30 seconds. It was concluded that formulations F5, F6, F11 and, F 12 were found to be satisfactory batches and were optimized for the desirable properties.

Keywords: *Domperidone, Fast Dissolving, Super Disintigrants, Banana Powder, Sodium Starch Glycolate, Combined Polymers.*

Bionic Eye – Visual Prosthesis

Presented by
Dr. Boddeda Benarjee Veera Mani Kishore
Vignan Institute of Pharmaceutical Technology, Visakhapatnam, Andhra Pradesh, India.

Abstract

Bionic eye is an artificial electronic eye which provokes visual sensations in the brain by directly stimulating different parts of the optic nerve. The main purpose of bionic eye is to provide vision, partially to the visually challenged people by the use of modern-day electronic devices like charge coupled device (CCD) camera and bionic eye implant. The implant is a small chip that is surgically implanted behind the retina in the eye ball. However, it presents a novel idea of integrating a new approach of bionic eye with the nanogenerator. The nanogenerator is multifaced when compared to the external batteries providing better power, compactness and higher efficiency. Bionic eye represent a promising and rapidly advancing technology with the potential to restore vision and improve the quality of life for individuals with visual impairments. As the field continues to evolve, we can anticipate even greater breakthroughs in visual prosthetics, offering hope to countless individuals seeking to regain their sight.

Keywords: *Bionic Eye, Charge Coupled Device Camera, Bionic Eye Implant, Retinal Prosthesis.*

CRISPR CAS9: Targeted Genome Editing and How it can Change our Future

Presented by
Dr. P Aditi Naidu
Vignan Institute of Pharmaceutical Technology, Visakhapatnam, Andhra Pradesh, India.

Abstract

The first observation of CRISPR clustered repeats were discovered by Ishino in 1987. The first human CRISPR/CAS 9 trial was made in 2016. CRISPR are sections of genetic code containing short repetition of base sequences followed by spaces DNA segments. CRISPR is a revolutionary technique modified any region of the genome of that can be any species with high precision and accuracy without harming other genes. Formation of editing complex, pairing with the target gene, cutting the target DNA, inserting a new gene, production of the desired product. Significance includes deleting of gene, adding a gene, activation of dead gene, control gene activation. Scientists are experimenting with using CRISPR to engineer "gene drives" to spread specific genes through a population of insect pests that cause them to die or become infertile. Researchers are looking to CRISPR CAS9 as a technique for editing out genetic defects that result in sickle cell disease, cystic fibrosis, for developing more targeted and effective cancer treatment.

Keywords: *CRISPR CAS9, Target Genome Editing, Gene Drives.*

Nanoparticle-Based Antivenoms: A Novel Approach to Counter Snakebite Envenoming

Presented by
Miss Sanipini Sri Lakshmi
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Snakebite envenomation is a significant public health issue, responsible for numerous deaths and severe morbidity. The World Health Organization (WHO) has categorized it as a neglected tropical disease. This problem is particularly severe in rural India, where four major venomous snakes—the common cobra (Naja naja), common krait (Bungarus caeruleus), Russell's viper (Daboia russelii), and saw-scaled viper (Echis carinatus)—are the primary culprits behind most snakebite cases. Globally, snakebites affect approximately 2.5 million people annually, resulting in around 100,000 deaths, with India alone reporting 15,000 fatalities. This review highlights the potential of various nanoparticles (NPs), including hydrogel nanoparticles, Titanium dioxide NPs (TiO2-NPs), gold NPs (AuNP) conjugated with 2-hydroxy-4-methoxy benzoic acid (HMBA), Vitex negundo-conjugated gold NPs (VN-AuNP), Curcumin-conjugated gold NPs (C-GNP), silver NPs (AgNPs) synthesized from Dryopteris cochleate rhizomes, and alginic acid-based AgNPs, in neutralizing snake venom. These nanoparticles have demonstrated potential in preventing tissue damage, toxin spread, and organ toxicity. Further research is essential to explore the full potential of nanoparticles in treating snakebites and addressing the limitations of current antivenom therapies. If successful, nanoparticle-based treatments could revolutionize snakebite management, especially in resource-limited areas where access to ASV is scarce.

Keywords: *ASV, Anti Snake Venom, Nanoparticles, Gold Based Nanoparticles, Silver Based Nanoparticles, Venomous Snakes.*

Formulation and *In-vitro* Evaluation of Atorvastatin Calcium Liquisolid Tablets

Presented by
Dr. Madhavi Latha Samala
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

The study's major goal was to develop and test atorvastatin calcium (ATC) liquisolid tablets with various excipient ratios to improve aqueous solubility and thereby increase bioavailability. Three distinct liquisolid formulations F1, F2, and F3 of atorvasatin calcium (ATC) were created utilizing three different excipient ratios (5, 10, and 15) at a fixed liquid vehicle concentration of 20% w/w. Carrier and coating polymer concentrations were estimated using the excipient ratios and associated formulae. All formulations were examined for their pre-compression, post-compression, and *in-vitro* dissolving capabilities. The produced mixes for liquisolid tablets demonstrated good flow characteristics. The thickness of the compacted tablets ranged from 3.20 to 3.34 mm, with a hardness of 4.14 to 4.32 kg/sq.cm. When compared to other formulations, F1 demonstrated faster and more complete drug release within 60 minutes. The best formulation, F1, was compared to the standard directly compressed tablet formulation, F4. The findings of the study indicate that liquisolid formulation techniques have promising potential for the development of immediate and rapid drug release dosage forms.

Keywords: *Liquisolid Systems, Atorvastatin Calcium (ATC), Solubility Enhancement, Flowability, Drug Release.*

Phytosomal Drug Delivery Systems

Presented by
Dr. Sailaja Gunnam
Gokaraju Rangaraju College of Pharmacy, Hyderabad, Telangana, India.

Abstract

Phytosomal drug delivery systems have emerged as a novel approach to overcoming the limitations associated with the bioavailability and efficacy of phytochemicals. Phytochemicals, including flavonoids, terpenoids, alkaloids, and polyphenols, are known for their therapeutic potential in various disease conditions. However, their clinical application is often limited due to poor water solubility, instability, and low bioavailability. Phytosomes, which form a lipid-compatible molecular complex between phytochemicals and phospholipids, have been shown to significantly improve the absorption, stability, and bioavailability of these bioactive compounds. This review provides a comprehensive analysis of the advancements in phytosomal drug delivery systems, focusing on their formulation techniques, physicochemical properties, mechanisms of enhanced absorption, various preparation methods and their characterization. Furthermore, this review explores the therapeutic applications of phytosomes in the treatment of chronic diseases, such as cancer, cardiovascular diseases, inflammation, and liver disorders. Phytosomal drug delivery offers a promising avenue for enhancing the pharmacokinetic profiles of phytochemicals, improving their therapeutic potential.

Keywords: *Phytosomes, Phytochemicals, Drug Delivery, Bioavailability, Therapeutic Applications.*

In –Vitro Pharmacological Evaluation of Fresh Leaf Decoction of Psidium Guajava(Linn.) and Murraya Koenigii (Linn.) Spreng

Presented by
Miss P. Santhi
VV Institute of Pharmaceutical Sciences, Gudlavalleru, Andhra Pradesh, India.

Abstract

The increasing prevalence of maladaptive dietary habits has become a primary factor driving the rise of Diabetes mellitus—a hallmark disease of modern civilization. This chronic condition and its associated comorbidities, such as diabetic nephropathy, retinopathy, and neuropathy, impose significant health and economic burdens, ultimately diminishing the quality of life. Complementary and alternative medicine suggests that certain herbs may offer safe and effective therapeutic options, proposing them as gentle, natural alternatives to conventional medicine. Among these, Psidium guajava (guava) and Murraya koenigii (curry leaf) are reputed for their extensive applications in traditional medicinal systems, especially in treating respiratory ailments. Given this background, a systematic investigation of Psidium guajava and Murraya koenigii using established traditional drug screening methods may help translate the concept of dietary management of metabolic disorders into practical reality. This study aims to explore the pharmacological potential of these plants, providing foundational insights for the development of plant-based formulations that could complement modern therapeutic approaches to diabetes management.

Keywords: *Diabetes Mellitus, Maladaptive Diet, Diabetic Nephropathy, Diabetic Retinopathy, Diabetic Neuropathy, Complementary Medicine, Alternative Medicine, Psidium Guajava.*

Computational Tools in Drug Discovery

Presented by
Dr. Naga Bharathi Marni
Vignan Institute of Pharmaceutical Technology, Visakhapatnam, Andhra Pradesh, India.

Abstract

The drug discovery process has been significantly transformed through the integration of computational tools, which enhance the speed and precision of identifying viable therapeutic candidates. This systematic review offers a comprehensive overview of key computational methodologies used in drug discovery, including molecular docking, quantitative structure-activity relationship (QSAR) modeling, virtual screening, molecular dynamics simulations, and machine learning techniques. A systematic search was performed across multiple databases, including PubMed, Scopus, Web of Science, and Google Scholar, to identify relevant articles published between 2010 and 2023. The search terms included "computational tools in drug discovery," "molecular docking," "QSAR modeling," "virtual screening," "molecular dynamics," and "machine learning in pharmacology." Inclusion criteria focused on studies that emphasized computational methodologies, provided empirical data or case studies, and were published in peer-reviewed journals, while excluding reviews and studies lacking robust methodologies. The findings reveal that while computational tools have significantly advanced drug discovery, challenges in effective integration and data quality persist. Interdisciplinary collaboration among chemists, biologists, and data scientists is crucial for overcoming these challenges and maximizing the potential of computational approaches, ultimately streamlining the drug development process.

Keywords: *Drug Discovery, Molecular Docking, Computational Tools.*

Ameliorative Action of Passiflora Foetida on Non-Alcoholic Fatty Liver Disease: A Holistic Approach

Presented by
Dr. P. Veeresh Babu
Gokaraju Rangaraju College of Pharmacy, Hyderabad, Telangana, India.

Abstract

Non-alcoholic fatty liver disease (NAFLD) is the most common liver disease worldwide and the leading cause of liver-related morbidity and mortality. NAFLD is a condition caused by accumulation or build-up of fats in liver which is not due to heavy consumption of alcohol. The present study aims to evaluate the beneficial role of methanolic extract of Passiflora foetida in NAFLD. The GC–MS analysis of methanolic extract of Passiflora foetida detected the presence of 11 phytochemical compounds. The extract also showed prominent pancreatic lipase inhibitory activity and the IC50 value was comparable to that of the standard orlistat. HFHCC diet was used to induce NAFLD in mice, and the disease induced mice were treated with methanolic extract of Passiflora foetida at 200 and 400 mg/kg. The reduced levels of TC, TG, LDL, VLDL, AST and ALT and elevated levels of HDL in treatment groups demonstrated its anti-NAFLD potency and the effect of extract at 400mg/kg was comparable to that of the pioglitazone. In tetracycline induced NAFLD, extract significantly decreased TC, TG, LDL, VLDL, AST and ALT levels and elevated levels of HDL substantiating its anti-NAFLD potency. Histopathological examination of liver cells further corroborated the results obtained from the *in vivo* models. The study revealed the beneficial role of Passiflora foetida in non-alcoholic fatty liver disease which can be attributed to flavonoids, phenols, alkaloids present in the extract.

Keywords: *Passiflora foetida, NAFLD, HFHCC Diet, Tetracycline, Flavonoids, Alkaloids.*

Formulation and Evaluation of Amlodipine Sustained Release Microspheres

Presented by
Mrs. Prasanthi Teella
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

In the present study, we prepared amlodipine microspheres which is having long lasting effect without any side effects caused by immediate release dosage forms. Amlodipine microspheres are prepared by using sodium alginate polymers with different ratio. All microspheres were incorporated into pre and post compression studies. All the studies showed the results with Indian pharmacopoeia limits. In the present study, we prepared Amlodipine sustained release microspheres which are having long lasting effect with out any side effects caused by immediate release dosage forms. Amlodipine microspheres are prepared by using Sodium alginate, hydroxy propyl methyl cellulose, Carbopol polymers with different ratios. By using Sodium alginate polymer, F1;F2;F3 formulations were prepared. F4, F5, F6 formulations are prepared by Hydroxy Methyl cellulose. F7, F8, F9 formulations are prepared by Carbopol. All the microspheres were incorporated into pre and post compression studies (Bulk density, Tapped density, Hausner's ratio, Carr's index. All showed the results within the IP limits. Out of all the formulations F2 shows the best release.

Keywords: *Amlodipine, Microspheres, Compression Studies, Immediate Release Dosage Forms, Hydroxy Methyl Cellulose.*

Nanohybrids - A Brief Review and its Applications

Presented by
Mr. Kancharla Kameswararao
University College of Pharmaceutical sciences, Acharya Nagarjuna University, Namburu, Andhra Pradesh, India.

Abstract

Nanotechnology is a branch of science devoted to producing and using structures, devices & systems by manipulating atoms and molecules at the nanoscale, to a great extent in the last decades. It has several sizes, shapes, colours, and materials improving mechanical strength, thermal stability, optical properties, electrical conductivity, biocompatibility, customizable surface chemistry, and sustainability. Nanohybrids are classified into different types based on their parent material, the material used for nanohybrids, and the interaction between the two phases. Nanohybrids have a wide range of applications in various fields including photocatalysis, energy storage, designing of drug delivery systems for diagnosis treatment, enhanced bioavailability, and masking the bitter taste and fuel cells as a catalyst. Nanohybrids act as contrast agents for imaging like MRI, CT, X-ray, IR, NIR, and phototherapy & photodynamic therapy. Nanohybrids also play an important role in pandemic conditions to control and prevent transmission of virus to prepare of PPE, air filter masks & biomedical waste management. Nanohybrids are also helpful as mosquito larvicides and are also used in biomedical devices. Nanohybrids also have wound-healing properties by promoting tissue regeneration, improving tissue strength and elasticity. This review mainly focuses on nanohybrid characters, types and applications in various fields.

Keywords: *Nanohybrids, Hybrid Materials, Nanotechnology, Nanoparticulates.*

Advanced Nanotechnolgy Methods for the Analytical Characterisation and Monitoring of Abraxane

Presented by
Miss Sree Geetha Adathakula
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Abraxane a nanoparticle-bound formulation of Paclitaxel, has emerged as a breakthrough in cancer therapy due to its enhanced drug delivery, solubility and reduced toxicity. The complex nature of Abraxane's nanoparticles necessitates the use of advanced analytical techniques for its characterisation and evaluation. The present research focusses on application of nanotechnology based methods to analyse and monitor. The research also explores the role of nanotechnolgy in assessing the biodistribution and drug release profiles of Abraxane, providing critical data for optimizing its therapeutic efficacy, optimizing the dosing and minimising the side effects. In conclusion nanotechnology driven analytical techniques are crucial for the detailed characterisation and evaluation of Abraxane in pharmaceutical applications. These methods not only improve drug formulation analysis but also contribute to the development of more effective and personalised cancer treatment strategies, reinforcing the importance of nanotechnology in modern drug development and therapeutic monitoring. Moreover these methods are used to study that nanomaterials can be engineered to interact with specific drug molecules for their real time monitoring .

Keywords: *Abraxane, Paclitaxel, Nanotechnolgy, Sensitvity, Therapeutic Drug Monitoring, Nanosensors.*

Surveying Physical Literacy in 10-15 Year-Olds: A Gender-Based Comparative Study in Kakinada

Presented by
Dr. Pavan Kumar Yanamadala
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Physical literacy encompasses a person's capacity to participate in physical activities with assurance and skill over the course of their life. A six-month cross-sectional survey involved 220 students (112 males and 108 females) from various schools in Kakinada, India. Participants were assessed using the Canadian Assessment of Physical Literacy-2 scale, covering four domains: daily behaviour, physical competence, knowledge and understanding, and motivation and confidence. The sample was randomly selected, and data were collected using a pedometer and a questionnaire. The findings showed that physical literacy rates were 76.12% for boys and 68.31% for girls. Boys outperformed girls in all areas except knowledge and understanding, which were the weakest for both genders (59.34% for boys, and 52.57% for girls). In daily behaviour and physical competence, boys scored 68.14% while girls scored 71.19%. Girls also demonstrated lower engagement in physical activities due to social, environmental, and biological factors. The research found that while boys generally showed higher physical literacy, girls faced significant disadvantages in knowledge and comprehension. To improve physical literacy among girls, targeted interventions are needed to address these gaps. Additionally, addressing societal and environmental barriers can help reduce the gender divide and promote more active lifestyles for all children.

Keywords: *Physical Literacy, School Children, Gender Differences, Physical Competence, Motivation, Knowledge.*

Formulation and Evaluation of Antiviral Drug Sofosbuvir Microspheres for Capsule System

Presented by
Dr. S Satyalakshmi
Vignan Institute of Pharmaceutical Technology, Visakhapatnam, Andhra Pradesh, India.

Abstract

This study aimed to develop and evaluate a microencapsulated sofosbuvir formulation for delivery within a capsule. For this purpose, the emulsion solvent evaporation method was used. An organic phase, comprising a volatile solvent, a dissolved polymer (HPMC) and an encapsulated drug, forms an emulsion which is subsequently emulsified in an aqueous phase. HPMC as the polymer retards drug release, while ethyl cellulose facilitates controlled drug release. Through SEM imaging, the microscopic size and shape of the particles were evaluated. The yields of all formulations (F1-F6) varied between 76.41% and 81.63%. Formulation F3 showed the highest entrapment efficiency at 78.55% while the overall efficiency ranged between 69.67% and 78.55%. Flow properties and other characteristics of the material were evaluated through pre-compression studies. F3 released 90.45% of the drug within 12 hours. The SEM images revealed uniform and spherical microspheres from the optimized formulation. According to the Higuchi model, the optimized formulation exhibited zero-order release kinetics with non-Fickian diffusion behavior. The optimized formulation exhibited suitable flow properties, as established through assessments, for capsule filling, while the resulting capsules passed official specifications. The use of the specific polymer significantly enhanced the microspheres' flow properties and facilitated the prolonged release of sofosbuvir.

Keywords: *Microspheres, Sofosbuvir, Capsule, Controlled Release, Anti-Viral Drug.*

Study on Women with the Polycystic Ovary Syndrome and their Health Related Quality of Life

Presented by
Miss Velisetti Kranthi Swaroopa
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Polycystic Ovary Syndrome (PCOS) is a hormonal disorder affecting 4-12% of reproductive-aged women, leading to menstrual irregularities, hyperandrogenism, and metabolic complications. The main objective of this study is to assess the health-related quality of life (HRQOL) in women with PCOS and explore its correlation with clinical manifestations, treatment outcomes, and emotional well-being. A prospective observational study was conducted at GSL General Hospital and Medical College, Rajahmundry, involving 100 PCOS patients diagnosed using Rotterdam criteria. Data was collected through questionnaires, patient case sheets, and laboratory tests. The study revealed significant impacts on HRQOL, including emotional struggles (56%), irregular menstruation (87%), hirsutism (18%), and weight concerns (64%). Treatment regimens, including metformin and hormonal contraceptives, improved symptoms and quality of life. Our findings correlate with existing literature highlighting PCOS's negative impact on HRQOL, particularly emotional well-being. Early diagnosis, comprehensive treatment, and emotional support are crucial for improving quality of life in PCOS patients. PCOS significantly affects women's physical and emotional health. Multidisciplinary management strategies and support systems are essential to enhance HRQOL and mitigate long-term health risks.

Keywords: *Polycystic Ovary Syndrome, Health-Related Quality of Life, Hormonal Imbalance, Menstrual Irregularities, Hyperandrogenism, Metabolic Complications.*

Improving the Penetration Ability of Poorly Permeable Drug by Vesicular Drug Delivery System- Cubosomes

Presented by
Mrs. Sesha Sai Durga Manyam
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

The objective of present research work is aimed to enhance the permeability of poorly permeable class-III drug like fexofenadine HCl. cubosomes are novel lipid based vesicular drug delivery systems similar to liposomes and niosomes. In the present study, glyceryl mono oleate was selected as a lipid and pluronics -127 was taken in three different ratios to formulate various formulations (F1,F2,F3) of cubosomes loaded with drug fexofenadine HCl. Three different formulations of cubosomes were prepared by top-down method. All formulations were characterized for various evaluation studies like particle size, zeta potential, entrapement efficiency and *in vivo* drug release studies. From the above evaluation studies the optimized formulation was selected. Ex-vivo skin permeation studies were carried out for the optimized formulation. From the results of all the evaluation studies and ex-vivo skin permeation studies it was concluded that cubosomes are the promising technique for enhancing the permeation of class- III drugs like fexofenadine.

Keywords: *Cubosomes, Vesicular Drug Delivery, Glyceryl Monosterate, Fexofenaidne.*

Antibiotics: A Medical Revolution Under Threat from Resistance

Presented by
Miss A.B.S.D. Padma Sri
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Since their discovery in the early 20th century, antibiotics have transformed medicine, saving millions of lives by effectively treating bacterial infections. However, this progress is now at risk due to the alarming rise of antibiotic resistance. The misuse and overuse of these drugs, combined with the remarkable adaptability of bacteria, have accelerated the development of resistant strains, creating a significant global health challenge. This review traces the origins of antibiotics and examines how bacterial resistance has emerged and evolved. The rise of resistant infections carries serious consequences longer hospital stays, increased mortality rates, and soaring healthcare costs. It is estimated that antibiotic-resistant infections already cause around 700,000 deaths annually, with this number projected to rise unless urgent action is taken. Tackling this crisis requires a multifaceted approach. Drug repurposing identifying new uses for existing drugs offer a practical and cost-efficient avenue to accelerate the development of new treatments. Simultaneously, discovering novel drug targets and refining current therapies can strengthen the fight against resistance. This review underscores the need for robust research, global collaboration, and innovative solutions to restrain antibiotic resistance and protect public health for future generation.

Keywords: *Antibiotic Resistance, Novel Drug Targets, Innovative Solution.*

Applicability of Tragacanth in the Design of Hydrochlorothiazide Floating Tablets

Presented by
Dr. J. Anu Pravallika
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

The creation of oral sustained-controlled release formulations aims to gradually release the drug in the gastrointestinal tract, ensuring a sustained and effective drug concentration in the systemic circulation over a prolonged duration. Hydrochlorothiazide is a thiazide-type diuretic with short half-life selected as model drug for this study. The main aim of the present study was to evaluate the applicability of tragacanth (natural polymer) in the design of gastric floating tablets of hydrochlorothiazide by direct compression method and the efficiency of this polymer is compared with already established synthetic polymer, carbopol 934. The prepared tablets underwent evaluation for drug and excipients compatibility using FTIR studies, precompression and post compression parameters, buoyancy studies and *in-vitro* drug release studies. The FTIR analysis revealed no evidence of physical or chemical interaction between the drug and excipients. The precompression parameters were deemed suitable for formulation development, and post compression parameters were found to be within acceptable limits and satisfactory. Among all the formulations prepared with tragacanth, 1:1.75 drug : polymer ratio (HZT5) exhibited sustained release over a period of 6 hours when compared with synthetic polymer carbopol 934 with the same ratio. Hence, these gastric floating systems containing tragacanth polymer may be a valuable alternative over the conventional systems.

Keywords: *Gastric Floating Tablets, Hydrochlorothiazide, Tragacanth, Carbopol 934, Direct Compression Method.*

Pharmacological Evaluation of a Plant Extract Against Scopolamine Induced Dementia of Alzheimer's Type in Wistar Rats

Presented by
K.V. NagaLakshmi
VJs College of Pharmacy, Rajahmundry, Andhra Pradesh, India.

Abstract

One of the most common cause of dementia is Alzheimer's disease. The word dementia include symptoms like memory loss, difficulties in thinking, problem-solving or language, decrease in social activity. None of the treatments available today for Alzheimer's disease stops the malfunction and death of neurons in the brain that cause Alzheimer's symptoms. In traditional use of medicine, many plants are available to treat the symptoms of Alzheimer's. Grass extract which belongs to family of Poacea, is proved for having anti anxiety, anti oxidant, antiinflammatory etc. The present study was designed to evaluate the protective effect of Plant extract against Scopolamine induced Alzheimer's type dementia in Albino wistar rats. Alzheimers type dementia was screened by observing behavioural parameters using actophotometer (locomotory activity), morris Water Maze (spatial learning), y maze (exploratory behaviour) and biochemical estimations such as catalase, glutathione, acetyl cholinesterase, malondialdehyde. The plant extract has shown that the decrease in the symptoms of Alzheimer's type dementia by ameliorating locomotory activity, spatial learning, exploratory behaviour and increased antioxidant enzyme levels in the brain.

Keywords: *Actophotometer, Morris Water Maze, Y Maze, Catalase, Acetyl Cholinesterase, Glutathione, Malondialdehyde.*

Formulation and Characterisation of Mucoadhesive Buccal Films by Employing Natural Polymers

Presented by
Mrs. Arumilli Swetha
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Buccal drug delivery systems present a prospective avenue for the administration of drugs to the buccal mucosa for the treatment of oral diseases, as well as for systemic distribution through mucosal absorption into the systemic circulation at a regulated and preset rate. Therapeutic drugs are absorbed through the oral mucosa, which increases systemic bioavailability by preventing active drug loss from first-pass hepatic metabolism and early drug breakdown caused by gastrointestinal tract pH and enzyme activity and it provides effective therapy to patient groups unable to swallow or with swallowing difficulties. Additionally, unlike the sublingual route and tablets the buccal mucosa allows a prolonged retention of a dose form, particularly with the application of mucoadhesive polymers and of multiple layers of the dosage form, without greatly interfering with functions like speech or mastication. Natural polymers have recently gained importance in pharmaceutical field by enhancing the dosage form's contact time and residence time with the mucous membrane. Buccal films can be formulated by using natural polymers like sodium alginate, guar gum, tragacanth, karaya gum, gelatin, pectin, chitosan. Films can be prepared by solvent casting method, hot melt extrusion, inkjet printing and three-dimensional printing. Buccal films should be characterised for physical appearance, thickness, swelling index, folding endurance, surface pH, percentage moisture absorption, mucoadhesive strength and invitro drug release studies.

Keywords: *Buccal Films, First-Pass Effect, Natural Polymers, Mucous Membrane, Characteristion.*

Advanced Hyphenated Analytical Techniques for Modern Pharmaceutical Analysis and Quality Control

Presented by
Mrs. Vinny Therissa Mangam
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Hyphenated analytical techniques have revolutionized pharmaceutical analysis by combining the separating power of chromatography with the identification capabilities of spectroscopic methods. Modern developments in LC-MS/MS technology offer enhanced sensitivity and selectivity for complex pharmaceutical matrices, facilitating simultaneous analysis of multiple components. The implementation of two-dimensional liquid chromatography (2D-LC) coupled with mass spectrometry has addressed the challenges of analyzing complex pharmaceutical formulations and biological samples. Advanced data processing algorithms and artificial intelligence integration have enhanced the interpretation of complex spectral data. These hyphenated techniques have found extensive applications in drug development, stability studies, metabolite identification, and quality control processes. The combination of chromatographic separation with multiple detection systems has become indispensable in meeting regulatory requirements for pharmaceutical analysis. Continuous improvements in instrument design, automation, and data processing capabilities are driving the evolution of hyphenated techniques toward greater accuracy, sensitivity, and throughput in pharmaceutical analysis.

Keywords: *Hyphenated Techniques, Mass Spectrometry, Chromatography Coupling, Pharmaceutical Analysis, Spectroscopic Detection.*

Nosocomial Infections and Antimicrobial Resistance: An Evaluation from a Tertiary Care Hospital in Kakinada

Presented by
Miss Hepzibah Rani Gidla
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

The increasing incidence of nosocomial infections (NIs) presents significant challenges within the healthcare sector, particularly in light of the escalating issue of antimicrobial resistance (AMR). A retrospective cross-sectional study spanning six months (March-September 2024) was performed, involving patients diagnosed with NIs. Out of 310 samples, UTIs were the most frequently observed (47.83%), followed by Sepsis (38.47%) and Pneumonia (18.54%). Gram-negative bacteria were predominant (65.25%), with Citrobacter spp. (31.54%), Escherichia coli (29.54%), and Klebsiella spp. (15.67%) identified as the leading pathogens. Among Gram-positive bacteria, Enterococcus spp. was the most common (15.54%), while methicillin-resistant Staphylococcus aureus (MRSA) and vancomycin-resistant Enterococcus (VRE) were found at rates of 15.87% and 65.14%, respectively. Notably, carbapenem resistance was detected in 65.9% of Citrobacter spp., 47.3% of E. coli, and 41.45% of Klebsiella spp., with 3.88% of Citrobacter spp. and 24% of Klebsiella spp. classified as extensively drug-resistant (XDR). The significant prevalence of carbapenem-resistant Enterobacteriaceae and the high rates of VRE highlight the urgent necessity for rigorous antibiotic stewardship and improved infection control strategies to mitigate the proliferation of resistant pathogens.

Keywords: *Antimicrobial Resistance, Nosocomial Infections, Gram-Negative Bacteria, VRE, MRSA, Carbapenem-Resistant Bacteria.*

Design and Insilico Screening of Azitidinone and Thiazolidinone Hybrids of Niacin Hydrazide for Anti-Tubercular and Anti-Cancer Activities

Presented by
Dr. Ponnam Chiranjeevi
Vignan Institute of Pharmaceutical Technology, Visakhapatnam, Andhra Pradesh, India.

Abstract

The present research involves design and insilico screening of azitidinone and thiazolidinone hybrids of niacin hydrazide for their potential anti-tubercular and anti-cancer activities. All the twelve ligands showed better binding score then the drug Imepenam (IMP) taken for comparison in insilico screening for Anti-tubercular activity. Eleven ligands except the ligand TH01(Thiazolidine derivative without any substitution) have shown better binding energies then the drug Erlotinib (ETB) taken as standard for comparison in insilico screening against for anti-cancer activity. One ligand have three common amino acids GLN A:317, ALA A:99, LEU A:316 in protein 3UPN interacting with drug imipenem. Similarly, six ligands have more than three common amino acids each in the protein structure 4HJO interacting with the drug erlotinib suggesting that these ligands would have same mechanism of action as that of erlotinib, five ligands have binding score more than the standard drug Erlotinib. Future work may involve synthesizing and testing the selected candidates invitro and invivo to validate their efficacy and safety profiles. This approach offers a cost-effective and efficient strategy for prioritizing compounds for further experimental validation, thereby accelerating drug discovery efforts in combating these significant global health challenges.

Keywords: *Azitidinone, Thiazolidinone, Anti-Cancer Activity, Anti-Tubercular Activity, 4HJO, 3UPN, Molecular Docking.*

Innovative Approaches to Green Synthesis: Enhancing Pharmaceutical Development through Sustainable Chemistry

Presented by
Ms. Shital Sampat Sangale
Assistant Professor, SSWPS, Chandrabhaga College of Pharmacy, Katphal Baramati, Pune-Dist, Maharashtra, India.

Abstract

The pharmaceutical industry is increasingly recognizing the importance of sustainable practices in response to environmental challenges and regulatory pressures. This research explores innovative approaches to green synthesis, focusing on how sustainable chemistry can enhance pharmaceutical development. By emphasizing principles such as atom economy, waste reduction, and the use of renewable resources, we investigate novel synthetic methodologies that minimize ecological impact while maintaining drug efficacy. Key strategies include the application of biocatalysts, the development of solvent-free reactions, and the utilization of microwave-assisted synthesis to improve energy efficiency. Case studies highlight successful implementations of these approaches in real-world pharmaceutical contexts, demonstrating significant reductions in environmental footprints and operational costs. Furthermore, we discuss the integration of life cycle assessments in the early stages of drug development; ensuring sustainability is a foundational consideration. This research aims to provide a comprehensive framework for adopting green chemistry in pharmaceutical synthesis, ultimately contributing to a more sustainable future in drug development.

Keywords: *Green Synthesis, Sustainable Practices, Biocatalysts, Solvent-Free Reactions.*

Bio-Active Herbal Cream With Nanoparticles: Assessing its Potential for Skin Health and Inflammation Management

Presented by
Dr. K Swathi Priya
Srinivasa Rao College of Pharmacy, Visakhapatnam, Andhra Pradesh, India.

Abstract

The primary aim of this research was to evaluate the potential of active constitutes of a polyherbal extract containing Lagerstroemia speciosa (Banaba), Moringa oleifera seeds, and organic Mussaenda and to develop a natural polyherbal cream formulation enriched with titanium dioxide nanoparticles. This formulation seeks to optimize the yield of bioactive compounds that contribute to antioxidant, anti-inflammatory, and antimicrobial activities, ultimately creating a safe and effective topical product for managing oxidative stress, inflammation, and microbial infections. Phytochemical screening was performed to evaluate the presence of active constituents. The extraction process yielded concentrated extracts rich in bioactive compounds, which were subjected to various *in-vitro* assays to evaluate their antioxidant, anti-inflammatory, and antimicrobial properties. The incorporation of TiO_2 nanoparticles is anticipated to enhance the cream's protective capabilities against UV radiation while potentially improving the delivery of the herbal extracts.. Two methods were studied to estimate the anti-inflammatory power which showed a clear picture revealing the effects on inflammation. Future research is proposed to explore the underlying mechanisms of action, optimize formulation techniques, and assess the broader therapeutic applications of the cream.

Keywords: *Lagerstroemia Speciosa, Moringa Oleifera Seeds, Organic Mussaenda, Anti-Inflammatory, Anti Oxidant, Anti-Microbial, Polyherbal, Formulation.*

Development and *In-vitro* Assessment of Zoledronic Acid Buccal Patches

Presented by
Dr. Madhavi Latha Samala
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Zoledronic acid (ZA) is a BCS class IV medication that serves as a bone resorption inhibitor with a low bioavailability of 5%, making it an excellent choice for buccal delivery. The purpose of this study is to develop and characterize oral mucoadhesive buccal patches containing zoledronic acid in order to improve medication permeability and bioavailability. Eight distinct formulations were created utilizing varying percentages of the polymers guar gum, xanthan gum, and HPMC. Polymer solutions in isopropyl alcohol were mixed with methanolic ZA solutions using a magnetic stirrer at 3000 rpm for 5 minutes in the presence of PEG as a plasticizer and Tween 80 as a surfactant until a semisolid consistency was achieved. The resulting mixture was cast in Teflon-coated glass molds. Physicochemical parameters include surface pH, swelling index, percent moisture absorption, folding endurance, patch thickness, *in-vitro* drug release studies and *in-vitro* mucoadhesion properties were evaluated. All the formulations exhibited acceptable physicochemical properties and the formulations prepared using xanthan gum 2% showed gradual and controlled *in-vitro* drug release pattern when compared to others. In conclusion, zoledronic acid can be delivered by buccal patch employing xanthan gum as controlled release and mucoadhesive polymer successfully.

Keywords: *Zoledronic Acid, Buccal Patch, Xanthan Gum, Guar Gum, HPMC, In-Vitro Drug Release, In-Vitro Muco Adhesion.*

Chronotherapy and Personalized Care: A New Frontier in Precision Medicine

Presented by
Dr. Rajeswari Aleti
Gokaraju Rangaraju College of Pharmacy, Hyderabad, Telangana, India.

Abstract

Chronotherapeutics in personalized medicine represents a transformative approach that integrates the body's circadian rhythms with individualized treatment strategies to optimize therapeutic outcomes. Biological processes such as hormone secretion, metabolism, and immune function follow circadian cycles, influencing the efficacy and toxicity of medications. Cardiovascular treatments, such as antihypertensives and statins, have demonstrated superior outcomes when administered based on the patient's circadian blood pressure and cholesterol patterns. The approach also shows promise in diabetes management, where insulin sensitivity and glucose metabolism fluctuate throughout the day. Personalized chronotherapeutics combines circadian biology with patient-specific data, including genetic markers, sleep patterns, and lifestyle factors, to tailor medication schedules. Emerging technologies, such as wearable devices and smart drug delivery systems, enable real-time monitoring and adjustment of treatment timing, further enhancing precision medicine. The integration of chronotherapeutics into personalized medicine not only maximizes drug efficacy but also minimizes adverse effects, improving overall patient outcomes. Ongoing research and technological innovation are essential for overcoming challenges related to individual circadian variability and practical implementation, paving the way for more effective, time-tailored therapeutic interventions.

Keywords: Chronotherapeutics, Hormone Secretion, Metabolism

Formulation Development and Evaluation of Lipsticks Using Natural Edible Colorants

Presented by
Mrs. Kamma Keerthi
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

The main aim of the present research work is to formulate lipsticks by using natural edible colorants from vegetable sources and evaluate them. In this study, 5 formulations are finalized after too many trials. Coloring matter was extracted from natural sources such as carrot, beetroot, turmeric and cocoa. Other natural ingredients such as beeswax, carnauba wax, cetyl alcohol, white soft paraffin, vanilla essence and vitamin-E were used. Coconut oil, almond oil, and castor oil were tried in different combinations. Prepared lipsticks were evaluated for surface anomalies, aging stability, skin irritation test, color of the lipstick, melting point, hardness, spread ability and breaking point. From the results of evaluation test it was concluded that the formulation using castor oil and coconut oil blend with curcumin colorant (f4) was found to be the optimal formulation because of its color retention and stability likewise, even all the formulations also exhibited satisfactory results, but when compared with all the formulations f4 formulation exhibited good results.

Keywords: *Herbal Lipstick, Edible Colorant, Natural Ingredient, Formulation, Evaluation.*

Investigating the *In vivo* Anti-Amnesic Property of Ethanolic Leaf Extract of Ocimum Sanctum

Presented by
Miss Kodi Gnaneswari
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

The current investigation aims to research the anti-amnesic activity of Ocimum sanctum leaf extract which possess anti-amnesic activity against stress induced amnesia, learning and memory enhancing activity. Cook's pole climbing apparatus was used to determine this activity. It aids in determining both the animal's conditioned avoidance response (CAR) (climbing the pole after a buzzer with significant training, i.e., declarative training) and unconditioned response (climbing the pole after applying foot shock, i.e., procedural learning). Learning and Memory was evaluated by checking the transfer latency using Y-maze. The orally administered extract of Ocimum sanctum showed an increase in the number of CAR in less days and time due to the increase of acetylcholine content and thus improving the nootropic action in amnesia induced animal models. The current study provides scientific evidence in favour of the anti-amnesia activity of Ocimum sanctum leaf extract in treatment of amnesia.

Keywords: *Ocimum Sanctum, Cook's Pole Climbing Apparatus, Y-Maze, Conditioned Avoidance Response (CAR), Nootropic.*

Validation of UPLC-PDA Stability Indicating Method for Quantification of Antiviral Drugs in Fixed Dose Combination

Presented by
Dr. Divya Narla
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

The present research was focused on development of a validated stability indicating method for simultaneous quantification of Sofosbuvir, Velpatasvir and Voxilaprevir in bulk and tablet dosage form using UPLC. The separation of analytes was achieved on C18 BEH column (100×2.1mm, 1.7µm), with mobile phase consisting of phosphate buffer and acetonitrile in the ratio of 65:35v/v at a flow rate of 0.2ml/min. PDA detector was used to detect analytes at 265nm. The developed method was validated according to ICH guidelines. The method was linear over the concentration range of 100 - 600µg/ml for Sofosbuvir, 25 - 150µg/ml for Velpatasvir and Voxilaprevir. The retention times were found to be 0.908, 1.191 and 1.739 mins for Sofosbuvir, Velpatasvir and Voxilaprevir respectively. The % RSD values for precision (Repeatability), accuracy and robustness were complying with limits. The LOD and LOQ were found to be 0.76 & 2.30 for Sofosbuvir, 0.61 & 1.85 for Velpatasvir and 0.49 & 1.47 for Voxilaprevir. Forced degradation was done on analytes under the conditions of acid, alkali, peroxide, thermal, UV and water. The results obtained were within limits and the analytes are detected without any interference from degradants. The method was successfully applied for the assay of VOSEVI tablets. Thus, the developed method allows the quantification of Sofosbuvir, Velpatasvir and Voxilaprevir in bulk and tablets even in the presence of degradants.

Keywords: *Sofosbuvir, Velpatasvir, Voxilaprevir.*

Emergent Roles of Cuproptosis and Ferroptosis in Wilson Disease: Molecular Pathways and Clinical Consequences

Presented by
Miss Bommeti Sara Aiswarya
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Wilson's disease, also known as hepatolenticular degeneration, is a congenital metabolic disorder rarely marked by elevated levels of copper in the body, directly in the liver and the brain, and it is life-threatening over time. Such an abundance of copper causes overproduction of reactive oxygen species (ROS) and cuproptosis that can kill the cells. Furthermore, elevated hepatic iron stores may lead to iron-mediated apoptosis by triggering phospholipid peroxidation in mitochondrial membranes and eventually causing ferroptosis, the accumulation of sulfur-rich organelle membranes. Inherited defective or absent ATP7B protein leads to impaired biliary excretion of copper and, thus, copper accumulation in the liver. Several clinical features are characteristic of Wilson disease (in parentheses); depression, psychosis, dysarthria, ataxia, writing difficulty, neuropsychiatric, dysphagia, renal tubular failure, Kayser–Fleischer corneal rings, cardiomyopathy and cardiac arrhythmias, rhabdomyolysis, osteoporosis, osteomalacia, osteoarthritis, and arthralgia. Wilson's illness is diagnosed by the modified Leipzig scoring system and the first therapy of choice is copper chelating agents like D-penicillamine. Prognosis is better when chelation treatment is prompt and liver transplantation is a treatment of last resort for advanced liver disease with intractable complications or sudden liver failure. Finally and most importantly, Wilson's disease is a multifactorial genetic disorder and as much a challenge at the levels of both its molecular and clinical diagnosis.

Keywords: *Wilson's Disease, Cuproptosis, Ferroptosis, Kayser Fleischer Corneal Rings, Rhabdomyolysis, Cardiomyopathy.*

Development and Evaluation of Taste Masked Formulation of Piroxicam

Presented by
Mr. Hemantkumar Laxman Bhosale, Dr. Harshal Ashok Pawar.
Mansarovar Global University, Billkisganj, Sehore, Bhopal, Madhya Pradesh, India.

Abstract

Piroxicam, a potent nonsteroidal anti-inflammatory drug (NSAID), is widely used for the management of various inflammatory conditions. However, its bitter taste poses a significant challenge for patient compliance, particularly in pediatric and geriatric populations. In this study, we aimed to develop and evaluate a taste-masked formulation of piroxicam to enhance patient acceptability and adherence. Using a combination of taste-masking techniques including complexation, microencapsulation, and flavoring, we prepared several formulations of piroxicam. The optimized formulation demonstrated a significant reduction in bitterness while maintaining drug content and dissolution characteristics comparable to the unmasked drug. Sensory evaluation revealed improved palatability and acceptability of the taste-masked formulation compared to the unmasked drug. In conclusion, the developed taste-masked formulation of piroxicam presents a promising approach to overcome the taste aversion associated with this medication, potentially enhancing patient compliance and therapeutic outcomes, especially in vulnerable patient populations. Further studies including *in vivo* pharmacokinetic and pharmacodynamic evaluations are warranted to validate the clinical efficacy and safety of the formulated product.

Keywords: *Taste Masking, Piroxicam, Coating Techniques, Oral Dosage Forms, Patient Compliance.*

Menstrual Hygiene and Health-Seeking Behaviour among Medical Undergraduates: Addressing Knowledge and Practice Gaps

Presented by
Miss Lalitha Maheswari Dandipati
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Menstrual health is a vital public health issue, especially in developing countries where cultural stigmas, limited access to sanitary products, and poor hygiene practices exist. Understanding the knowledge and practices of prospective healthcare professionals regarding menstrual hygiene is essential to improve menstrual health management (MHM) and health outcomes. This cross-sectional study involved 236 female medical students at Aditya Pharmacy College in Surampalem, Andhra Pradesh, from June to September 2024. Data were collected using a structured questionnaire via Google Forms, covering socio-demographic characteristics, menstrual hygiene practices, health-seeking behaviours, and the environmental impact of menstrual products. Statistical analysis was performed using SPSS version 20.0. Among the participants, 95.1% received menstruation education, and 92.1% discussed it with their mothers. While 95.7% were open to seeking medical help for menstrual issues, 39.4% missed college classes due to symptoms. Most (98.4%) used disposable pads, but only 10.5% were aware that menstrual cups can be reused for 5 to 6 years. The research highlights deficiencies in menstrual hygiene practices, particularly in hand washing and menstrual product disposal. Educational initiatives on menstrual hygiene, environmental impacts, and sustainable alternatives are essential. Improving access to healthcare and sanitary facilities enhances menstrual health management (MHM), resulting in better health outcomes and greater gender equality.

Keywords: *Menstrual Hygiene, Undergraduate Students, Dysmenorrhea, Health-Seeking Behaviour, Sustainable Menstrual Products.*

Nano Emulsions - A Review

Presented by
Miss Ummuri Bhavani
Vignan Institute of Pharmaceutical Technology, Visakhapatnam, Andhra Pradesh, India.

Abstract

To overcome the difficulties associated with conventional drug delivery systems, an innovative and effective drug delivery has been created. Nano-emulsions, which are emulsions produced in nanoscales to enhance the administration of active medicinal components, are one of these drug delivery technologies. Any medicine can be made into a nano-emulsion systems, which has a greater surface area and better energy exchange and is a more effective way to distribute drugs. They made into thermodynamically stable systems by incorporating an emulsifying agent like a surfactant and a co-surfactant, that combine two immiscible liquids into a single phase. Nano-emulsions possess particle size in nanometers ranging from 20 to 200 nm. The properties of emulsion like size and shape of the particle scattered in the continuous phase separates the emulsion from a nanoemulsion. Nano emulsions are used often in the sectors of medicine, food industry, cosmetics, agriculture, and other industries that require effective means or vehicles for protection. This review mainly deals with the concepts of formulation involved in nano-emulsion, preparation methods, characterization, evaluation procedure for prepared nano emulsions, and their immense applications in various fields.

Keywords: *Nanoemulsions, Drug Delivery, Emulsions, Applications.*

Mesenchymal Stem Cells (MSCS) in Veterinary and Regenerative Medicine: A Review

Presented by
Miss Sri Harshitha Manchala
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Recent advancements in stem cell research have opened new possibilities for treating diseases and conditions that currently lack effective treatments. Stem cells are unique in their ability to differentiate into various cell types, helping to replace damaged or aging cells in the body. Mesenchymal stem cells (MSCs), which can be easily extracted from adipose tissue and expanded in laboratory settings, have emerged as a promising tool for tissue repair and regeneration. MSCs have been widely used in animal studies and clinical trials, showing potential for cell-based therapies. This review aims to summarize the current knowledge about stem cells isolated from various animal models, including horses, pigs, goats, dogs, rabbits, cats, rats, and mice. Given the increasing focus on MSCs, this review will also discuss their use in veterinary medicine and regenerative therapies. MSCs have shown promise in treating conditions like heart failure, wound healing, and tooth regeneration.

Keywords: *Mesenchymal Stem Cells (MSCS), Animal Models, Cell-Based Therapy, Regenerative Medicine.*

Nanomedicine: Advancing Healthcare with Innovative Smart Pills

Presented by
Mrs. B.Hema Kiranmayi
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Nanomedicine is revolutionizing healthcare with its use of nanotechnology to develop sophisticated medical tools such as "smart pills". These nanoscale electronic devices, designed like pharmaceutical tablets, perform advanced tasks like drug delivery, sensing and imaging. Innovations include dose-tracking pills and the "Pill Cam", equipped with a miniature video camera. The "Atmo Gas Capsule" analyses gut gases to detect abnormalities, diagnose gastrointestinal disorders and monitor-diet-related issues. MIT's "Smart Sensor Capsules" eliminate the need for stomach injections by unfolding and attaching to organs, tracking vital signs and releasing pre-loaded medications. Such advancements highlight nanotechnology's potential to enable real-time treatment and data collection, transforming science fiction into reality. Nano medicine not only promises to improve diagnosis and treatment but also offers personalized medicine options. Smart pills can target specific areas within the body, reducing side effects and increasing the efficacy of treatments. Additionally, these capsules can monitor patient compliance, ensuring that medications are taken as prescribed. The integration of such technology in healthcare lead to early detection of diseases, better management of chronic conditions and overall improved patient outcomes. With continuous advancements, nanomedicine is set to play a crucial role in the future of healthcare making medical treatments more precise, less invasive and highly effective.

Keywords: *Smart Pill, Smart Sensor Capsules, Precise, Dose-Tracking.*

Formulation and Characterisation of Herbal Nanoemulgel for Wound Healing Activity Using Punica Granatum and Jojoba Oil

Presented by
Mrs. Arumilli Swetha
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

The innovative technology made by converting nano-emulsion to nano-emulgel enhances stability and permits for both immediate and controlled release drug delivery. Nano-emulgel has also gained more attention because of its safety profile, convenience of use, lack of gastrointestinal breakdown or first-pass metabolism. Since ancient times, plant-based remedies have been used to heal a wide range of human illnesses. Therefore, the assessment of herbal plants' potential for creating novel dosage forms has led to the treatment of a number of illnesses. Therefore, the primary goal of this work was to formulate a topical emulgel using jojoba oil and Punica granatum herbal extracts because these extracts have the ability to treat wounds. Punica granatum peels were first extracted using the maceration method with ethanol solvent, and then the extract was purified using column chromatography with n-hexane solvent. Based on the solubility and emulsification ability, different nanoemulsion components (Oil, Surfactant and Co-surfactant) were selected. The nanoemulsion was prepared using high pressure homogenisation technique. Carbopol 934 was added to transform nanoemulsion into nanoemulgel. Then it was characterized and evaluated for pH, particle size, physical appearance, viscosity, spreadability, TEM, drug content, diffusion study, release kinetics, and stability studies. The physical characteristics, homogeneity, consistency, spreadability, viscosity, and pH value of all the prepared formulations were satisfactory.

Keywords: *Nanoemulgel, Punica Granatum, Jojoba Wound Healing, Extraction, Homogenization.*

Elevated Creatine Kinase due to Potential Drug Interaction with Ticagrelor and Atorvastatin

Presented by
Miss Pushpa Satya Mahalakshmi Sanivarapu
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

The two drugs commonly used in the management of acute coronary syndrome and percutaneous intervention are ticagrelor and atorvastatin. This case report is about a patient with the potential for having a drug interaction that would necessitate alternative care. Pharmacokinetic studies have shown a potential interaction between ticagrelor and atorvastatin but were not considered clinically significant. An interaction between atorvastatin and ticagrelor can cause severe rhabdomyolysis, which progresses to multiorgan failure. A 68-year-old female patient presented to the catheterization lab for cardiac catheterization after an abnormal stress test. He had placement of a drug-eluting stent and received initiation of ticagrelor. Three months later, his elevated creatine kinase (CK) was noted to likely represent a drug-drug interaction with atorvastatin. Ticagrelor was discontinued and he was transitioned successfully over to clopidogrel. CK returned to normal within weeks of this change. Atorvastatin and ticagrelor concomitantly administered, likely representing a drug-drug interaction. Although this interaction generally is not clinically significant, it should be part of the differential diagnosis for a patient presenting with signs and symptoms of adverse effects.

Keywords: *Adverse Drug Reaction, Atorvastatin, Creatine Kinase, Drug Interaction, Ticagrelor.*

Hypovitaminosis D: A Hidden Complication in Chronic Kidney Disease

Presented by
Miss Mounika Budati
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

A growing public health concern, chronic kidney disease (CKD) is one of the strongest indicators of early cardiovascular disease. Maintaining healthy bones and muscles depends on vitamin D. The serum 25 hydroxyvitamin D (25OHD) levels are a sensitive indicator of the body's overall vitamin D reserves. There is growing evidence that hypovitaminosis D may be connected to the development of chronic kidney disease (CKD) and other cardiovascular problems. The decreased capacity to convert 25-(OH) vitamin D into the active form, 1,25 dihydroxy vitamin D, makes the remarkably high prevalence of severe vitamin D insufficiency in CKD patients even worse. It is clear that vitamin D's autocrine role is a significant modulator of several systems, including the immunological, renal, and cardiovascular systems, as recent research has deepened our understanding of both the classical and non-classical roles of the vitamin. The extremely high frequency of severe vitamin D insufficiency in CKD patients is exacerbated by the reduced ability to convert 25-(OH) vitamin D into the active form, 1,25 dihydroxy vitamin D. Recent studies have expanded our knowledge of the vitamin's classical and non-classical functions, making it evident that vitamin D's autocrine function is a major modulator of several systems, including the cardiovascular, renal, and immune systems.

Keywords: *Vitamin D, Chronic Kidney Disease, Cardiovascular, Hypovitaminosis D, 25 Hydroxyvitamin D (25OHD).*

Drug-Drug Cocrystals: Advancing Combination Treatments and Improving Patient Outcomes

Presented by
Dr. Monika Nijhawan
Gokaraju Rangaraju College of Pharmacy, Hyderabad, Telangana, India.

Abstract

A drug-drug cocrystal (DDC) is a crystalline structure formed by two or more active pharmaceutical ingredients (APIs) in a fixed stoichiometric ratio, held together by non-covalent interactions such as hydrogen bonds, or van der Waals forces. This novel approach aims to optimize the physicochemical properties of both drugs simultaneously, enhancing their solubility, stability, and bioavailability. Drug-drug cocrystals hold significant promise in improving the effectiveness of combination therapies, reducing the pill burden for patients, and simplifying drug regimens. Drug-drug cocrystals can also offer synergistic therapeutic effects by combining drugs with complementary mechanisms of action, thereby enhancing efficacy while minimizing side effects. This is particularly beneficial in chronic diseases such as HIV, tuberculosis, and cancer. However, challenges remain in the design and regulatory approval of drug-drug cocrystals, as careful testing is required to ensure the safety, stability, and compatibility of the combined drugs. Despite these challenges, drug-drug cocrystals represent a promising strategy for optimizing combination therapies, improving patient adherence, and enhancing drug performance, paving the way for the next generation of pharmaceutical formulations. As research advances, drug-drug cocrystals could revolutionize the treatment of complex diseases and improve therapeutic outcomes.

Keywords: *Cocrystals, Bioavailability, Stability, Solubility, Drug.*

Prednisolone Tablet Formulation and Assessment for Colon-Targeted Drug Delivery System

Presented by
Dr. Ravi Dnyandeo Hole
Associate Professor, Institute of Pharmaceutical Science and Research (For Girls), Bhigwan, Dist-Pune, Maharashtra, India.

Abstract

Preparing prednisolone pH-dependent release tablets and assessing their benefits as a colon-targeted medication delivery system were the goals of this study. Prednisolone, which is unstable in the stomach environment and insoluble in water, was combined to create pH-dependent tablets coated in Eudragit L100 and Eudragit S100, two methacrylic acid copolymers. Prednisolone's *in-vitro* release rate from coated tablets was examined in relation to the coating levels, polymer combination ratios, and core tablet compositions. Less than 10% of the medication was released in 0.1 N HCl within two hours, while around 90% of the drug was released in the pH 7.2 phosphate buffer within six hours, according to the data. For the treatment of colonic illness and oral drug administration that is unstable or prone to enzymatic degradation in the upper gastrointestinal tract, colon drug delivery is beneficial. In this investigation, coated tablets that dissolve readily in colonic pH were found to be resistant to gastric and small intestine pH circumstances. The current study's findings have shown that the pH-dependent tablet system is a viable means of reducing prednisolone's rapid hydrolysis in the stomach environment and enhancing the drug's oral bioavailability for the treatment of ulcerative colitis.

Keywords: *Enteric Coating, Colon Focused Drug Delivery, In-Vitro Dissolution, pH-Dependent Delivery Mechanism, Prednisolone.*

Forumulation and Evaluation of Antitussive Lozenges Using Aqueous Bark Extract of Syzygium Cumini

Presented by
Dr. Gana Manjusha Kondepudi
Vignan Institute of Pharmaceutical Technology, Visakhapatnam, Andhra Pradesh, India.

Abstract

Syzygium cumini (S. cumini) (L.) Skeels (jambolan) is one of the widely used medicinal plants in the treatment of various diseases in particular diabetes. The genus Syzygium is one of the genera of the myrtle family Myrtaceae which is native to the tropics, particularly to tropical America and Australia. The aim of this research is to extract Syzygium cumini bark using maceration, pressurized liquid extraction and Ultrasound Assissted Extraction and to formulate and evaluate antitussive lozenges using the aqueous extract. About 26.92g yield was obtained by pressurized liquid extraction which was the highest when compared to the yield obtained from the other two extractions. Thus pressurized liquid extraction was found to be the best technique out of the three extraction techniques used. The extracts obtained from maceration, pressurized liquid extraction and ultrasonication was subjected to preliminary phytochemical analysis, which confirmed the presence of saponins, flavanoids, alkaloids and tannins in all the three extracts. Hard lozenges and soft lozenges were prepared by incorporating the bark extract and were evaluated for physical appearance, friability and weight variation. The friability and weight variation of the hard and soft lozenges were within the limit.

Keywords: *Herbal Lozenges, Syzygium Cumini, Anti Tussive, Pressurized Liquid Extraction, Ultra Sound Assissted Extraction.*

Applications of Ethosomal Drug Delivery Systems as Novel Vesicular Carriers for Improved Transdermal Permeation

Presented by
Mr. Prakash Nathaniel Kumar Sarella
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Ethosomes have emerged as an innovative vesicular drug delivery system, offering significant advantages in transdermal drug administration. These malleable vesicles, composed of phospholipids, ethanol, and water, demonstrate superior skin penetration capabilities compared to conventional liposomes. The unique composition of ethosomes, particularly their high ethanol content (20-45%), enables efficient drug entrapment and enhanced skin permeation through multiple mechanisms. The presence of ethanol fluidizes both the ethosomal lipid bilayers and intercellular lipids in the stratum corneum, facilitating deeper penetration of drug molecules. Various preparation techniques, including the cold method, hot method, and thin-film hydration method, have been developed to optimize ethosomal formulations. Ethosomes have shown particular promise in delivering anti-inflammatory drugs, antifungal agents, antibiotics, and anticancer drugs through the transdermal route. The system's ability to enhance drug permeation while maintaining stability makes it especially suitable for compounds with poor skin penetration profiles or those requiring sustained release. Additionally, ethosomes exhibit minimal toxicity and skin irritation, supporting their safety profile for pharmaceutical applications. Despite these advantages, challenges remain in large-scale manufacturing and stability optimization.

Keywords: *Ethosomes, Transdermal Delivery, Vesicular Carriers, Skin Penetration, Drug Encapsulation.*

Preliminary Phyochemical Screening & Evaluation of Anti-Inflammatory, Analgeic and Anti-Pyretic Properties of Eugenia Jambolana Seeds Extract in Albino Rats

Presented by
Mrs. S.Thirumala Devi
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Eugenia jambolana commonly known as Black plum has wide range of medical uses. In order to provide a scientific rationale for the plants we looked into the anti-inflammatory, analgesic and anti-pyretic therapeutic properties of the seed extract. The extract exhibited the presence of alkaloids, tri-terpeniods, tannins, carbohydrates and proteins, as per the phytochemical study performed indicating a key role in the reduction of inflammation, nociception. The standard acetic acid induced writing response test was used to generate the anti-nociceptive activity, while the carrageenan-induced paw oedema test was used to evaluate the anti-inflammatory and the Brewer's yeast suspension was used to induce the anti-pyretic activity in the mice. When compared to control and standard drug, the ethanolic seed extract of species showed the most therapeutic activity against inflammation, analgesia and pyrexia. We concluded that the ethanolic seed extracts of Eugenia jambolana have therapeutic efficacy for anti-inflammatory, analgesic and anti-pyretic activities in albino rats both *in-vivo* and *in-vivo* after analyzing the findings.

Keywords: *Eugenia Jambolana, Anti-Inflammatory, Analgesic, Anti-Pyretic, Brewer's Yeast.*

Antibacterial Potentiation and Wound Healing Competence through Bio-Mediated ZnO Nanoparticle by Leaf Extract

Presented by
Dr. Koppala RVS Chaitanya
Sarojini Naidu Vanitha Pharmacy Maha Vidyalaya, Secunderabad, Telangana, India.

Abstract

Zinc Oxide (ZnO) is presently utilized in nano-cosmeceuticals and nano-pharmaceuticals applied topically due to their versatile effectiveness, regardless of the method of synthesis. Hence, the aim of the current research is to produce ZnO nanoparticles (NPs) using a more environmentally friendly method employing Barleria cristata (BC) leaf extract in varying concentrations (2.5g, 5.0g, 7.0g, and 10.0g) and to assess their ability to enhance antibiotic effectiveness and combat cancer. The innovative synthesis of ZnO NPs was conducted without the use of any chemicals or high-temperature processing, under continuous stirring and refluxion in an oxygen-rich environment. BC is known for its medicinal phytochemicals, and thus, the incorporation of secondary metabolites onto ZnO NPs during synthesis as reducing, stabilizing, and capping agents may provide additional biomedical benefits. The synthesized BC-ZnO NPs were characterized by a characteristic peak at 375 nm in the absorbance spectra, as well as SEM and particle size analysis revealing particles ranging from 20 to 50 nm in size, possessing a hexagonal crystalline structure, and containing various phytochemicals and functional groups. Additionally, the antibacterial activity and antibiotic-potentiating capability of BC-ZnO NPs were investigated through combinational assays. Moreover, the wound healing potential of BC-ZnO NPs was evaluated using excision and incision wound models.

Keywords: *Barleria Cristata, SEM, Zinc Oxide, Nanoparticles, Wound Healing.*

Navigating the Shadows of Eating Disorders: An In-Depth Exploration of Anorexia and Bulimia Nervosa

Presented by
Dr. G Urmila
Vignan Institute of Pharmaceutical Technology, Visakhapatnam, Andhra Pradesh, India.

Abstract

Anorexia nervosa and Bulimia nervosa are two of the most common and serious eating disorders that affect individuals, predominantly adolescents and young adults. These disorders are characterized by distinct patterns of disorder eating behaviours and preoccupation having profound impact on an individual's physical and mental well-being, and they often co-exist with other mental health conditions. Timely intervention and comprehensive treatment are essential to address these complex and potentially life-threatening conditions. The incidence of anorexia nervosa is increasing in younger people [aged <15years]. During their lifetime, up to 4% of females and up to 0.3% of males suffer from anorexia nervosa and up to 3% of females and more than 1% of males from bulimia nervosa. Both disorders involve distorted body images and unhealthy eating behaviours. Early intervention comprehensive treatment can lead to improved outcomes and a higher quality of live for those struggling with anorexia and bulimia nervosa.

Keywords: *Anorexia Nervosa, Bulimia Nervosa, Young Adults, Nutritional Rehabilitation.*

Development and Evaluation of Bilayer Transdermal Patches of Canagliflozin using HPMC Grades for Sustained Drug Delivery

Presented by
Dr. Venna R Surya Anusha
Gokaraju Rangaraju College of Pharmacy, Hyderabad, Telangana, India.

Abstract

This study investigates the formulation and evaluation of transdermal patches for the controlled delivery of canagliflozin, an SGLT2 inhibitor used in diabetes management, employing different grades of hydroxypropyl methylcellulose (HPMC) via a bilayer technique. Transdermal systems offer advantages such as improved bioavailability, reduced dosing frequency, and avoidance of first-pass metabolism, addressing the limitations of oral drug administration. Patches were prepared by solvent casting, with the drug-loaded layer formulated using HPMC K4M and HPMC E15, and a non-drug-containing backing layer. The results indicated that HPMC K4M-based patches exhibited higher mechanical strength and moisture retention, while HPMC E15-based patches showed enhanced flexibility. Drug release studies revealed a sustained release profile over 24 hours, with the HPMC E15 formulation releasing 85% of the drug, compared to 72% for HPMC K4M. Permeation studies demonstrated efficient transdermal delivery, with optimized formulations achieving a steady permeation rate, ensuring prolonged systemic absorption. In conclusion, the transdermal patches developed using the bilayer technique and HPMC grades provided a controlled and sustained release of canagliflozin, making them a promising alternative to oral therapy for diabetes management.

Keywords: *Hydroxypropyl Methylcellulose, Transdermal Patch, Canagliflozin, Bilayer Patches, Sustained Drug Delivery.*

Comparative Study of Myocardial Infarction in Smoker and Non Smoker Patients

Presented by
Miss Adabala Gaana Lakshmi
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Myocardial infarction (MI), commonly known as a heart attack, occurs when blood flow through the coronary arteries is significantly reduced, leading to tissue damage and ischemia. This reduction often results from the formation of an atherosclerotic plaque, which can trigger the development of a thrombus and block the artery. Cigarette smoking exacerbates this risk by increasing heart rate and blood pressure while constricting coronary arteries and impairing blood flow. Research indicates that smokers are more likely to experience MI and present with symptoms such as chest pain, shortness of breath, and excessive sweating. The majority of MI cases among smokers involve males, who face a significantly higher risk compared to non-smokers. In terms of treatment, antiplatelet and anticoagulant medications were most frequently prescribed, followed by fibrinolytics and thrombolytics. Additional medications included anti-anginal drugs, narcotics, beta-blockers, statins, ACE inhibitors, and calcium channel blockers the latter being the most common choice among antihypertensives. The study sought to determine the relation between smoking and nonsmoking in myocardial infraction and also found that non-smokers tend to experience milder symptoms and shorter recovery periods. They respond more effectively to treatment, while smokers typically require higher medication doses. Smokers in the study were predominantly male, aged between 31 and 60 years.

Keywords: *Myocardial Infraction, Atherosclerosis, Smoking, Ischemia.*

Dual Viral Assault: A Case of Acute Liver Failure From Dengue and Hepatitis-A Co-infection

Presented by
Dr. Nandini Palivela
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Acute liver failure (ALF) is a rare and diverse condition that affects people without a history of liver disease. It is characterized by a significant impairment of liver function. This case study describes a unique instance of ALF caused by co-infection with the dengue virus and hepatitis-A virus (HAV), which is also associated with dengue hemorrhagic fever. The 24-year-old male patient presented with symptoms that included fever, nausea, vomiting, abdominal pain, and widespread body aches. Subsequently, the patient developed jaundice, hepatic encephalopathy, acute cholecystitis, and acute pancreatitis. Tests in the lab verified the presence of dengue and HAV markers as well as lower hemoglobin and platelet counts. Nonetheless, the patient's condition progressively improved under a conservative management-focused treatment plan, which ultimately resulted in discharge. In order to achieve the best possible outcomes for the patient, this case highlights the possibility that coinfection with dengue and HAV could cause ALF. It also highlights the importance of early diagnosis and prompt intervention.

Keywords: *Acute Liver Failure, Dengue Virus, Hepatitis-A Virus, Coinfection, Intensive Care.*

In-vivo Anti-Anemic Activity of Ethanolic Root and Leaf Extracts of Taraxacum Officinale in Phenylhydrazine Induced Anemic Rats

Presented by
Mrs. S Thirumala Devi
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Dandelion (Taraxacum officinale) is a highly beneficial plant for improving blood health and addressing anemia. Both the root and leaves of the dandelion have therapeutic properties, particularly due to their high iron content and ability to support liver function. The present work was carried out to evaluate the *in-vivo* anti-anaemic activity of Taraxacum officinale leaf and root extracts in Phenylhydrazine induced anemic rats. The ethanolic extract at a high and low dose of 200 and 400 mg/kg showed an increased the iron content by showing a remarkable elavation in the production of hemoglobin, red blood cells and percentage of hematocrit which was analyzed by the hematology analyzer in comparision to the Phenylhydrazine treated animals group and the results are comparable with that of standard vitamin B12 complex. Thus, the present study reveals that the ethanolic leaf and root extract of Taraxacum officinale is suitable for administration for treating anemia condition.

Keywords: *Taraxacum officinale, Phenylhydrazine, Anaemia, Hematology Analyzer, Hemoglobin, Hematocrit.*

Anxiolytic Effect of Ethanolic Whole Plant Extract of Bacopa Monnieri Using Mice Model

Presented by
Miss Kodi Gnaneswari
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Bacopa monnieri, also known as Brahmi, is a well-known herb in traditional Ayurvedic medicine, particularly for its cognitive and calming effects. It has gained recognition for its potential anti-anxiety properties, supported by modern research. The anxiolytic activity is evaluated using elevated plus maze and hole board test using Albino mice. The ethanolic whole plant extract of Bacopa monnieri at a dose of 75 and 150 mg/kg has shown more time spent and increased number of entries in the open arm using elevated plus maze in comparison to that of control group. In addition to this a significant reduction in latency to first nose poking was observed in the extract of 75 and 150 mg/kg with augmentation in head dipping behavior of control group. The results are compared with that of standard drug Diazepam 2mg/kg where the extract has shown promising results of anti-anxiety effects, primarily through its adaptogenic properties which it helps in coping with stress and promotes mental resilience and also increases ability to balance the neurotransmitters and shows the cognitive benefits of Bacopa monnieri.

Keywords: *Bacopa Monnieri, Elevated Plus Maze, Hole Board Test, Adaptogenic, Anxiety, Nose Poking.*

Advances in Lipid Nanocarriers: Targeted Therapeutic Strategies for Breast Cancer Treatment

Presented by
Mr. Gummadi Ramakrishna
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Breast cancer is one of the most widespread cancers worldwide, and many of the current treatments are challenged by issues like drug resistance, unwanted side effects, and limited efficacy. Lipid-based nanocarriers have gained attention as a promising solution for delivering chemotherapy drugs and biological molecules with improved targeting & precision. This review examines the role of lipid nano carriers, such as liposomes, solid lipid nanoparticles (SLNs), and nanostructured lipid carriers (NLCs), in advancing breast cancer treatment. These carriers, which encapsulate drugs with in lipid structures, enhance drug solubility, stability, and bioavailability while reducing harmful side effects. In addition, by modifying the surface of these nanocarriers, they can actively target cancer-specific receptors such as HER2, EGFR, and folate receptors, leading to more precise and effective treatment outcomes. This review outlines the recent progress in lipid nanocarrier technology, particularly in their ability to overcome biological barriers and improve treatment success, with a focus on the aggressive and hard to treat triple negative breast cancer (TNBC). It is also considers future developments in this area. Including combination therapies and systems responsive to specific stimuli, highlighting their potential in advancing personalized treatments for breast cancer.

Keywords: *Breast Cancer, Lipid Nanocarriers, Targeted Therapy, TNBC, Stimuli Responsive System.*

Hydrogel Scaffolds: The Next Frontier in Tissue Regeneration

Presented by
Mrs. B.Hema Kiranmayi
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Hydrogel scaffolds are emerging as a pivotal tool in tissue engineering and regenerative medicine. These three-dimensional, water-swollen polymer networks mimic the extracellular matrix, providing a conducive environment for cell proliferation, differentiation, and tissue regeneration. Their highly porous structure facilitates nutrient and waste exchange, crucial for maintaining cell viability and function hydrogel. One of the significant advantages of hydrogel scaffolds is their injectability, enabling minimally invasive delivery to target sites. Additionally, they can be loaded with bioactive molecules, such as growth factors and drugs, to enhance tissue repair processes. Advanced fabrication techniques, including 3D printing and electrospinning allow precise control over scaffold architecture, further improving their functionality. Recent studies have demonstrated the potential of hydrogel scaffolds in various applications, including cartilage repair, wound healing, and the regeneration of neural and cardiac tissues. Despite their promising attributes challenges remain such as long-term stability, controlling degradation rates and achieving uniform cell distribution within the scaffold. Future research aims to address these issues, potentially incorporating smart materials that respond to environmental stimuli, further broadening the clinical applicability of hydrogel scaffolds.

Keywords: *Hydrogel Scaffolds, Tissue Regeneration, Biodegradability, 3D Printing, Bioactive Molecules.*

Formulation and Evaluation of Acetazolamide Nanoparticulate Ocular In Situ Gel

Presented by
Dr. J. Anu Pravallika
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

The aim of the present study is to formulate and evaluate ocular in situ gel-forming of acetazolamide nanosuspension using nanoprecipitation technique. Acetazolamide a carbonic anhydrase inhibitor is used to treat glaucoma, a neurodegenerative disorder peculiarized by increase in intraocular pressure. Carbopol 934 is the pH sensitive gelling agent used, which enhanced the ocular bioavailability. Eudragit RS 100 and Eudragit RL100 acts as release retardants were used in different concentrations. The FTIR studies showed that there are no interactions between drug and the polymers. The prepared in situ gel formulations were evaluated for clarity, pH, gelling capacity, SEM analysis, Zeta potential, *in-vitro* diffusion studies, drug entrapment efficiency and antimicrobial studies. The developed formulations were clear, transparent, and colorless moreover pH was found to be within the range of 7.1 to 7.4 which is acceptable. Among all, the formulation (F7) prepared with Eudragit RL100 shows best results and exhibits sustained drug release over a period of 6 hours with increasing residence time of the drug. These formulations may give a viable alternative to the conventional eye drops by virtue of its ability to sustain drug release for good stability and biocompatibility characteristics.

Keywords: *Acetazolamide, In Situ Gel, Nanosuspensions, Eudragit, Carbopol 934, Nanoprecipitation Technique.*

Uncommon Manifestation of Hypersplenism in Adult Patients with Sickle Cell Disease: Rare Case Report

Presented by
Miss Mercy Pinipe
Aditya Pharmacy College, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Hypersplenism refers to the accelerated and premature breakdown of blood cells, characterized by a triad that includes splenomegaly, cytopenias, and increased bone marrow activity as a compensatory response. Sickle cell disease encompasses various genotypes, among which hemoglobin sickle C disease (HbSC) is characterized by the presence of both hemoglobin S and hemoglobin C. A 41-year-old female patient with a history of splenomegaly presented to the general surgery clinic due to abdominal pain. An acute splenic sequestration crisis may arise from hypersplenism, representing a potentially life-threatening complication associated with sickle hemoglobinemia. The ongoing cycle of sickle cell entrapment and stasis leads to multiple splenic infarctions, forming scar tissue within the splenic parenchyma. This process diminishes both the size and functionality of the spleen, ultimately culminating in auto-splenectomy. Our patient's spleen was measured at 21.1 cm, exceeding the typical size of an adult spleen. In this instance, the use of preoperative splenic artery embolization likely played a significant role in reducing intraoperative blood loss during the splenectomy, thereby lessening the requirement for transfusions during the perioperative period.

Keywords: *Hypersplenism, Sickle Cell Disease, Splenic Artery Embolization, Splenectomy.*

Incidence and Risk Factors of Tramadol-Induced Hypoglycemia: An Observational Study

Presented by
Mr. Londa Eswar Naga Sai Datta Yadav
Aditya College of Pharmacy, Aditya University, Surampalem, Andhra Pradesh, India.

Abstract

Tramadol is an analgesic commonly used for pain management, but it has been associated with rare adverse effects, including hypoglycemia. This observational study aims to assess the incidence of tramadol-induced hypoglycemia among patients and identify potential risk factors. A retrospective review was conducted at a tertiary care hospital, examining the medical records of patients prescribed tramadol over a one-year period. Patients were included if they experienced hypoglycemia (defined as blood glucose < 70 mg/dL) during tramadol treatment. Data on demographics, comorbidities, concurrent medications, and tramadol dosage were analyzed. Among 350 patients receiving tramadol, 15 (4.3%) experienced hypoglycemia. The average age of affected patients was 62 years, with a higher prevalence in those with diabetes (73.3%). Concomitant use of other medications affecting glucose metabolism, such as sulfonylureas, was noted in 60% of cases. Hypoglycemia episodes occurred more frequently with higher tramadol doses (>300 mg/day). The findings suggest that tramadol can induce hypoglycemia, particularly in older adults and those with diabetes or on other glucose-lowering medications. Awareness of this potential side effect is essential for healthcare providers when prescribing tramadol. Tramadol-induced hypoglycemia is a significant concern in certain patient populations. Monitoring blood glucose levels in high-risk patients is recommended to prevent adverse events.

Keywords: *Tramadol, Hypoglycemia, Observational Study, Pain Management, Diabetes, Risk Factors, Concomitant Medications.*

Novel Pyrrolidine Schiff Bases Synthesis using Tamarind Extract as Eco-Friendly Catalyst: Anti-Oxidant Activity & Molecular Docking Studies

Presented by

Dr. Srikanth Kumar Karumanchi, Dr. Vishal Bharat Babar.

Professor, Institute of Pharmaceutical Science and Research for Girls, Swami-Chincholi, Bhigwan, Pune-Dist, Maharashtra, India.

Abstract

Schiff Bases are the condensation products of primary amines with carbonyl compounds carrying imine or azomethine functional group. Pyrrolidine bearing Schiff bases developed under green reaction conditions using tamarind extract as acid catalyst. Facile green reaction conditions using tamarind extract as acid catalyst has been developed for the synthesis of diverse pyrroloidine bearing schiff's bases. Melting points were calculated using an uncorrected electrical melting point instrument. Molecular docking studies were conducted at the target protein active site using the AutoDock Vina, ChemDraw, and BIOVIA discovery studio. Pyrrolidine bearing schiff bases were synthesized using the appropriate synthetic procedure in presence of tamarind extract as acid catalyst. *In vivo* anti-oxidant activity was assessed. Compound 4a exhibited noteworthy anti-oxidant properties. Molecular docking studies at target protein PBD ID states that the compounds 4b and 4d showed good binding affinity-8.3 kcal/mol, -8.2 kcal/mol respectively in comparison to the reference compound -8.1 kcal/mol. In present work, facile method under green reaction conditions using tamarind extract as acid catalyst has been developed for the synthesis of novel pyrrolidine bearing schiff's bases. It was concluded that among all the synthesized compounds, compound 4b exhibited anti-oxidant properties and significant binding interaction at target protein.

Keywords: *Pyrrolidine-Schiff Bases, Tamarind Extract, In Vivo Anti-Oxidant Activity, Molecular Docking.*

Harnessing the Power of Flavonoids: Activating the KEAP1/NRF2 Pathway for Health

Presented by
Mrs. D.Aruna Kumari
Vignan Institute of Pharmaceutical Technology, Visakhapatnam, Andhra Pradesh, India.

Abstract

Flavonoids are a broad set of naturally occurring substances that are present in large quantities in fruits, vegetables and plant-based drinks. Flavonoids have drawn significant interest because of their special capacity to activate the KEAP1/NRF2 pathway. In this paper, we investigate the intriguing interaction between flavonoids and the KEAP1/NRF2 pathway, revealing the pharmacological effects of flavonoids. NRF2 is released from KEAP1 by flavonoids like quercetin, hesperidin, and EGCG, which then translocates into the nucleus and activates antioxidant response elements (AREs), exhibiting a different method of action. Enhanced antioxidant and detoxification pathways are released as a result of this NRF2-mediated activation of cellular defense mechanisms. The pharmacological effects of flavonoid-induced KEAP1/NRF2 activation span a wide range of health advantages, including the reduction of inflammation and oxidative stress as well as the risk of developing chronic diseases. The potential of flavonoids as a natural defense system for preserving cellular health and enhancing general wellbeing is highlighted by their multiple effects in altering the KEAP1/NRF2 pathway.

Keywords: *Flavonoids , KEAP1/NRF2 Pathway, Antioxidant Response Elements.*

Neuroprotective Effect of Morin Hydrate and Gemigliptin against Parkinson's Disease

Presented by
Ms. Diksha Shinde
Assistant Professor, DKSS Institute of Pharmaceutical Science & Research for Girls, Swami-Chincholi, Bhigwan, Pune, Maharashtra, India.

Abstract

This study aimed to determine the neuroprotective effect of Morin hydrate and Gemigliptin in reserpine and rotenone-induced parkinsonism. Reserpine (1 mg/kg s.c.) was utilized to produce orofacial dyskinesia and rotenone (1.5 mg/kg i.p.) to induce Parkinsonism, also it causes increased vacuous chewing movements, tongue protrusions, and decreased locomotor activity. Morin hydrate (50 and 100 mg/kg) and Gemigliptin (50 and 100 mg/kg) treatment resulted in dosage-dependent substantial reductions in VCM and TP. Both drugs increased locomotor activity significantly. Rotenone administration to rats resulted in a significant reduction in latency to fall off the Rotarod and a decrease in nose poking in the hole board test. Drug treatment resulted in an increase in latency to fall off the rotarod and an increase in nose poking. Increased lipid peroxidation while decreasing levels of self-protective antioxidant enzymes such as catalase, glutathione, and superoxide dismutase in the brain. The combination of drugs reversed the effects of reserpine and rotenone on oxidative stress indicators, improving oxidative stress. Morin hydrate and Gemigliptin were found to have a protective effect against reserpine-induced orofacial dyskinesia and rotenone-induced Parkinsonism. The use of these medications may have a therapeutic potential for Parkinsonism

Keywords: *Morin Hydrate, Gemigliptin, Neuroprotective Effect, Parkinsonism.*

Tailoring Treatment to Individuals for Lung Cancer

Presented by
Ms. Yogita Somanath Mane, Diksha Bhagwan Shinde*
DKKS Institute of Pharmaceutical Science and Research for Girls, Swami-Chincholi, Bhigwan, Pune-Dist., Maharashtra, India.

Abstract

The goal of personalised medicine is to develop a treatment strategy that is as distinct as the patient's condition. The research relies on identifying genetic, epigenomic, and clinical data to advance our understanding of how a person's unique genomic makeup predisposes them to particular diseases. The personalised medicine strategy is a complete extension of the conventional (One-Size-Fits-All) approach to enhancing our ability to predict which medical therapies will be safe and useful for each patient and which ones won't, based on each patient's unique genetic profile. Although personalised medicine is a relatively new discipline, it is rapidly gaining traction. It enables a physician to select a patient's course of treatment according to their genetic profile, potentially lowering side effects and raising success rates. Several medications and approved monoclonal antibodies (mAbs) and tyrosine kinase inhibitors (TKIs) that are active against the epidermal growth factor receptor (EGFR) are being considered here in the context of personalized medicine for lung cancer. For this system, positron emission tomography (PET) is the measurement method utilized. Personalized medicine has many potential advantages, such as lowering the chance of drug toxicity, boosting the advantages of the medications taken, maintaining the equilibrium of the healthcare system, and streamlining drug development and discovery initiatives.

Keywords: *Personalized Medicine, Lung Cancer, Monoclonal Antibodies, Epidermal Growth Factor Regulator, Positron Emission Tomography.*

Beyond the Gut: Exploring the Therapeutic Horizons of Microbiome Targeted Therapy

Presented by
Yogalakshmi R
Dr.MGR Educational and Research Institute, Maduravoyal, Chennai, Tamilnadu, India.

Abstract

The human microbiome consists of trillions of microorganisms that inhabit different areas of the body, playing a crucial role in maintaining overall health and regulating numerous physiological functions. Among these, the gut microbiome is particularly important for digestion, the production of vitamins, modulation of the immune system, and even mental well-being. When this delicate microbial balance is disturbed a condition known as dysbiosisit can lead to various health issues, including gastrointestinal, neurological, cardiovascular, and metabolic disorders. Research into the composition and functions of the microbiome has paved the way for new therapeutic strategies designed to restore and preserve health. However, despite the promising potential of these microbiome-focused therapies, challenges persist, such as the inherent complexity and variability of the microbiome across individuals, understanding long-term effects, and addressing ethical concerns. Future research should aim to identify specific microbial strains and metabolites that promote health, enabling the development of targeted interventions for precise microbiome modulation. This review emphasizes the profound impact of the microbiome on health and disease, and highlights the potential for microbiome-targeted therapies to transform healthcare across multiple organ systems.

Keywords: *Human Microbiome, Gut Microbiome, Dysbiosis, Therapeutic Strategies, Probiotics, Prebiotics, Fecal Microbiota Transplantation, Microbiome-Targeted Therapies, Precision Medicine.*

Pharmacogenomics in Personalized Medicine: Current Advances and Future Directions

Presented by
Shajahan K
Dr.MGR Educational and Research Institute, Maduravoyal, Chennai, Tamilnadu, India.

Abstract

Pharmacogenomics, the study of how genes influence an individual's response to drugs, is transforming the landscape of personalized medicine. By integrating genetic information with drug therapy, pharmacogenomics enables tailored treatments that maximize efficacy and minimize adverse effects. Recent advances in high-throughput sequencing, bioinformatics, and pharmacogenomic biomarkers have propelled this field, especially in oncology, cardiology, and psychiatry. However, challenges like gene-drug interaction complexity, ethical considerations, and clinical validation persist. The future lies in expanding genetic databases, using artificial intelligence for drug response prediction, and adopting multi-omics approaches. Pharmacogenomics promises a transformative impact on healthcare, contingent on overcoming current barriers and ensuring widespread accessibility.

Keywords: *Pharmacogenomics, Biomarkers, Personalized Medicine, Genetic Databases.*

Revolutionizing Cancer Care : A Review of Immunotherapies, Target Therapies and Gene Editing Technologies

Presented by
Akash Dnyaneshwar Kanhe, Nikhil Bhikaji Jagdale.
Sandip Institute of Pharmaceutical Sciences, Nashik, Maharashtra, India.

Abstract

Cancer has seen a significant improvement with immunotherapy, target drugs, and gene editing making treatment more promising to patients around. Traditional therapies including surgery, chemotherapy and radiation though helpful pose many drawbacks and have low effectiveness against some types of cancer. Over the past several years, the progress seen in cancer has been improved by new techniques like CAR-T cell treatment, checkpoint inhibitors, immunotherapy, and cancer vaccines, gene editors – CRISPR, and nanomedicine. The advantage of these medicines is that they raise the precision and specificity of treatments, and decrease or avoid the toxicity effect in the body thereby improving the medications safety and outcome to the patients. Targeted therapies endorse the immune system to identify and kill cancer cells, and hence the treatment provide long-term results for even the last-stage patients. Such medicines focus on particular genetic keys of cancer and have helped change, particularly for once-incurable diseases, the face of cancer therapy. Another area where nanomedicine can be it is in the functioning as a delivery tool and in cancer treatment it avoids the destruction of the healthy cells, thus improving chances of treatment. This review assesses the effectiveness, challenges and future trends of these medicines, within the broader context of their importance for the development of oncology. This suggests the need for a holistic approach as well as constant investigation into the probability of its efficiency in real life practice.

Keywords: *Cancer Treatment, Immunotherapies, Target Therapies.*

Synthesize, Characterization of Novel Diazenyl Phenyl Styryl Ketone Derivatives as Anti-Inflammatory and Anti-Tubercular Agents

Presented by
K.Nagalakshmi
Annamacharya College of Pharmacy, Rajampet, Andhra Pradesh, India.

Abstract

This research focused on synthesizing novel diazenyl phenyl styryl ketone derivatives using green synthetic methods. Six derivatives were developed and evaluated for their anti-inflammatory and anti-tubercular properties. Predictive analysis via the PASS ONLINE tool indicated that three derivatives exhibited good anti-inflammatory activity, while all six demonstrated significant anti-tubercular activity. *In-vitro* anti-inflammatory activity was assessed through a protein denaturation assay, comparing the derivatives (2c, 2d, and 2e) to the standard drug Diclofenac, with all three showing comparable effectiveness. For anti-tubercular activity, the Microplate Alamar Blue Assay (MABA) was used against Mycobacterium tuberculosis, revealing that derivatives 2b and 2e had excellent activity, matching standard drugs like Pyrazinamide and Streptomycin. Overall, the study presents promising new compounds with potential therapeutic applications in treating inflammation and tuberculosis

Keywords: *Phenyl Styryl Ketone Derivatives, Anti-Inflammatory Activity, Anti-Tubercular Activity, Microplate Alamar Blue Assay (MABA), Mycobacterium Tuberculosis.*

Therapeutic Drug Monitoring of Antiepileptic Drug

Presented by
Triksha Panwar
Sri Aurobindo Institute of Pharmacy, Indore, Madhya Pradesh, India.

Abstract

Therapeutic drug monitoring (TDM) of antiepileptic drugs (AEDs) plays a crucial role in optimizing the treatment of epilepsy, ensuring both efficacy and safety. Epilepsy, a neurological disorder characterized by recurrent seizures, requires long-term management with AEDs. However, the pharmacokinetics of these drugs vary significantly among individuals due to factors such as age, weight, metabolism, organ function, and genetic variability. TDM provides a strategy to tailor drug dosages for individual patients, allowing clinicians to maintain drug concentrations within the therapeutic range—thereby minimizing the risk of toxicity and treatment failure. Regular monitoring of drug plasma levels can help balance seizure control with adverse effects, especially in populations prone to pharmacokinetic changes, such as children, the elderly, and pregnant women. Despite its advantages, TDM has limitations, including the timing of sample collection and the lack of correlation between drug levels and clinical outcomes in some patients. Moreover, newer AEDs, like lamotrigine and levetiracetam, may have less need for routine TDM due to more predictable pharmacokinetics.In conclusion, while TDM remains a valuable tool in the management of epilepsy, its role should be individualized, with clinical decision-making informed by both drug levels and the patient's response.

Keywords: *Antiepileptic Drugs, Therapeutic Drug Monitoring (TDM), Pharmacokinetics, Drug-Drug Interactions, Plasma, Serum, Saliva.*

Digital Twins in Pharmaceutical Research and Development: A New Era of Precision Medicine

Presented by
TKTS Krishna, Dr.Gyati Shilakari Asthana
Gokaraju Rangaraju College of Pharmacy, Hyderabad, Telangana, India.

Abstract

Digital twin technology is emerging as a transformative tool in pharmaceutical research, enabling the creation of virtual models that simulate biological systems, drug interactions, and patient responses in real-time. This technology utilizes vast datasets from patient health records, genomics, and real-world data to construct individualized, dynamic digital representations. In drug development, digital twins can simulate clinical trials, predict adverse effects, and optimize dosage, reducing the need for physical trials and accelerating the path to market. By mirroring human physiological responses to therapies, digital twins offer the potential for precision medicine tailored to individual patient profiles. Beyond R&D, digital twins are incorporated into pharmaceutical education to teach students about complex biological processes and the predictive power of data-driven modelling. As digital twins become integral to the healthcare landscape, they promise to enhance the accuracy and efficiency of drug development, supporting safer, more effective, and personalized treatments. This innovation not only advances pharmaceutical research but also equips future professionals with cutting-edge skills in computational modelling and personalized medicine.

Keywords: *Genomics, Dataset, Digital Twin.*

Coral Reef Management

Presented by
Baibhav Acharya
Siksha 'O' Anusandhan Deemed to be University, School of Pharmaceutical Sciences, Bhubaneswar, Odisha, India.

Abstract

Coral reefs, often mistaken for plants due to their vibrant colors, are complex animal structures that play a crucial role in marine ecosystems. These underwater cities are home to a diverse array of marine life and provide essential services such as coastal protection and nutrient cycling. Unfortunately, coral reefs are facing a multitude of threats, including climate change, pollution, and overfishing. Research has revealed that coral reefs offer significant potential for medical advancements. Compounds extracted from marine organisms found within these ecosystems have demonstrated promising properties in treating various diseases. For example, some compounds have shown anti-inflammatory, anti-cancer, and antimicrobial activities. However, the continued exploitation of coral reefs and the degradation of their habitats pose a serious threat to the discovery and development of these valuable resources. To protect coral reefs and ensure their long-term sustainability, it is essential to adopt a holistic approach that addresses the underlying causes of their decline. This includes mitigating climate change, reducing pollution, and implementing sustainable fishing practices. By taking proactive measures to safeguard these vital ecosystems, we can not only preserve their ecological importance but also harness their potential for medical innovation and human well-being.

Keywords: *Coral Reefs, Marine Ecosystems, Climate Change, Ocean Acidification, Coral Reef Management, Coral Bleaching.*

Protein Delivery as a Novel Tool for Tumor Targeting

Presented by
Ganti Meghamala
Gokaraju Rangaraju College of Pharmacy, Hyderabad, Telangana, India.

Abstract

A tumor is a solid mass of tissue that forms when abnormal cells group together. The potential of protein anticancer specialists has however to be realized owing to the numerous uncertain issues concerning their conveyance to the location of a tumor and into tumor cells. In any case, our understanding of the instrument's fundamental to the natural destiny and biodistribution of protein and peptide drugs has progressed to an organization where strategies that utilize or impact these instruments are presently accessible. There are diverse approaches that can stride the soundness, life span, and focus on peptides and proteins in the body, such as their alteration with different solvent polymers, joining into microparticulate-medicated carriers, improved penetrability and maintenance effect-based tumor focusing, and the utilization of focusing on moieties. In addition, unused approaches to intracellular medicate conveyance, including the utilization of transduction proteins and peptides, are being developed. These progresses guarantee the conveyance of a modern era of anticancer drugs.

Keywords: *Protein, Tumour Targeting, Protein Delivery, Microparticles.*

Synthesis of Novel Isatin Oxime Derivatives as Potential Therapeutic Agents

Presented by
Y.Madhavi
Annamacharya College of Pharmacy, Rajampet, Andhra Pradesh, India.

Abstract

The study focused on synthesizing novel isatin oxime derivatives through a straightforward method involving the reaction of isatin with hydroxylamine hydrochloride, followed by treatment with chloroacetyl chloride and DMF. This process yielded 1-2(chloroacetyl)-3-(hydroxylimino) indoline-2-one, which was further reacted with substituted anilines to produce the target compounds. The synthesized derivatives were characterized using IR, mass spectrometry, and NMR techniques. Their biological activities were assessed, revealing that compounds 4a and 4b exhibited significant anti-tubercular effects compared to standards like pyrazinamide and streptomycin, while the remaining compounds showed mild to moderate activity. In antibacterial testing, all derivatives displayed less potency than ciprofloxacin against both Gram-positive (Staphylococcus aureus) and Gram-negative (Escherichia coli) bacteria. For antifungal activity, compound 4a was notably effective compared to the standard fluconazole, with the other compounds showing mild to moderate effects.

Keywords: *Isatin, Isatin Oxime, Anti-Tuberculosis, Antibacterial, Antifungal.*

Computational Advancements in Pharmacogenomics

Presented by
Romisha Maurya
Sri Aurobindo Institute of Pharmacy, Indore, Madhya Pradesh, India.

Abstract

The integration of computational methodologies in pharmacogenomics has revolutionized the capacity to predict drug responses based on genetic variation. It examines the most recent developments in computational methods used in pharmacogenomics, with a focus on large-scale genetic data processing, bioinformatics pipelines, and machine learning algorithms. Drug efficacy and toxicity predictions are becoming easier because to the discovery of intricate patterns in pharmacogenomics data made possible by machine learning algorithms, especially deep learning frameworks. Computational tools also help simulate how drugs interact with targets, predict how they are processed in the body, and design new drugs based on genetic information. In education, these tools provide interactive simulations and virtual labs, helping students understand pharmacogenomics better. However, it's important to address challenges like data security and algorithm transparency to ensure the ethical use of these advancements for better patient care and pharmaceutical success. Together, these advancements hold the potential to transform clinical pharmacogenomics, improving therapeutic outcomes and minimizing adverse drug reactions in diverse populations.

Keywords: *Computational, Genomic, Drug Response, Algorithm Transparency, Genome- Wide Association Studies (GWAS), Quantitative Trait Loci (QTL).*

Formulation of Famotidine HCl Floating Drug Delivery System using a Natural Polymer, Bamia Gum and Pharmacokinetic Assessment in Albino Wistar Rats

Presented by
M. Sabareesh, R. Jayaraman
Shri Venkateshwara College of Pharmacy, Ariyur, Pondicherry, India.

Abstract

The primary objective of this research was to generate a floating drug delivery system (FDDS) for famotidine hydrochloride using Abelmoschus esculentus L. seed gum (Bamia gum) as the release-controlling polymer. The FDDS formulations were prepared using various concentrations of bamia gum, along with other excipients such as drug, polymers, and gas-generating agents. The formulations were characterized for physical properties, buoyancy, drug content uniformity, *in-vitro* drug release, floating behavior, swelling index, and *in vivo* bioavailability. The formulations exhibited desirable physical properties and prolonged floating time with excellent buoyancy, good swelling index and drug content uniformity. *In-vitro* release studies revealed sustained drug release over an extended period in the range of 73.92-92.74 % in 12 h. The *in vivo* bioavailability studies revealed that the Area under the curve showed good bioavailability, which was approximately 201.60 times greater than that of the marketed tablet. The *in-vitro* data can depict physiological conditions that are precise duplicates of those seen in *in vivo*, based on the *in-vitro-in vivo* correlation. Therefore, Bamia gum can be considered a potential polymer for the production of floating drug delivery systems, offering improved therapeutic outcomes and patient compliance for treating gastric ailments.

Keywords: *Bamia Gum, Floating Drug Delivery System, Famotidine, In-Vitro Release Studies, In Vivo Bioavailability Studies, In-Vitro-In Vivo Correlation.*

Design and Fabrication of Ball Mill with Sieve

Presented by
Avadhut Dilip Khot
Dr. Shivajirao Kadam College of Pharmacy, Sangli, Maharashtra, India.

Abstract

This Modified machine Focuses on the design and fabrication of a ball mill integrated with a sieve mechanism for particle size control. The ball mill, consisting of a rotating cylindrical shell filled with grinding media, is designed to reduce the size of soft, non-abrasive materials. The sieve, incorporated into the system, allows for the classification of particles, ensuring that only those below a certain size pass through. This dual-function design optimizes the grinding process by providing more precise particle size distribution, enhancing efficiency and broadening its application in various industries. A ball mill is a secondary size reduction device, used for processing soft, non-abrasive materials with a hardness of 1.5 or less. It consists of a rotating cylindrical shell, partially filled with a grinding medium like metallic balls. As the mill rotates, the balls are lifted and fall, causing particle size reduction primarily through impact. Ball mills vary in size and are versatile for different materials.

Keywords: *Design, Fabrication, Modified Ball Mill, Size Reduction, Dual Function, Versetile.*

Remote Telesurgery Robotic Systems

Presented by
Uma Maheshwari G
Dr.MGR Educational and Research Institute, Maduravoyal, Chennai, Tamilnadu, India.

Abstract

This review advocates the use of telesurgery as a viable option to make the healthcare infrastructure already in place around the country even more acceptable, to eliminate problems created due to scarcity of trained medical specialists in rural areas, and to provide surgical care to places that are very difficult to reach, such as space crafts and ships. Technological advancements in telesurgery robotics allow for remote control from beyond traditional distances and specialized medical environments. Good communication is needed in telesurgery. It also requires high data rates and ultra-high URLLC. Thus, the need to have 6G technology while performing telesurgery. Real-time communication is also a necessity while the success of the performance of telesurgery will be realized. Instructions given by the doctor during telesurgery can be either vocal, teleassist, or telestrategic. Hinotori was developed by Medicaroid as a robotic-assisted surgery platform, only for the purpose of pre-clinical testing via remote surgery. Edge Medical Company, Shenzen, China, reported over one hundred animal and 30 live human surgeries. The KanGuo reported human telesurgical cases conducted with distances more than 3000 km. The Microport, China has acquired over 100 human operations at a distance of up to 5000 km. However, several problems such as cybersecurity, and legal issues still need to be overcome before implementing telesurgery successfully.

Keywords: *Telesurgery, Telesurgery Robotic System, Remote Surgery, 6G Communication, Cyber Security.*

Green Synthesis of Iron Nanoparticles, Characterization and *In vivo* Evaluation of Antioxidant Activity of *Grewia Asciatica*

Presented by
Dr.M.Prathibha Bharathi
Gokaraju Rangaraju College of Pharmacy, Hyderabad, Telangana, India.

Abstract

Nanoparticles are synthesized by employing various metallic compounds among which Iron nanoparticles are most favorable for their formation, characterization and invitro examination of biological activities like *in vivo* antioxidant activity. An environmentally safe and non-hazardous methods for applied for synthesizing nanoparticles with plants and is known as "Green synthesis". The main objective of this study is to prepare iron nanoparticles with Grewia asciatica followed by the characterization of synthesized iron nanoparticles by particle size analysis zeta potential UV–visible and FTIR spectroscopy. The analysis of particle size, zeta potential, UV-Visible and FTIR spectrum was determined and the data was put into statistical analysis. The particle size of the iron nanoparticles produced are in the range of 90 to 110 nm and the value of the zeta potential is -19.4mV, the particle size and zeta potential measurements have showed that the biosynthesized nanoparticles have a greater stability. The analysis of UV-Visible and FTIR spectrum revealed that the maximum absorbance of Iron nanoparticles was observed at 321 nm and C=C stretching vibrations in alkenes and -OH stretching vibrations in phenol compounds and alcohols was noted. The antioxidant activity (*in vivo*) of iron nanoparticles of, Grewia asciatica was examined using the Hydrogen peroxide radical scavenging activity and the iron nanoparticles have showed the IC50 value as 60% and when compared with that of standard ascorbic acid value of IC50 as 48%.

Keywords: *Green Synthesis, Iron Nanoparticles , Grewia Asciatica.*

Design and Optimization of Curcumin-Loaded Jelly for Topical Management of Mouth Ulcer

Presented by
Ms. Poonam Dashrath Dighe, Mr.Shivanada Sanjay Korde.
Amrutvahini College of Pharmacy, Sangamner, Ahmednagar, Maharashtra, India.

Abstract

Mouth ulcers are a common oral mucosal condition causing discomfort and pain. Curcumin, a bioactive compound derived from turmeric, has shown promising anti-inflammatory and wound-healing properties. This study aimed to formulate and develop curcumin-loaded jellies as a topical treatment for mouth ulcers. Various formulations were prepared using different concentrations of curcumin, gelling agents, and flavoring agents. The physicochemical properties, including viscosity, pH, spread ability, and stability, were evaluated. *In-vitro* release studies were conducted to assess the release kinetics of curcumin from the jellies. The results demonstrated that the formulated jellies exhibited desirable physicochemical properties and sustained release of curcumin. Moreover, the curcumin-loaded jellies demonstrated significant reduction in ulcer size and accelerated healing compared to control groups. Thus, curcumin-loaded jellies present a promising topical treatment option for managing mouth ulcers, offering both symptomatic relief and therapeutic benefits.

Keywords: *Curcumin Loaded Jellies, Curcumin, Anti-Inflammatory, Antimicrobial, Wound healing.*

Cardiovascular Complications in Rheumatoid Arthritis: A Computational Approach to Risk Management and Treatment

Presented by
Sneha Kahar
Sri Aurobindo Institute of Pharmacy, Indore, Madhya Pradesh, India.

Abstract

Rheumatoid arthritis (RA) is a chronic autoimmune disease that not only affects joints but also significantly increases the risk of cardiovascular complications, which are the leading cause of mortality in RA patients. Traditional clinical approaches focus on managing joint inflammation and autoimmune responses, but emerging evidence suggests the need for a more comprehensive strategy to address cardiovascular risks. This study presents a computational approach to risk management and treatment of cardiovascular complications in RA, integrating clinical data with advanced machine learning models. The models leverage patient demographics, clinical biomarkers and treatment histories to forecast the likelihood of cardiovascular outcomes, offering a tailored approach to patient management. Additionally, our computational models explore the efficacy of current treatments, such as Disease-Modifying Anti-Rheumatic Drugs (DMARDs) and biologics, in reducing cardiovascular risks. Simulation results demonstrate the potential of combining anti-inflammatory therapies with cardiovascular-specific treatments to optimize patient outcomes. Future work will focus on integrating real-time patient monitoring and expanding the model to incorporate genomic data for even more precise risk prediction and treatment optimization.

Keywords: *Rheumatoid Arthritis, Cardiovascular Complications, Computational Approach, Machine Learning, Risk Management, Personalized Treatment.*

Computational Oncology: Advancements in Diagnosis and Treatment of Cancer

Presented by
Sakshi Jain
Sri Aurobindo Institute of Pharmacy, Indore, Madhya Pradesh, India.

Abstract

Computational Oncology is transforming cancer diagnostic and treatment by utilizing advanced computational approaches. The convergence of data science, machine learning, and bioinformatics allows for more precise analysis of complex biological data, such as genomic, proteomic, and imaging information. Cancer remains the biggest cause of death worldwide, accounting for approximately ten million till year 2022. Early diagnosis allows for less aggressive therapies, lowers healthcare expenses, and enhances the patient's quality of life. These techniques offer more accurate screenings, early cancer detection, and individualized treatment plans. Furthermore, computer models have aided the development of personalized medicine, which analyzes unique patient characteristics to adjust therapy tactics. These algorithms anticipate treatment responses and optimize drug. Computational tools facilitate the integration of data, providing a comprehensive understanding of tumor biology and dynamics. These innovations not only accelerate drug discovery and development but also enable real-time monitoring of treatment responses, fostering a shift towards precision medicine. It's important to address challenges like data security and algorithm transparency to ensure the ethical use of these advancements for better patient care and pharmaceutical success.

Keywords: *Computational Oncology, Artificial Intelligence, Proteomics, Genomics, Bioinformatics , Machine Learning.*

INDEXED WITH

Contact: editor@jcpr.in

Call/Whatsapp: 9494632752

Journal of Clinical and Pharmaceutical Research

Universal Episteme Publications