E-SYMPOSIUM PROCEEDINGS

A bimonthly pharma refresh brought to you by Journal of Pharma Insights and Research (JOPIR)

APRIL 2024 VOL. 2, ISSUE 2 DOI: 10.5281/ZENODO.10932191

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MINI-TABLET'S POTENTIAL AS AN ADAPTABLE DRUG DELIVERY TECHNIQUE

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Abstract: In treating pediatric illnesses, standard mass-produced medication forms often fail to meet children's needs. Caregivers frequently modify and mix commercial medications with food at home, or hospitals custom-make medications to treat young inpatients. Despite significant regulatory efforts, children are still subjected to potentially unsafe and questionable practices. Tailoring medication dosages safely and accurately is crucial when developing drugs for children. In this context, solid formulations might offer a better alternative to liquids due to their simpler composition and greater stability. Moreover, to address the issue of adjustability in dosage, mini-tablets present a feasible solution. Mini-tablets are an emerging trend in the design of solid dosage forms, aimed primarily at addressing certain therapeutic challenges like difficulty in swallowing and the management of multiple medications, while also providing therapeutic advantages like adjustable dosing and varied release profiles. They stand out as a promising drug delivery system that is conducive to patient needs. The viability of mini-tablets as a method for medication delivery represents a significant advancement in pharmaceutical technology, particularly in addressing the unique needs of specific patient demographics such as paediatric and geriatric populations, and in the realm of personalized medicine. This research explores the versatility and potential benefits of mini-tablets, which include improved patient compliance due to easier swallowing, the possibility of dose customization, and the ability to combine multiple active pharmaceutical ingredients (APIs) or release mechanisms within a single dosage form.

Keywords: Mini-tablets, paediatric formulations, solid dosage forms, flexible dose, excipients, medications for children.

DIGITAL TRANSFORMATION IN PHARMACEUTICAL TRADE: LEVERAGING TECHNOLOGY FOR COMPETITIVE ADVANTAGE

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Abstract: In the ever-evolving landscape of pharmaceutical trade, embracing digital transformation has become a game-changer for securing a competitive edge. This review delves into the transformative impact of cutting-edge technologies on various aspects of pharmaceutical commerce, underscoring their pivotal role in optimizing operations and fortifying market positioning. By acquiring the power of data analytics, artificial intelligence, blockchain, and other innovative digital tools, pharmaceutical companies can streamline their supply chain processes, boosting efficiency and enabling data-driven decision-making. Moreover, digitalization fosters seamless communication and collaboration among stakeholders, empowering agile responses to dynamic market demands and evolving regulatory frameworks. While challenges such as data privacy and cybersecurity concerns persist, the benefits of digital transformation in pharmaceutical trade are undeniable. This review provides invaluable insights into the transformative potential of technology adoption, highlighting strategic pathways for navigating complexities and achieving sustainable growth in the fiercely competitive pharmaceutical arena. By employing the principles of digital revolution, industry players can unlock new realms of operational excellence, customer-centricity, and unparalleled market agility, solidifying their position as trailblazers in the ever-evolving pharmaceutical landscape.

Keywords: Digital transformation, pharmaceutical trade, data analytics, artificial intelligence, blockchain, supply chain management

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PRECISION MEDICINE'S FUTURE: HEADING TOWARD MORE PERSONALIZED, PREDICTIVE HEALTHCARE

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Abstract: Traditionally, medicine followed a "one-size-fits-all" approach, treating diseases similarly for everyone. Personalized medicine introduced some tailoring, adjusting drug doses based on factors like age and weight. Precision medicine takes this a step further. Advancements in technology like high-throughput sequencing and advanced imaging allow for incredibly detailed analysis of patients' biology on a molecular and cellular level. This unveils the unique variations between individuals at this fundamental level. These technological breakthroughs have revealed a surprising truth - diseases manifest differently at the molecular and cellular level in each person. This newfound understanding of individual variability paves the way for a more precise approach to medicine. Precision medicine leverages these molecular and cellular markers to design treatment plans specifically tailored to each patient's unique makeup. This aims to improve treatment effectiveness and reduce side effects. This highlights ongoing research that promises to make precision medicine even more powerful. This likely involves further advancements in technology and data analysis, allowing for even more accurate predictions and personalized treatment plans. In essence, precision medicine represents a significant shift in healthcare, moving away from a generalized approach to one that considers the unique biology of each patient. This personalized approach holds the promise of improved treatment outcomes and a future of medicine tailored to the individual.

Keywords: Artificial intelligence, Genomics, Personalized medicine, Precision medicine

A REVIEW ON MECHANOCHEMICAL SYNTHESIS OF OXAZOLONES

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Abstract: Mechanochemical synthesis has emerged as a promising solvent-free approach, offering a more ancient, simple, easy to operate, and highly atom-efficient process. This technique is not merely a greener alternative for synthesis but also a powerful tool for discovering products that are insoluble in conventional solvent systems. Mechanochemical reactions involve chemical transformations induced by mechanical energy, such as compression, shear, or friction, complementing traditional activation methods. In this study, a new series of N-[(4Z)-4-(4-arylbenzylidene)-5-oxo-2-phenyl-4,5-dihydro-1H-imidazolyl]-benzene sulfonamide derivatives were synthesized via a mechanochemical route and subsequently evaluated for their in vivo antidiabetic potential. The schematic synthesis of these sulfonamide-substituted derivatives involves the initial formation of oxazolones through a grinding technique. Oxazolones were successfully prepared by grinding hippuric acid (0.25 moles) with various aromatic substituted aldehydes (0.25 moles) in the presence of a few milliliters of acetic acid. After allowing the reaction mixture to stand overnight, the yellow-colored product was filtered, washed with ice-cold ethanol and boiling water, and subsequently recrystallized in ethanol. The mechanochemical approach employed in this study not only aligns with the principles of green chemistry but also facilitates the synthesis of compounds that may be challenging to prepare through conventional solution-based methods. By harnessing the principles of mechanochemistry, researchers can explore new avenues for the discovery and development of potentially bioactive compounds, such as the N-[(4Z)-4-(4-arylbenzylidene)-5-oxo-2-phenyl-4,5-dihydro-1H-imidazolyl]-benzene sulfonamide derivatives, which hold promise for antidiabetic applications..

Keywords: Mechanochemistry, Oxazolones, Hippuric acid. Anti-diabetic activity, Imidazolone derivatives

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FUTURE THERAPEUTIC APPROACHES , CURRENT TREATMENT, AND COVID-19 TRANSMISSION

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Abstract: In the early months of 2020, a zoonotic disease known as COVID-19 emerged in Wuhan, China, and rapidly escalated into a global pandemic. Similar to other zoonotic diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS), COVID-19 causes severe flu-like symptoms and acute respiratory distress syndrome (ARDS). However, it exhibits distinct characteristics in terms of severity and mode of transmission. Numerous similarities between SARS-CoV and SARS-CoV-2 (the virus responsible for COVID-19) have been identified, even at the molecular level, enabling the adaptation of successful clinical strategies used for SARS treatment to COVID-19 patients. This study provides a comprehensive review of the etiology of COVID-19 in comparison to other zoonotic diseases, specifically SARS and MERS. It delves into the nature of the droplets and aerosols released by COVID-19 patients, elucidating their role in human-to-human transmission. Furthermore, the molecular pathways that facilitate SARS-CoV-2's entry into host cells and its enhanced transmissibility compared to other betacoronaviruses like SARS-CoV are explored. The study outlines the various diagnostic methods currently employed in clinical settings to identify COVID-19 cases and the therapeutic strategies adopted to manage and alleviate the associated symptoms. It also discusses the extensive efforts undertaken to develop effective vaccines against SARS-CoV-2, highlighting the diverse technological approaches and platforms utilized in this endeavor. This comprehensive review not only provides insights into the unique characteristics of COVID-19 but also serves as a valuable resource for understanding the ongoing efforts to combat this global health crisis through various diagnostic, therapeutic, and preventive strategies.

Keywords: COVID-19, SARS-CoV-2, COVID-19 Vaccines, Antiviral therapy

PHARMACOVIGILANCE IN THE DIGITAL AGE: HARNESSING BIG DATA FOR DRUG SAFETY MONITORING

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Abstract: In recent years, the landscape of pharmacovigilance has undergone a paradigm shift with the advent of big data analytics and digital technologies. This abstract explores the transformative role of big data in enhancing drug safety monitoring and pharmacovigilance practices. By leveraging large-scale data sources including electronic health records, social media, and wearable devices, pharmacovigilance efforts are empowered to detect adverse drug reactions more efficiently and comprehensively than ever before. Advanced analytics techniques such as natural language processing, machine learning, and data mining enable the rapid identification of potential safety signals, allowing for proactive risk assessment and mitigation strategies. Furthermore, the integration of real-world evidence with traditional pharmacovigilance data enriches our understanding of drug safety profiles across diverse patient populations and healthcare settings. However, challenges such as data quality, privacy concerns, and regulatory considerations must be addressed to fully realize the potential of big data in pharmacovigilance. This abstract highlights the opportunities and challenges associated with harnessing big data for drug safety monitoring and emphasizes the importance of collaborative efforts among stakeholders to ensure the continued advancement of pharmacovigilance in the digital age.

Keywords: Pharmacovigilance, Drug safety monitoring, Adverse drug reactions, Electronic health records.

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TRANSFEROSOMES - A LIPID BASED VESICULAR CARRIER FOR TRANSDERMAL DRUG DELIVERY

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Abstract: Transferosomes are deformable vesicles with a unique structure that allows them to squeeze through relatively smaller pores compared to their size. This characteristic makes them a promising drug delivery system for poorly soluble medications. They possess a phospholipid bilayer surrounding an amphiphilic core, enabling their malleability. Various transferosome formulations have been developed using examples of non-ionic surfactants like Span 80 and Tween 80. Several formulation techniques exist beyond rotary film evaporation and vortexing/sonication. The growing interest in transferosomes stems from their potential to improve patient acceptability and reduce side effects associated with the traditional oral route. This is achieved by bypassing first-pass metabolism through delivery via alternative pathways, ultimately leading to a more consistent drug concentration and potentially improved therapeutic outcomes. In addition to their applications and documented patents, this review delves into the structure, advantages, limitations, materials used in their formulation, formulation procedures, and methods for evaluating their efficacy.

Keywords: Permeation, Edge activators, Transferosomes, Particulate drug delivery

DRUG DEVELOPMENT IN THE ERA OF ARTIFICIAL INTELLIGENCE: ACCELERATING DISCOVERY AND OPTIMIZATION

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Abstract: The integration of artificial intelligence (AI) into the drug development process has revolutionized the landscape of pharmaceutical research and development. This abstract explores the profound impact of AI technologies on accelerating drug discovery and optimization. AI- driven approaches, including machine learning, deep learning, and computational modeling, enable rapid and cost-effective identification of novel drug candidates with desirable pharmacological properties. By leveraging vast datasets encompassing molecular structures, biological pathways, and clinical outcomes, AI algorithms can uncover hidden patterns and relationships that traditional methods may overlook. Moreover, AI-powered predictive models facilitate the optimization of lead compounds, enhancing potency, selectivity, and safety profiles while minimizing off-target effects. Collaborative initiatives between pharmaceutical companies, academic institutions, and AI start-ups are driving innovation in drug development, fostering the creation of AI-driven platforms for virtual screening, de novo drug design, and toxicity prediction. Despite the remarkable progress, challenges such as data quality, model interpretability, and regulatory acceptance persist, necessitating ongoing research and collaboration to harness the full potential of AI in drug development. This abstract underscores the transformative role of AI in expediting the discovery and optimization of therapeutic agents and outlines future directions for the integration of AI technologies into the pharmaceutical industry.

Keywords: Drug development, Artificial intelligence, Computational modeling, Virtual screening, Optimization, Predictive modeling

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PSYCHOPHARMACOLOGY: INVESTIGATING THE LINK BETWEEN THE MIND AND BODY IN PHARMACY

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Abstract: Psychopharmacology is a multifaceted field that bridges the gap between pharmacy and mental health. It delves into the intricate relationship between the brain, behavior, and emotions by exploring how medications influence our thoughts, feelings, and actions. This field of study plays a pivotal role in understanding the complex biological and chemical underpinnings of mental illnesses. Psychopharmacologists act as detectives, meticulously examining the physiological and biochemical processes that contribute to mental health disorders. They explore how imbalances in neurotransmitters, the chemical messengers shuttling signals between brain cells, can lead to symptoms like depression, anxiety, and schizophrenia. Additionally, they investigate how these imbalances affect receptor sites, the docking stations where neurotransmitters bind and exert their effects. They design and evaluate medications that interact with the central nervous system, aiming to restore a healthy balance and alleviate symptoms associated with mental illness. This in-depth understanding of pharmacology and psychology is crucial for creating effective treatments with minimal side effects. Psychopharmacology offers a diverse range of treatment options for a spectrum of mental health challenges. From medications that regulate mood swings in bipolar disorder to antipsychotics that manage hallucinations and delusions in schizophrenia, this field provides targeted solutions for various conditions. This significantly advances the field of psychiatry, allowing for more effective and personalized interventions. By integrating both pharmacological and psychological interventions, it fosters a comprehensive approach to mental healthcare, addressing the needs of the whole person – mind and body.

Keywords: Neurotransmitters, Receptors, Schizophrenia, Psychiatric healthcare, Anxiety

ROLE OF BIOSENSORS IN DISEASE MONITORING

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Abstract: Biosensors have emerged as powerful analytical tools for real-time monitoring in various applications, including bioreactors and the determination of physiological and pharmacological parameters. Their versatility has enabled their widespread use in home testing (e.g., glucose, lactate), hospital settings (bedside testing, emergency care, surgery, dialysis monitoring), and diverse fields such as disease monitoring, drug discovery, and detection of pollutants, pathogens, and disease biomarkers in bodily fluids. Biosensors have been employed in tracking histamine levels to diagnose mast cell activation-related allergies, monitoring C-reactive protein (CRP) levels to correlate lifestyle factors with inflammation and aging processes, and tracking the progression of inflammatory bowel disease, rheumatoid arthritis, and other inflammatory conditions, as well as injuries. Wearable biosensors have been developed to monitor multiple analytes (e.g., proteins, hormones, small molecules like glucose) simultaneously in the body's interstitial fluids, including analytes present at concentrations below 1 g/L. Various hydrogels with biosensing capabilities have been explored, including synthetic polymers such as polyvinyl alcohol, polyethylene glycol, polyacrylate families, and electroconductive hydrogels, as well as hydrogels derived from biological sources like alginate, chitin, chitosan, agarose, cellulose, dextran, and hyaluronic acids. These hydrogels provide a highly aqueous and biocompatible microenvironment, allowing for the accommodation of multiple recognition elements and enabling sensitive and selective biosensing. The integration of biosensors into diverse applications has revolutionized real-time monitoring, enabling early detection, accurate diagnosis, and personalized treatment strategies for various diseases and physiological conditions

Keywords: Biosensor, disease monitoring, drug discovery, diagnosis, Hydrogels.

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AUTISM - A PILOT STUDY

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Abstract: Autism Spectrum Disorder (ASD) presents as a multifaceted developmental condition characterized by neurobiological variances impacting behavior, communication, social engagement, and cognitive abilities. The etiology of ASD remains incompletely elucidated, although a confluence of genetic predispositions and environmental influences is believed to contribute to its manifestation. Symptoms typically emerge before the age of 3 and approximately 30% of children with autism have epilepsy by adolescence. Recognizing the individualized nature of ASD, interventions necessitate tailored approaches to address specific requirements. Behavioral modalities such as Applied Behavior Analysis (ABA) constitute a cornerstone of treatment, demonstrating efficacy in enhancing skills and behaviors among those with ASD. Additionally, therapeutic modalities encompass speech and language therapy, occupational therapy, sensory integration interventions, and pharmacological interventions such as Risperidone and Aripiprazole to manage associated symptoms. Timely diagnosis and intervention play pivotal roles in optimizing outcomes for individuals with ASD, with research underscoring the transformative impact of early interventions, particularly during the preschool years. Given the spectrum nature of ASD and its disparate severity levels, comprehensive treatment frameworks mandate the involvement of multidisciplinary teams of professionals. This collaborative approach ensures a holistic understanding of each individuals unique strengths and challenges, thereby facilitating tailored interventions to promote optimal development and quality of life.

Keywords: Autism spectrum disorder, Applied behavior analysis, Risperidone, Aripiprazole.

ARTIFICIAL INTELLIGENCE IN PHARMACOVIGILANCE

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Abstract: The rapid advancements in artificial intelligence (AI) technology and the vast amount of pharmacovigilance-related data stored electronically necessitate the expeditious integration of data-driven automated procedures across all aspects of pharmacovigilance to support healthcare professionals. However, the effectiveness of AI applications is directly influenced by the volume and quality of available data, and deploying AI in resource-constrained environments presents unique challenges. Analyzing the problems and potential solutions for AI-based pharmacovigilance in resource-limited settings can enhance pharmacovigilance frameworks and capabilities in such contexts. In this review, the challenges are categorized into four main areas: 1) building a comprehensive database for an AI pharmacovigilance system, 2) limited human resources with expertise in AI and pharmacovigilance, 3) inadequate access to advanced AI technologies, and 4) insufficient governmental support and regulatory frameworks. The paper also explores future directions and potential solutions for implementing AI-based pharmacovigilance in resource-constrained environments. Machine learning, a subset of AI, utilizes algorithms and prior knowledge to make predictions and facilitate data-driven decision-making. Recently, there has been a growing interest in leveraging AI, including machine learning techniques, for pharmacovigilance activities related to both drugs under development and marketed pharmaceutical products. The integration of AI can potentially enhance the efficiency, accuracy, and scalability of pharmacovigilance processes, such as signal detection, adverse event reporting, and risk assessment.

Keywords: Artificial Learning, Automation, Automation in Pharmacovigilance, Machine Learning.

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IMPACT OF ARTIFICIAL INTELLIGENCE IN PHARMA INDUSTRY

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Abstract: Artificial Intelligence (AI) aims to develop intelligent systems capable of modeling, knowledge representation, problem-solving, and decision-making. Recently, AI has played an increasingly important role in various fields of pharmacy, including drug discovery, drug delivery formulation development, polypharmacology, and hospital pharmacy operations. In the realms of drug discovery and drug delivery formulation development, various Artificial Neural Network (ANN) architectures, such as Deep Neural Networks (DNNs) and Recurrent Neural Networks (RNNs), have been employed. Several applications of AI in drug discovery have been explored and demonstrated the potential of this technology in areas such as quantitative structure-property relationship (QSPR) modeling and quantitative structure-activity relationship (QSAR) studies. Additionally, de novo design approaches leveraging AI have facilitated the generation of novel drug molecule candidates with optimized desired properties. The integration of AI in pharmaceutical research and development holds promise for reducing costs, enhancing patient care, accelerating profitable innovation, and improving business outcomes across the value chain. However, it is crucial to address challenges related to data quality, interpretability, and regulatory acceptance to fully harness the potential of AI in the pharmaceutical domain..

Keywords: Artificial Intelligence, Pharma Industry, Neural Networks, Structure activity relationship.

RECENT INNOVATIONS IN PHARMACY PRACTICE

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Abstract: The field of pharmacy practice is continuously evolving, driven by advancements in technology, changes in healthcare delivery models, and the growing demand for personalized and accessible pharmaceutical care. This review explores recent innovations that are shaping the landscape of pharmacy practice, addressing challenges, and enhancing patient outcomes. One notable innovation is the integration of digital health technologies, such as mobile applications, telehealth services, and electronic health records, which have revolutionized medication management, patient education, and remote monitoring. Additionally, the adoption of artificial intelligence and machine learning algorithms has facilitated more accurate medication dosing, drug interaction screening, and predictive analytics for optimizing therapeutic regimens. Personalized medicine approaches, including pharmacogenomics and precision medicine initiatives, have gained traction, enabling tailored drug selection and dosing based on an individual's genetic profile and molecular markers. This paradigm shift has the potential to improve therapeutic efficacy while minimizing adverse drug reactions. Furthermore, the rise of specialty pharmacy services has addressed the unique needs of patients with complex medical conditions, such as cancer, rare diseases, and chronic disorders, by providing specialized medication management, patient education, and care coordination. Advancements in drug delivery systems, such as nanoparticle-based formulations, transdermal patches, and implantable devices, have enhanced bioavailability, controlled release, and patient adherence, offering new therapeutic options for various disease states. As the healthcare landscape continues to evolve, these innovations in pharmacy practice hold the promise of transforming the delivery of pharmaceutical care, maximizing therapeutic benefits, and contributing to the overall improvement of population health.

Keywords: Pharmacy Practice, Patient education, Genetic markers, Telehealth.

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LATEST DRUG DEVELOPMENTS IN THE FIELD OF CARDIOVASCULAR DISEASE

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Abstract: Nowadays at 21st century, many deaths are arising due to cardiovascular disease. In U.S.,Heart disease causes 1 in 5 deaths, estimated by the Centers for Disease control and Prevention (CDC).But the death arises more in annually than the other diseases since 1900.Research on heart disease started expanding in the 1900s,which begun with the American Heart Association in 1924.Modern medicine has developed new drugs for the heart disease such as cardiovascular disease, coronary artery disease, and also includes the other conditions which has the great improvement in the quality of many peoples life. The present target and aim of this review is to discover the new agents in the modern medicine with according to the latest information and to focus on the advancement by acquiring the problems with old and modern therapeutical effect of the drug in Cardiovascular Diseases. Most of the treatments include the new drug which targets the various underlying symptoms. The development and identification of new cardiovascular drug targets has led advancement in the drug development over recent years. Current drug development focuses on two main categories antiplatelet/antithrombotic agents and antidyslipidemic agents. Two main treatment models are being evaluated for ACS: antiplatelet agents (primarily drugs that block ADP receptors) and antithrombotic agents (blood clotting inhibitors). Antiplatelet agents block ADP receptors on the surface of the heart muscle, while antithrombotic agents prevent blood clotting. The lack of new products does not reflect the many options being considered, but there are many treatment models of interest for each target disease category.

Keywords: Cardiovascular diseases, ACS, ADP, New drug development.

A LIFE SAVING MEDICINE MADE BY VANISHING SPECIES MRUGMADA

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Abstract: The name 'Musk' is widely recognized, but only a few individuals have the privilege of experiencing its distinctive aroma. This highly prized substance, famously used in perfumes, is so rare that very few living people can claim to have ever smelled it. Not all species of deer produce musk; it is obtained from a specific small deer known as the 'musk deer' or 'Kasturimrig' (Sanskrit) and 'Hiranmuski' (Unani). The musk deer possesses two protruding tusks, which it uses to scrape off forest lichens, its primary food source. The musk is a secretion found in a glandular pouch located near the animal's abdomen. Musk has been a key constituent in many perfumes since its discovery, renowned for its ability to act as a fixative, enhancing the longevity and intensity of fragrances. Practitioners of traditional systems of medicine, such as Ayurveda and Unani, claim beneficial results with the use of musk in treating various disorders, including toxicity, vomiting, foul odors, and leucoderma (vitiligo). Although musk has been a valuable ingredient in perfumery for centuries, its high price and the endangered status of musk deer led to trade regulations under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in 1979. While CITES controls the legal trade quantity of natural musk, illegal poaching and trafficking continue to pose a threat to the conservation of this species.

Keywords: Musk, Ayurveda, Unani, Traditional Medicine, Aroma therapy

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POLYCYSTIC OVARIAN SYNDROME (PCOS)

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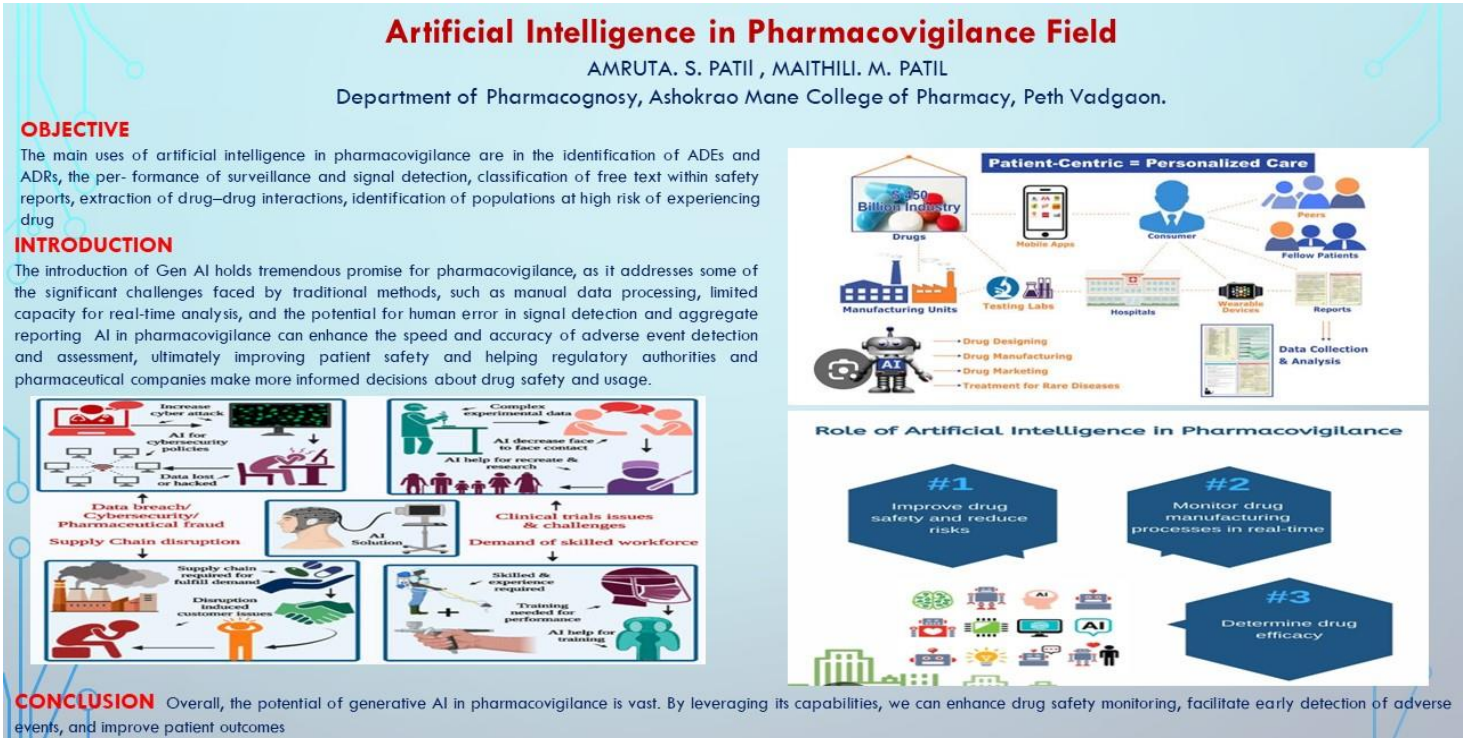
Abstract: Polycystic ovary syndrome (PCOS) is the most common endocrine disorder affecting women of reproductive age. The familial clustering of PCOS cases suggests a significant contribution of genetic factors in its etiology. While several studies on families with multiple affected members initially suggested an autosomal dominant mode of inheritance, detailed analyses of a large number of affected families have cast doubt on this simple inheritance pattern, indicating a more complex etiology. The results of recent studies support the concept of PCOS as an oligogenic disorder, in which multiple genes affecting metabolic pathways involved in glucose homeostasis and steroid biosynthesis contribute to its development. There is evidence for an important role of the insulin gene minisatellite in the etiology of anovulatory PCOS, and the gene coding for P450 cholesterol side-chain cleavage enzyme (CYP11A) in the mechanism of excessive androgen secretion in women with polycystic ovaries. The heterogeneity of clinical and biochemical features observed in PCOS is likely explained by the interaction of a small number of key genes with environmental and nutritional factors. Disturbed lifestyle factors may contribute to the development of the pathophysiological disturbances characteristic of PCOS, including hyperandrogenism, insulin resistance, and chronic low-grade inflammation. This review proposes that PCOS arises from a complex interplay between multiple genetic factors, primarily affecting glucose metabolism and steroidogenesis, and environmental influences, particularly those related to diet and lifestyle.

Keywords: Polycystic Ovary Syndrome (PCOS), Oligogenic Disorder, Insulin Gene, Steroidogenesis, Gene-Environment Interaction

E POSTERS



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IMPACT OF ARTIFICIAL INTELLIGENCE IN PHARMA INDUSTRY

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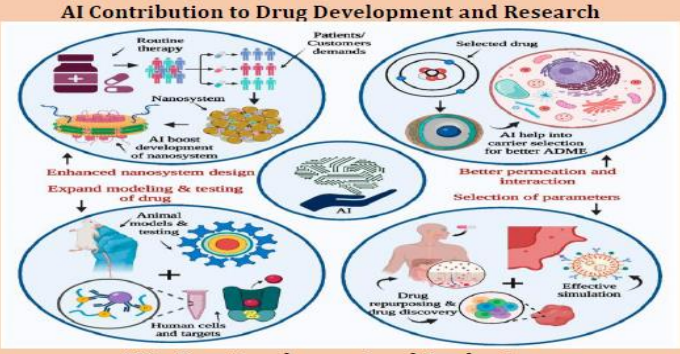
AI Contribution to Drug Development and Research



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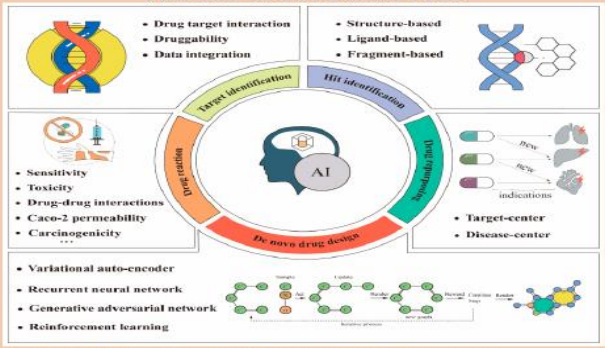
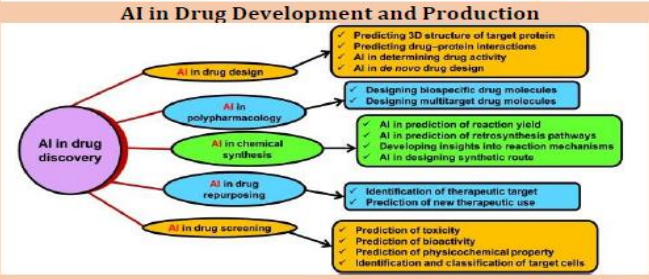


AI in Drug Development and Production



Potential of AI for Revolutionizing Drug Discovery

Conclusion:

AI is at the centre of new enter to build models of Intelligence the main assumption of intelligence (human of other wise) can be represented in the terms of symbol structure and symbolic operations which can be programmed in a digital computer. There is much debates as to whether such an appropriate programmed computer would be a mind or would merely simulate one, but AI researchers need not wait for the conclusion to that debate, nor for the hypothetical computer that could model all of human intelligence. Aspects of human intelligent behavior, such as reference, learning & understanding language have already been coded as computer programs, AI programs can outperform human experts.

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RECENT INNOVATION IN PHARMACY PRACTICE

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E-SYMPOSIUM PROCEEDINGS

JOPIR Journal of Pharma Insights and Research

A bimonthly pharma refresh brought to you by Journal of Pharma Insights and Research (JOPIR)

APRIL 2024 VOL. 2, ISSUE 2

DOI: 10.5281/ZENODO.10932191

A life saving medicine made by vanishing species- Mrugmada

[Kasturi mriga-Musk deer]

Shellino Education Society

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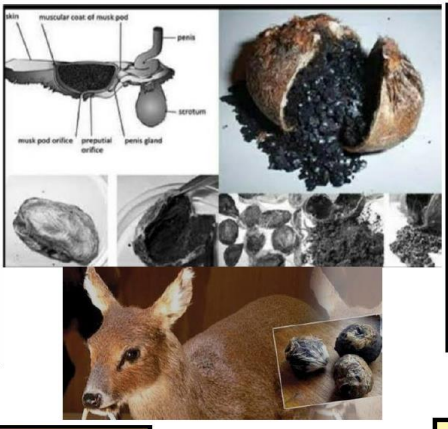
Abstract-

The name of Musk is known to the entire mankind but today, only a few persons have the privilege to smell its odor. There is a perfume so famous that everyone on earth knows its name but it is so rare that only very few living human beings can boast at having ever smelled it. All kind of deer do not have "The Musk" The musk found in which deer, that is Known as Kasturimrig (Sanskrit), Hiranmuski (Unani). The Musk comes from a small deer that has two fangs; he uses to scratch forest lichens on which it feeds. Musk has been a key constituent in many perfumes since its discovery, being held to give a perfume long-lasting power as a fixative. Practitioners of Indigenous Systems of Medicine claim to obtain beneficial results with musk in various disorders viz. Visha (Toxicity), Chardi (Vomiting). Daurgandhya (fetid smell). Kilas (leucoderma).

Deer musk has been a key constituent in many perfumes since its discovery, being held to give a perfume long-lasting power as a fixative. Despite its high price, musk tinctures were used in perfumery until 1979, when musk deer were protected as an endangered species by the Convention on the International Trade in Endangered Species of Wild Flora and Fauna (CITES). Today the trade quantity of the natural musk is controlled by CITES but illegal poaching and trading continues.[

Keywords-

Musk, Kasturi, Ayurveda, Moschus Moschiferous



Introduction

Musk deer is a small animal of 50 cm height and differs from other deers in respect that there are no antlers in either sex. It is a wary animal of iron-grey [3].

Kasturi - Musk, as commonly known, is a secretion from the animal Moschus Moschiferus or popularly known as Musk Deer. Musk proper is an inspissated and dried secretion (testicular extract) from the preputial follicles of the male musk deer (Moschus moschiferus) [3].The material is found embedded in a sac is called pod which is oval or round with a diameter of about 1.5 inches;pod is about 3-7 cm long and 3 - 5 cm broad. It weighs about 30 g and contains half its weight of musk. The sac opens by a small hairy orifice in its anterior part and marked posterior by a groove or furrow, which corresponds with the opening of the prepuce[1] .The upper surface is flat with a smooth membrane and the under surface is covered with stiff hairs arranged concentrically round a small opening. The animal on an average yields 2-4 drachms of the secretion. Each animal (male) yields one musk-pod 2 inches in diameter. It occurs in irregular, reddish black, slightly unctuous grains .The musk is used in the treatment of psychiatric disorders, neurological diseases, nausea, bad odor, strengthening cardiac muscles and respiratory diseases[3].

Description-

Colour-Dark brown or brownish-red
Odour-Very strong and characteristic
Taste-Slightly bitter
Musk occurs in viscid mass or coarse granule powder[1].

Sources-

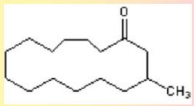
- Biological Source-Musk is a dried secretion obtained from the prenaptial follicles of musk-deer Moschus moschiferus Linn family Cervidae.[1]
- Geographical Source-The animal musk deer is found in the mountainous regions of the Himalayas and in China. It is also reported in Russia.[1]

Scientific classification-

Scientific classification-
Kingdom: Animalia
Phylum: Chordata
Class: Mammalia
Order: Artiodactyla
Family: Moschidae
Genus: Moschus
Species: Moschus Moschiferus[3].

Chemical composition:

When distilled, musk yields about 1.5 per cent w/w of dark brown volatile oil. It also contains fat, wax, cholesterin, albuminoids and resins.[1]



muskone

The volatile oil chiefly contains ketonic substances, of which muskone is the main constituent.Musk contains ammonia, oleine, cholesterin, gelatinous matter, albuminous substances and leaves an ash. Ash is composed chiefly of the chlorides of potassium, sodium & calcium.[1]

Types of Kasturi -

Kasturi is mainly divided into three parts depending on its place of origin.
1) Nepali Musk- Blue colored musk is obtained from the deer of Nepal[3].
2) Kamrupi Kasturi- The musk obtained from the deer of Assam region is black in color and is also called Kamrupi Kasturi[3].
3) Cashmere Musk- It is a yellow colored musk obtained from Kashmir deer in India. While the color of Kashmiri Kasturi is different from it. From the qualitative point of view, among these three types, Kamrupi Kasturi is the best, Nepali Kasturi – medium and Kashmiri Kasturi are considered normal[3].

Benefits-

1)Treatment of fever, abdominal tumor, diabetes, Kshaya[3]. 2)It is also useful in chronic cough, bronchitis, bronchial asthma and productive cough[3].
3)Used for the treatment of male infertility and fever[3].
4)Improves nerves&brain strength. 5)Treating disorder such as such as neuralgia, paralysis, constipation, bloating[3].
6)It acts as cardiac tonic and Congenial for hearts.[3].

Adverse effect-

Excess use of kasturi can cause burning sensation, intoxicating effect and giddiness[3].

Standards-

Loss on drying:20-30%
Alcohol soluble extractive:20-30%
Water soluble extractive:55-70%
Ash:Not more than 8%[1]

Substitutes-

There are several animals that secrete substances with strong odour, more or less similar to musk. Beaver (Castor fiber), civet (Viuerra zibetha) and American musk (Fiber zibeythicus) are few important examples[1].

The herbal source, known as Musk mallow (Abelmoschus moschatus, family Malvaceae) is found abundant in hotter plains of India. This plant is cultivated in Maharashtra, Gujarat, and M.P. The seeds of this plant contain volatile oil, which has resembling flavour to that of musk. Synthetic musk is a yellowish white crystalline compound and has very strong persistent odour, somewhat similar to, but distinct from natural musk[1].

Activity	Mechanism of Action (MOA)
Nutricosmetics	conditions like acne, eczema, and rashes.
Anti-inflammatory	traditionally used to alleviate joint and muscle pain associated with conditions like arthritis.
Aromatherapy	promote relaxation, reduce stress, and uplift mood

Conclusion-

Kasturi musk, is a substance obtained from the musk deer. It's a highly aromatic substance traditionally used in perfumes, incense, and traditional medicine due to its distinct fragrance and potential therapeutic properties. However, due to concerns about the conservation of musk deer populations, synthetic alternatives are often used in modern perfumery and medicine.

Kasturi musk is a natural substance obtained from the musk gland of the musk deer, particularly the Himalayan musk deer. It has been traditionally used in various cultural practices and industries.However, due to concerns about conservation and animal welfare, synthetic alternatives to musk are increasingly being used in commercial products. Additionally, efforts are being made to protection. the musk deer and regulate the trade of musk to ensure its sustainability.Musk deer populations have been declining due to habitat loss, hunting, and illegal trade, leading to the designation of some species as endangered or vulnerable. As a result, the demand for musk has contributed to the decline of these species, making musk a vanishing commodity.

Natural musk was used extensively in perfumery until the late 19th century when economic and ethical motives led to the adoption of synthetic musk, which is now used almost exclusively. The organic compound primarily responsible for the characteristic odor of musk is muscone. There are several ways of preparing the commercial musk, and the best method is to dry the pod by sunning and airing immediately after it is taken from the animal. Natural musk because of its powerful diffusion of odour, is usually packed in hermetically-sealed vessels and wooden boxes lined with tin foil.

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APRIL 2024 VOL. 2, ISSUE 2

DOI: 10.5281/ZENODO.10932191

POLYCYSTIC OVARIAN SYNDROME (PCOS)

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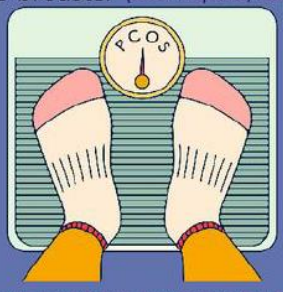
POLYCYSTIC OVARY SYNDROME (PCOS)

PCOS is when the patient's ovaries produce too many androgens (the male sex hormone). This will grow into fluid-filled sacs that will form around the ovaries. Cysts may not always be present, but symptoms will. PCOS has no exact cause, and it is harder to diagnose. PCOS does run in families, so it is more common to be passed from mother to daughter (John Hopkins, n.d.).

SIGNS & SYMPTOMS

- changes in periods (missed, irregular, or light)
- large ovaries
- excess body hair (chest, stomach, back)
- weight gain in the abdomen
- acne/oily skin
- thinning hair
- infertility
- skin tags on the neck/armpits
- dark/think the skin on the back of the neck, armpits, or under the breasts. (John Hopkins, n.d.).



PREVENTATIVE SCREENING

Diet, exercise, and oral contraceptives can help the client, but since the cause is unknown, it is hard to prevent it.

DIAGNOSTIC TESTS

Normally, the healthcare provider will ask about the patient's current medical history and current symptoms you have. Then, they will commonly move on to physical and pelvic exams. The HCP will look into the health of the reproductive organs. You may also have to have an ultrasound to look at the organs or blood tests to see if there are high levels of androgens or other high hormones (John Hopkins, n.d.).

TREATMENT

If the client does plan to become pregnant:

- change in diet and exercise
- use of medications that cause ovulation

If the patient does NOT plan to become pregnant

- birth control pills
- diabetes (If insulin resistant)
- change in diet and exercise
- medication to treat other symptoms (John Hopkins, n.d.).

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