ISSN No : 2584-2781

SPECIAL ISSUE

INTERNATIONAL JOURNAL OF PHARMACEUTICAL AND HEALTHCARE INNOVATION

GLOBAL PHARMAVISION 2040

INOVATION, SUSTAINABILITYAND ACCESS

2025 FEBRUARY 25 & 24

SHRI RAMSWAROOP MEMORIAL UNIVERSITY,LUCKNOW DEVA ROAD, BARABANKI UTTAR PRADESH, INDIA

https://ijphi.com

असतो मा सद्गमय। तमसो मा ज्योतिर्गमय। मृत्योर्मामृतं गमय ।। ऊँ शान्ति शान्ति शान्तिः ॥

About Journal

International journal of Pharmaceutical and Healthcare innovation (IJPHI) is a peer-reviewed journal published quarterly. It is a peer-reviewed journal aiming to communicate high-quality original research work, reviews, short communications, case reports, Ethics forums, Education forums and Letters to the editor that contribute significantly to further the scientific knowledge related to the field of pharmaceutical sciences. International journal of Pharmaceutical and Healthcare innovation publishes Original Research Articles, Short Communications, Review Articles in all areas of pharmaceutical sciences from the discovery of a drug up to clinical evaluation. Topics covered are: Artificial intelligence machine learning innovation in Healthcare industry, Artificial intelligence ,machine learning innovation in the field of drug discovery, medicinal and analytical chemistry, Pharmaceutical chemistry, Pharmaceutics and Pharmacokinetics; including; Pharmacognosy including herbal products standardization and Phytochemistry; Pharmacology: Allied sciences including drug regulatory affairs, Pharmaceutical Marketing, Pharmaceutical Microbiology, Pharmaceutical biochemistry, Pharmaceutical Education and Hospital Pharmacy. Articles with timely interest and newer research concepts will be given more preference. All articles published in this journal represent the opinion of the authors and do not reflect the official policy of (International journal of Pharmaceutical and Healthcare innovation). All papers are subjected to double-blinded peer review.

About Editorial Board

Reviewer

Jagroop Singh
Department of Medicinal Chemistry, National Institute of Pharmaceutical Education and Research (NIPER)
S.A.S. Nagar Mohali, Punjab-160062.

Ankush Kumar
Amity school of Pharmaceutical Sciences, Amity University Punjab, Mohali.

Shubhrat Maheshwari
Department of Pharmaceutical Sciences, Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj, India.

Ravi Kumar
Institute of Pharmaceutical sciences JS University, Shikohabad, Uttar Pradesh.

Ramdas Bhat
Department of Pharmacology, Srinivas College of Pharmacy.

Shubham Tripathi
Institute of Pharmaceutical Sciences Group of Institution Soharamau, Unnao-209859

Mr. Rahul Pal
ISF College of Pharmacy (ISFCP), Moga, GT Road, 142001, Punjab, India.

Mr. Ashok Jangra
School of Health Sciences, Sushant University,India.

Piyush Vatsha
M.S. Ramaiah University of Applied Sciences,
Bengaluru, Karnataka, India.

Mr. Sunil Kumar Verma
Faculty of Biotechnology, Institute of biosciences & Technology,
Shri Ramswaroop memorial university, India.

Kushal
School of Pharmacy, RK University, Rajkot,India.

Ms. Amandeep Kaur
ISF College of Pharmacy Moga, Punjab, India

Sweta Rai
Faculty of Pharmaceutical Sciences, Rama University, Mandhana, Kanpur, U.P ,India. 209217

Mr. Dipesh Adesh Gamare
Yashwantrao bhonsale college of pharmacy Sawantwadi, Maharashtra,India.

Manisha Mishra
Charak Institute of Pharmacy, Lucknow, India

Prerna Mehta
Department of Biotechnology,GD Rungta College of Science & Technology,
Bhilai, Chhattisgarh, India
Ambassador of Microbiologists Society, India.

Mrs. Pooja Pradhan
Charak Institute of Pharmacy, Lucknow, India.

Advisory Committee

Dr. Sunil Kumar
Institute of Pharmaceutical Science, Lucknow University, India.

Dr. Jagat Pal Yadav
Department of Pharmaceutical Sciences, Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj, India.

Dr. Abhinav Dwivedi
Department of Pharmacology, Maharana Pratap College of Pharmacy, Kanpur, India.

Deepti Dwivedi
Institute of Pharmacy, Dr Shakuntala Misra University Rehabilitation University Lucknow, India.

Chandan Kumar Singh
Department of Pharmaceutical Sciences and Technology, BIT Mesra, Jharkhand, India.

Ms. Apurwa Singh
Institute of Pharmacy, Shri Ramswaroop Memorial University, Lucknow Dewa Road, Uttar Pradesh, India.

Mr. Somesh Shukla
Materiovigilance Associate, Indian Pharmacopeia Commission, Ghaziabad, India.

INDEXING

E-ISSN: 2584-2781

- Crossref
- Google scholar
- ISI Impact Factor
- EuroPub
- IMDCI
- ESJI
- RPRI
- IP Indexing

ABSTRACT

BOOK

LIST OF ABSTRACTS

Nanoformulation-Based Herbal Drug Delivery: A Promising Avenue for Psoriasis Treatment

Gurpreet Singh*, Mohd. Aqil
Jamia Hamdard, School of Pharmaceutical Education and Research, New Delhi-11062
amritkiid1998@gmail.com

Abstract

Psoriasis is a persistent immune-mediated skin disorder affecting 0.6% to 4.8% of the global population. In addition to chronic inflammation, various environmental factors (like stress, illness, trauma and drugs), genetic vulnerability, alcohol intake, inappropriate nutrition significantly contribute to the development of psoriasis. Psoriasis is primarily caused by pro-inflammatory cytokines, including IL-6, IL-1β, and TNF-α, leading to excessive inflammation and over proliferation of keratin-forming cells. Individuals with severe psoriasis face an increased risk of cardiometabolic, digestive, and renal diseases. Psoriasis can significantly adversely affect the quality of life of patients. Current chemical agents for psoriasis treatment include keratinization-modulating agents, vitamin D derivatives, and immunosuppressants, which may lead to side effects like immune system dysfunction, irregular blood cell formation, and skin thinning. The treatment of skin diseases with synthetic drugs is susceptible to resistance, prompting increased focus on the use of plant-derived compounds. A diverse array of molecules exists in nature that exhibit anti-inflammatory and antioxidant properties, which are effective in preventing disorders of the skin and mucous membranes. Nanotechnology, when integrated with phytoconstituents, represents an environmentally sustainable strategy that offers advantageous therapeutic effects while minimizing adverse side effects, which is an emerging area of research. This project involves the development of nano formulation containing, a phytoconstituent, incorporated into a Nanogel, aimed at improving therapeutic outcomes for psoriasis. The topical administration of nano formulation can attain elevated local tissue concentrations while ensuring minimal systemic exposure. This research sought to explore the safeguarding effects of nano formulation-based herbal drug delivery on imiquimod-induced psoriasis in mice, examining its underlying molecular mechanisms and its impact on psoriasis area and severity index scores.

Keywords: Nano formulation, Phytoconstituents, Nanogel, Anti-inflammatory and Antioxidant properties

Design, Synthesis and Antimicrobial Activity of Quinoline and Amino Acid Conjugates

Adarsh Shukla[a], Shashank Shekhar[a] [b], Aswani Kumar[a], Deepanshi Saxena[b], Sidharth Chopra[b], and Damodara N Reddy[a] [b]*

[a]Division of Medicinal and Process Chemistry, [b]Division of Molecular Microbiology and Immunology CSIR-CDRI, Lucknow; [c]Academy of Scientific & Innovative Research (AcSIR), Ghaziabad UP-201002, India. E-mail: drx.adarsh2002@gmail.com damodara.reddy@cdri.res.in

Abstract

The development of new antibacterial agents is unmet need due to growing drug resistance of bacterial pathogens. Quinolines scaffold present in numerous drug candidates like Chloroquine, Primaquine and number FDA approved drugs. In view of developing new antimicrobial agents, we have designed herein a Quinoline and amino acid conjugates (Figure-1). We hypothesized that the C-terminal hydroxamic acid stops the bacterial transcription and hence the bacterial death will occur. Towards this aim, a total of 10 conjugates were synthesized upon condensation reaction, isolated compounds by column chromatograph and investigated their antimicrobial activity against five clinically validated bacterial strains and analysed the data. Data showed that the compounds exhibited moderate antibacterial activity. Further optimization and SAR study is under progress.

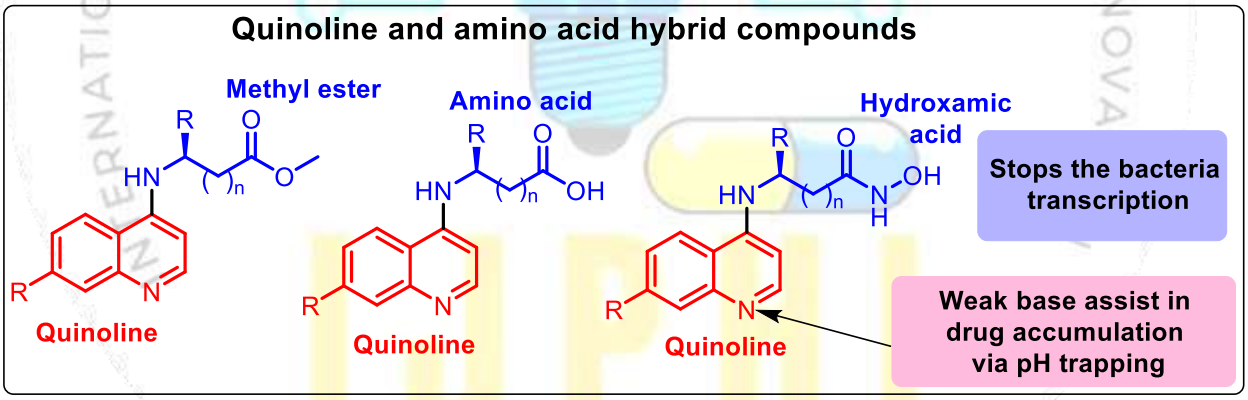

Figure: Designed and synthesized quinolone and amino acid conjugates.

Nanotechnology-Driven Drug Delivery for Alzheimer's Disease Management

Ritu Sharma*, Mohd. Aqil, Farhan J. Ahmed
School of Pharmaceutical Education & Research, Jamia Hamdard, New Delhi-110062
ritusharma_sch@jamiahamdard.ac.in

Abstract

The WHO has named Alzheimer's disease (AD), the most prevalent kind of dementia in people over 60, a "global public health priority" due to its rising incidence and lack of known cure. Adverse dementia affects 50–75% of dementia patients; it is more common in women and increases with age. The accumulation of hyperphosphorylated tau (p-tau) and amyloid beta (Aβ), which results in neurodegeneration and cognitive impairment, are the two primary pathogenic characteristics of AD. It is challenging to develop effective treatments because it is yet unclear which specific biochemical mechanisms are responsible for these changes. Another important barrier is the Blood-Brain Barrier (BBB), which prevents most therapeutic drugs from accessing the brain and limits drug absorption. By enhancing medication transport across the blood-brain barrier, nanotechnology-based drug delivery devices have emerged as a practical means of circumventing these limitations. Liposomes, polymeric nanoparticles, dendrimers, and lipid-based systems are examples of nanocarriers that can be surface-modified or receptor-targeted to increase brain uptake. Emulsion-based nano formulations, such as oil-in-water-in-oil (o/w/o) and water-in-oil-in-water (w/o/w) systems, have shown great potential in the treatment of AD. These intricate liquid dispersion systems offer controlled and prolonged drug release since the therapeutic substance must partition through multiple phases before reaching the intended spot. This method ensures long-lasting pharmacological activity, higher stability, less systemic toxicity, and the co-administration of many therapeutic agents for enhanced efficacy. This abstract highlight recent advancements in nanotechnology-powered drug delivery systems, with a focus on different emulsions and their potential to enhance therapeutic outcomes in the treatment of AD. By improving drug absorption and removing the barriers caused by the blood-brain barrier, nanotechnology offers a potential avenue for the management and treatment of AD in the future.

Keywords: Alzheimer disease, Hyperphosphorylated tau, Amyloid beta, Blood-Brain Barrier.

HPTLC method development and validation for quantitative estimation of rhein biomarker in leaf extracts of *Senna alexandrina* Mill. and its commercial formulation

Rizwan Ahmad[1, 2*], Zeeshan Fatima[1], Sadath Ali [3], Suneela Dhaneshwar [4], Sayeed Ahmad [5] Afreen Bano[6]
[1] Amity Institute of Pharmacy, Lucknow, Amity University Uttar Pradesh Lucknow, India.
[2] Seth Vishambhar Nath Institute of Pharmacy, Lucknow- Dewa Road, Barabanki, U.P, India.
[3] M.A.M College of Pharmacy, Kalaburagi (Gulbarga), Karnataka, India.
[4] Amity Institute of Pharmacy, Amity University Maharashtra, Mumbai, Maharashtra, India.
[5] Bioactive Natural Product Laboratory, School of Pharmaceutical Education and Research, Jamia Hamdard, New Delhi, India.
[6] Hygia college of Pharmacy, Lucknow
rapresent3@gmail.com

Abstract

The bioactive anthraquinone rhein present in leaf extract of *Senna alexandrina* Mill. is traditionally used to treat various ailments. Pharmacologically, this plant has been reported to have laxative, cathartic, anthelmintic, blood purifier, spasmodic, anti-emetic, anti-inflammatory and immune booster properties. The present study was aimed at qualitative and quantitative estimation of rhein biomarker in the methanolic extract of *Senna alexandrina* leaves and its commercial formulations by HPTLC densitometric analysis. The separation and quantification of was carried out on silica gel 60 F_{254} aluminium plates using Toluene: ethyl acetate: glacial acetic acid (7:2.5:0.5; v/v/v) as the mobile phase. Scanning was carried out on both the detection wavelengths i,e 254 nm and 366nm, but 254 nm was chosen as a estimation wavelength, because peak abundance of plant extract and formulations was found to be better at wavelength 254 nm. The developed method produced compact spots of rhein at R_f 0.67 ± 0.01. The method was validated using International Council of Harmonization guidelines: Q2(R1) for precision, accuracy, robustness, limit of detection (LOD), and quantitation (LOQ) in the linear working concentration range of 100-2000 ng/mL, which showed regression equation y = 1.3124 x + 309.21 and regression coefficient R^2 = 0.9984 ± 0.0005 at 254 nm for rhein. The LOD and LOQ were found to be 15.49 ± 0.645 and 46.94 ± 1.172 ng/spot, respectively. The rhein content was found to be 120.692 ± 0.895 and 51.873 ± 0.217 µg/mg in plant leaf extract and marketed formulation respectively. Due to the lack of standardization for *Senna alexandrina* and its derived commercial herbal products, their quality control remains a challenging task. The developed method was found simple, precise, accurate, economical and convenient for rapid screening of bioactive marker rhein present in methanolic extracts of *Senna alexandrina* and its marketed product.

Keywords: *Senna alexandrina* Mill., anthraquinone, rhein, densitometry, validation

Transforming Global Health: The Role of Pharmaceutical Innovation in 2024

Abhishek Kumar*[1], Shubhrat Maheshwari[2], Jagat Pal Yadav[2,] Somesh Shukl[3] , Ravi Kumar[4] ,Shailendra Singh Bhadauria[5]

[1] Institute of Pharmaceutical Research, GLA University, Mathura, Uttar Pradesh, India

[2,] Bioorganic and Medicinal Chemistry Research Laboratory, Department of Pharmaceutical Sciences, Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj, 211007,

[3]Indian Pharmacopeia Commission, Ghaziabad, India

[4]Institute of pharmaceutical sciences JS University, Shikohabad, Uttar Pradesh

[5]Ch. Sughar Singh Pharmacy College, Jasvant Nagar,Etawa,Uttar Pradesh, India

abhiworld1997@gmail.com

Abstract

The pharmaceutical industry in 2024 stands at the crossroads of unprecedented innovation. A growing reliance on technologies like artificial intelligence (AI), machine learning, and next-generation sequencing is enabling faster, more efficient drug discovery. These advancements are not only expediting the identification of promising compounds but also enhancing the precision of treatments through personalized medicine. In particular, genetic and molecular insights are leading to the development of targeted therapies that address individual patient needs, ensuring better outcomes and fewer side effects. Additionally, the rise of telemedicine and digital health platforms is reshaping patient care and improving access to life-saving medications in underserved regions. This collaboration between digital tools, biotech, and traditional pharmaceutical methods is positioning the global healthcare ecosystem to meet the rising demands for both innovation and accessibility. However, achieving these breakthroughs requires robust partnerships between governments, academic institutions, and the private sector to align regulatory frameworks, funding, and infrastructure. With sustainability becoming a key focus, the industry is shifting towards greener production methods, reducing environmental impacts, and improving supply chain transparency. As we look to 2024, these innovations promise not only to revolutionize how we approach drug development and treatment but also to ensure that these advancements are equitably accessible to all populations, regardless of economic background or geography.

Keywords: Pharmaceutical innovation, AI in drug discovery, personalized medicine, global health,

Advancing Sustainability in Global Pharma: 2024 and Beyond

Shraddha Pandey*, Apurwa Sigh, Pragti Singh, Shikha Srivastava, Shivangi Sharma
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India (225003)
shra1102pandey@gmail.com

Abstract

In 2024, sustainability is set to become a central pillar of the global pharmaceutical industry. The sector faces growing pressures to reduce its environmental footprint, driven by concerns over climate change and resource scarcity. Pharmaceutical companies are increasingly adopting sustainable practices, from eco-friendly packaging to energy-efficient manufacturing processes. The trend towards "green chemistry" aims to reduce toxic byproducts, waste, and harmful chemicals in drug production, thus ensuring cleaner production methods that align with global environmental goals. Additionally, sustainability in pharma involves addressing the lifecycle of products, including sourcing raw materials ethically, reducing carbon emissions in supply chains, and ensuring proper waste disposal. With environmental regulations becoming stricter, companies are compelled to innovate in ways that not only support ecological balance but also lower long-term costs through energy savings and waste reduction. Collaboration with stakeholders in government and civil society is critical to developing strategies that reduce the industry's overall ecological impact. Pharmaceutical firms are also investing in green technologies, such as renewable energy sources and biodegradable materials, to maintain competitive advantage while fulfilling their corporate social responsibility (CSR) goals. These sustainable efforts are closely tied to the growing consumer demand for eco-conscious products. As such, 2024 will see a significant shift in how pharmaceutical companies balance profit-making with environmental stewardship and social responsibility.

Keywords: Sustainability in pharma, green chemistry, eco-friendly packaging, carbon emissions reduction, pharmaceutical manufacturing, ethical sourcing, corporate social responsibility.

Bridging the Gap: Expanding Access to Medications in 2024

Sushma Singh*, Abhishek Kumar, Shraddha Pandey
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India (225003)
singhsushmapratap090@gmail.com

Abstract

One of the most pressing challenges facing the pharmaceutical industry in 2024 is ensuring that life-saving medications are accessible to everyone, particularly in low- and middle-income countries (LMICs). The global health disparity is stark, with millions of people unable to access essential medicines due to high costs, logistical barriers, and inadequate healthcare infrastructure. In response, companies are exploring innovative solutions such as tiered pricing models, partnerships with governments and NGOs, and the expansion of generic drug markets to reduce costs and increase accessibility. Governments are also playing an essential role by improving policies related to drug pricing, intellectual property laws, and healthcare system reform. In particular, public health initiatives are focused on reducing the financial burden of chronic diseases and infectious conditions that disproportionately affect poorer nations. Strategic alliances between pharmaceutical companies and international organizations like the WHO are critical in supporting efforts to deliver affordable vaccines and treatments for diseases like malaria, tuberculosis, and HIV/AIDS. Furthermore, the rise of digital health platforms and mobile health solutions is enhancing access to healthcare services, providing remote consultations, and delivering medications directly to underserved populations. As the pharmaceutical sector embraces these models, it will help break down barriers to healthcare access, ensuring that no one is left behind in the pursuit of health equity.

Keywords: Access to medicine, global health equity, tiered pricing, generics, pharmaceutical partnerships, healthcare infrastructure, digital health solutions, WHO.

The Role of AI and Data Analytics in Revolutionizing Pharmaceutical R&D

Zahid Husain*[1],Vaseem Ahmad Ansari[2], Manju Pandey[3]
[1,3]Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India (225003)
[2]Faculty of Pharmacy, Integral University, Kursi Road, Dasauli, Lucknow, Utrar Pradesh, India (226026)
zahid1392@gmail.com

Abstract

Artificial intelligence (AI) and data analytics are revolutionizing the pharmaceutical industry's approach to research and development (R&D). In 2024, these technologies are expected to play an even more significant role in identifying new drug candidates, predicting patient responses, and accelerating clinical trials. AI algorithms can analyze vast datasets from clinical trials, genomic databases, and patient health records, uncovering patterns that human researchers might miss. This not only speeds up drug discovery but also helps in the development of more targeted therapies that address specific patient populations. The integration of machine learning with real-time data collection and monitoring tools enables pharmaceutical companies to design more efficient clinical trials, optimizing participant recruitment and reducing trial duration. AI-powered predictive models are also being used to simulate clinical outcomes, improving the likelihood of success before moving to costly human trials. Furthermore, AI is enhancing personalized medicine by helping identify biomarkers that can predict a patient's response to a particular treatment. This level of precision allows healthcare providers to prescribe medications that are tailored to the individual, reducing trial and error in treatment regimens. As AI continues to evolve, it is anticipated that it will transform the drug development landscape, making it faster, more efficient, and more aligned with patient needs.

Keywords: Artificial intelligence, pharmaceutical R&D, machine learning, drug discovery, personalized medicine, predictive modeling, clinical trials, data analytics.

Strengthening Global Supply Chains: Pharma's Path to Resilience in 2024

Yasmin Khatoon
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India (225003)
yassu.awaan@gmail.com

Abstract

The COVID-19 pandemic highlighted the fragility of global supply chains, particularly in the pharmaceutical sector. As the world moves into 2024, the industry is prioritizing the development of more resilient, diversified supply chains to ensure the uninterrupted delivery of essential medications. This includes shifting away from over-reliance on a single region for raw materials and pharmaceutical manufacturing. Companies are exploring new production hubs, investing in localized manufacturing, and leveraging digital technologies like blockchain to enhance traceability and transparency throughout the supply chain. Automation and robotics are also transforming pharmaceutical production, increasing efficiency while reducing human error. These technological advancements are making it easier to scale production and adapt to changing demands, whether it's for routine medicines or emergency responses to pandemics. Sustainability also plays a significant role in this transformation, as companies seek to minimize waste, lower carbon footprints, and improve energy efficiency throughout the production and distribution process. By adopting circular economy principles and focusing on sustainability, pharma is not only safeguarding the integrity of its supply chains but also aligning with broader environmental goals. As global pharma faces increasing demand, building supply chain resilience will be a key factor in ensuring that treatments are consistently available to all populations.

Keywords: Supply chain resilience, global manufacturing, digital technologies, blockchain, pharma production, automation, sustainability, pharmaceutical distribution.

Redefining Drug Pricing: Fairness and Innovation in 2024

Saumya Awasthi*, Nimisha Singh, Sunil Singh, Shubham Gautam, Pramod Singh
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India (225003)
awasthi0598@gmail.com

Abstract

As the global pharmaceutical industry looks toward 2024, one of the most controversial issues it faces is drug pricing. While the high cost of medications remains a significant barrier to healthcare access worldwide, especially in lower-income regions, the need for continued innovation is equally critical. Balancing affordability with the financial sustainability of the industry is a complex challenge that requires multifaceted solutions. Tiered pricing strategies, where drug costs vary depending on the region's income level, are gaining traction as a way to make life-saving medications more accessible without compromising pharmaceutical companies' ability to reinvest in R&D.In addition, greater transparency in pricing and value-based pricing models, where the cost of drugs is tied to their effectiveness and outcomes, are emerging as potential solutions to the pricing dilemma. Governments and international organizations are also playing a vital role in advocating for fairer pricing policies, particularly for essential medications and vaccines. Pharmaceutical companies are encouraged to focus on the social impact of their products, offering support programs and subsidies for low-income populations. With the right mix of regulatory measures, corporate responsibility, and international cooperation, the pharmaceutical sector can ensure that life-saving treatments are both innovative and affordable.

Keywords: Drug pricing, tiered pricing, value-based pricing, healthcare access, innovation, affordability, pharmaceutical policy, global health.

The Role of Pharmacogenomics in Personalized Medicine

Miss Priyanka Pal, Mr. Purnendra Gupta*
Rameshwaram Institute of Technology and Management, Lucknow, India
purnendragupta32@gmail.com

Abstract

Pharmacogenomics is the science of how one's genetic makeup influences one's response to medicines. With the advancement of genomic technologies, the science is revolutionizing drug sciences by offering the promise to apply the principles of personalized medicine. With genetic variation in drug metabolism, response, and toxicity, doctors can be in a position to better personalize medicine to the patients, maximizing drug efficacy, as well as reducing side effects. Pharmacogenomics testing is increasingly becoming a part of clinical decision-making, especially in psychiatry, cancer, and cardiology. Challenges include incorporating pharmacogenomics testing into the practice of medicine and patients' access to genetic tests.

Keywords: Pharmacogenomics, personalized medicine, genetic makeup, drug metabolism, clinical decision-making.

Herbal Drug tulsi : A Review of Efficacy and Safety

Sachin Chauhan*, Zahid Husain , Sushma Singh
Institute of Pharmacy of Shri Ramswaroop Memorial University, Deva Road, Barabanki, Uttar Pradesh India- 225003
sachinchauhan7x@gmail.com

Abstract

In the present review, an attempt has been made to congregate the botanical, phytochemical, ethnomedicinal, pharmacological and toxicological information on Ocimum sanctum Linn. (OS, Tulsi), a medicinal herb used in the indigenous system of medicine. OS has been adored in almost all ancient ayurvedic texts for its extraordinary medicinal properties. It is pungent and bitter in taste and hot, light and dry in effect. Its seeds are considered to be cold in effect. The roots, leaves and seeds of Tulsi possess several medicinal properties. Ayurvedic texts categorise OS as stimulant, aromatic and antipyretic. While alleviating kapha and vata, it aggravates pitta. It has a wide range of action on the human body mainly as a cough alleviator, a sweat-inducer and a mitigator of indigestion and anorexia. OS has a variety of biological / pharmacological activities such as antibacterial, antiviral, antifungal, antiprotozoal, antimalarial, anthelmentic, antidiarrhoeal, analgesic, antipyretic, antiinflammatory, antiallergic, antihypertensive, cardioprotective, central nervous system antiasthmatic, antithyroidic, antioxidant, anticancer, chemopreventive, radioprotective, immunomodulatory, antifertility, antiulcer, antiarthritic, adaptogenic / antistress, anticataract, antileukemia and anticoagulant activities.this herb is seemed to be highly valuable,
possessing many pharmacological / medicinal properties.

Keywords: Medicinal properties, Ocimum sanctum (OS, Tulsi), Pharmacological activities.

Monoclonal Antibodies: A Boon for Cancer & Autoimmune Disease

Amol Shankar Lal
J.S.S Institute of Pharmacy, Para-Sarai, Sitapur, U.P., 261207, India
amolshankarlal2004@gmail.com

Abstract

Monoclonal antibodies (mAbs) have revolutionized modern medicine, offering targeted and effective therapies for cancer and autoimmune diseases. These laboratory-engineered antibodies mimic natural immune responses but with enhanced precision, selectively binding to specific antigens on diseased cells. In cancer treatment, mAbs work by blocking growth signals, inducing immune responses, or delivering cytotoxic agents directly to tumors, reducing off-target effects compared to traditional chemotherapy. For autoimmune diseases, mAbs help modulate immune activity by targeting inflammatory cytokines or immune cell receptors, thereby reducing disease progression while minimizing systemic immunosuppression. Therapies like rituximab for lymphoma, trastuzumab for breast cancer, and adalimumab for rheumatoid arthritis have demonstrated remarkable efficacy, improving patient outcomes and quality of life. However, challenges such as high costs, potential immune resistance, and infusion-related side effects remain. Ongoing research focuses on enhancing therapeutic efficacy through next-generation mAbs, including bispecific and antibody-drug conjugates, as well as personalized approaches like immune checkpoint inhibitors. Despite limitations, monoclonal antibodies represent a significant advancement in precision medicine, offering hope for patients with previously untreatable conditions. Their continued development holds promise for even more effective and accessible treatments in the future.

Keywords: Targeted Therapy, Immune modulation, Precision Medicine and Biologic treatment.

Review on Biological Importance role of Catecholamine

Sachin Yadav , Shubham Goutam*
Institute of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
gautamshubham123123@gmail.com

Abstract

Catecholamine are mainly works as neurotransmitter that play a most important role in the functioning at transmit the regulation of neurotransmitter impulses through the PNS at stored in the central nervous system (CNS). It consists of catechole nucleus in the ring system due to their response to maintain stress, metabolism and hormonal secretions. Catecholamine functioning that as per required in the brain include dopamine, nor-epinephrine (nor-adrenaline), and epinephrine (adrenaline) releases through the body. They are involved in a wide range of physiological and psychological processes, influencing mood, attention, motivation and motor control, among others. Here are some of the key roles of catecholamines in the CNS.

Dopamine: dopamine is also produced in smaller amount in the hypothalamus and the enteric nervous system of the GIT. Synthesis begins with the conversion of tyrosine to levo-dihydroxy phenylalanine (I-DOPA) by the enzyme tyrosine hydroxylase. L-DOPA is then converted to dopamine by the enzyme aromatic L-amino acid decarboxylase, also known as dihydroxy phenylalanine (DOPA) decarboxylase.

Non-epinephrine: The chromaffin cells of the adrenal medulla, sympathetic neurons in different organs, and noradrenergic neurons of the central nervous system—specifically, the brainstem's locus coeruleus—all produce norepinephrine. Within these cells, the enzyme dopamine β -hydroxylase, which is found inside vesicles, transforms neither dopamine into nor epinephrine. It also acts to fight and flight response.

Epinephrine: The enzyme phenylethanolamine N-methyltransferase (PNMT) transforms norepinephrine into epinephrine, which is mostly produced in the chromaffin cells of the adrenal medulla. An essential characteristic of chromaffin cells is the presence of this enzyme, which enables them to convert norepinephrine into epinephrine. The hormone epinephrine is released into the blood stream after being stored in vesicles.

Keywords: phenylethanolamine N-methyltransferase, tyrosine hydroxylase, levo-dihydroxy phenylalanine, chromaffin cells.

Review on Histology and development of Penicillin

Shubham Goutam*, Manish Kumar
Institute of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
gautamshubham123123@gmail.com

Abstract

Penicillin was accidentally discovered in 1928 by Scottish bacteriologist Alexander Fleming while he was employed at London's St. Mary's Hospital. On a petri dish, he noticed that a mold—later determined to be Penicillium notatum—inhibited the growth of Staphylococcus germs. When Fleming discovered that this mold produced an antibiotic chemical, he named it penicillin. Its mechanism of action involves inhibiting the synthesis of bacterial cell walls, causing the destruction of pathogenic bacteria. Initially recognized for its efficacy against Gram-positive bacteria, such as Streptococcus and Staphylococcus species, penicillin played a pivotal role in treating life-threatening infections, including pneumonia, scarlet fever, meningitis, and syphilis. Ten years later, a group of researchers led by Norman Heatley, Ernst Boris Chain, and Howard Florey at the University of Oxford made the significant discovery when they successfully refined and mass-produced penicillin. The Oxford team created techniques for extracting and concentrating penicillin in 1939–1941. The first human patient to be tested with penicillin was Albert Alexander, a police officer, who appeared to be recovering but passed away when the penicillin supply ran out in 1941. 1942–1945: Pharmaceutical firms like Pfizer and Merck increased production with assistance from the American and British governments, enabling penicillin to be used to heal injured soldiers during World War II. A medical revolution resulted from the widespread civilian use of penicillin following the war. For bacterial illnesses like as pneum, it was the first successful treatment. It is effective against Gram-positive bacteria and some Gram-negative bacteria.

Keywords: Penicillin, Gram-positive bacteria, Gram-negative bacteria, Penicillium notatum, Staphylococcus.

Review on Era of Modern Pharmacy by Artificial Intelligence (AI)

Aditya Kumar Gupta , Shubham Goutam*
Institute of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
gautamshubham123123@gmail.com

Abstract

The prescription, dispensing, and management of medications are all being revolutionized by artificial intelligence (AI) in modern pharmacies. In order to forecast patient outcomes and offer individualized treatment recommendations, artificial intelligence (AI)-powered systems examine enormous volumes of data, including genomic information, medical histories, and electronic health records. Artificial intelligence has been shown to be used to promote patient safety, decrease medication errors, and improve drug management. Additionally, pharmacy processes are becoming more efficient, less complicated administratively, and more streamlined thanks to AI automation. Artificial intelligence chat bots and virtual assistants are also increasing medication compliance and patient involvement.Pharmacy integration of artificial intelligence (AI) will revolutionize the delivery of healthcare, enhance patient outcomes, and save expenses. However, it poses significant social, ethical, and legal issues. Understanding the risks and making sure AI doesn't have any bad consequences or harm is essential as it develops and gains more capabilities for processing information. Instead, it should be utilized as a tool to help patients, pharmacists, and the healthcare industry as a whole. Modern medicine will undergo a change thanks to artificial intelligence, which will also make it easier and more efficient for patients to receive services from pharmacists and clinicians. An effective and more patient-focused paradigm of health service delivery will be built, utilizing the benefits of artificial intelligence (AI).

Keywords: Artificial Intelligence, Pharmacy, Personalized Medicine, Medication Management.

Review on Factor affecting in causes of depression in Teenager

Shubham Goutam*, Ataullah Khan
Institute of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
gautamshubham123123@gmail.com

Abstract

Depression is a very serious issue in overall suffers mostly affected by teenager. According to an Indian study, the age group of 15–29 years old had the greatest suicide rate (38 per 100,000 populations); followed by the 30–44-year-old group (34 out of 100,000 people).Suicide rates were 7 per 100,000 for people over 60 and 18 per 100,000 for people 45 to 59. Teenage depression may result from a complex interplay of lifestyle, psychological, environmental, and biological factors. Biologically, a family history of depression or other mental health disorders can increase a teenager's likelihood of developing depression. Additionally, imbalances in neurotransmitters like serotonin and dopamine can impact mood regulation. Hormonal changes during puberty and adolescence can also make teens more emotionally vulnerable. Environmentally, dysfunctional family dynamics, bullying, peer pressure, trauma, and chronic stress can all contribute to depression. The rise of social media has also introduced new challenges, including cyber bullying, social comparison, and social isolation. Psychologically, low self-esteem, perfectionism, and cognitive distortions can make teens more susceptible to depression. Negative thought patterns, such as catastrophizing or over generalizing, can exacerbate depressive symptoms. Lifestyle factors, including poor sleep patterns, nutrition, and substance abuse, can also contribute to depression. Academic pressure and lack of social support can further increase vulnerability. According to global studies, the rate of depression and suicidal ideation among teenagers varies significantly across countries, but generally, a significant proportion of adolescents worldwide experience suicidal thoughts, with higher rates observed in males and older teenagers convert this word into human writing.

Keywords: serotonin and dopamine, adolescence, psychological, mental health disorders

Review on Medicinal properties of Kadam *(Neolamarckla cadamba)*

Shubham Goutam *, Samad Siddiqui
Institute of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
gautamshubham123123@gmail.com

Abstract

Neolamarckia cadamba, commonly known as the Kadamba tree, is a tropical plant that has long been recognized in traditional medicine for its therapeutic properties. The tree, belonging to the Rubiaceae family, is rich in bioactive compounds found in various parts, including the bark, leaves, flowers, and fruits. Research has demonstrated that *Neolamarckia cadamba* possesses a wide range of pharmacological activities, including anti-inflammatory, antimicrobial, antioxidant, antidiabetic, and hepatoprotective effects. The bark, in particular, is used to treat conditions such as fever, diarrhea, and respiratory infections, while its leaves are known for their wound-healing properties. In addition, the plant has shown promise in managing diseases such as diabetes and liver disorders due to its ability to regulate blood glucose levels and protect liver cells from damage. Despite the growing evidence of its medicinal potential, further scientific exploration is necessary to fully understand the mechanisms behind its therapeutic actions and to standardize its use in modern medicine. This review aims to highlight the medicinal value of *Neolamarckia cadamba,* with an emphasis on its pharmacological properties and potential for future therapeutic applications. Leaf extracts are used to treat swelling, wounds, and inflammatory conditions. Used in herbal formulations for headache, joint pain, and muscle pain relief. Crushed leaves are applied to wounds to promote faster healing. Leaves help lower blood sugar levels and are used in Ayurvedic medicine for diabetes management. Traditionally used to detoxify the liver and improve its function. The bark is used to lower fever and treat infections. Bark decoctions help in treating diarrhea, dysentery, and stomach disorders. Contains bioactive compounds that help manage blood sugar levels. Used in Ayurveda for detoxifying the blood and improving skin health. Bark extracts are applied to cuts, burns, and skin diseases. Traditionally used for treating cough, asthma, and bronchitis.

Keywords: *Neolamarckia , cadamba,* anti-inflammatory, wound healing, ayurvedic, ayurvedic medicine

Review on anti-ulcer agents or agents and their mechanism of action

Shubham Goutam*, Nikita Prajapati ,
Institute of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
gautamshubham123123@gmail.com

Abstract

The prevalence of peptic ulcers was estimated to be 8.09 million cases globally in 2019, up 25.82% from 1990, with an age-standardized prevalence rate of 99.40 cases per 100,000 people. However, despite the rise in cases, the age-standardized prevalence rate actually fell from 1990 due to population changes. Ulcers are caused by imbalance between the gastro duodenal mucosal defensive factor such as bicarbonate, mucus versus aggressive factors like acid and pepsin secretion. Most important things you can do to prevent peptic ulcer disease- Find the eradicate H. Pyloric, use NSAIDS only as directed Antiulcer agents and medications for acid peptic disease are commonly used drugs that rarely cause liver injury. The majority of agents work by neutralizing acid, preventing acid damage to the gastrointestinal mucosa, or inhibiting the generation of gastric acid. Antacids like aluminum or magnesium hydroxide (Maalox, Mylanta, and many others) and calcium carbonate (Tums, Rolaids, and others) are the most widely used antiulcer agents. Antacids have no known negative effects on the liver and are absorbed very little. In rare cases, calcium salts can result in hypocalcaemia, and antacid usage may produce a little increase in urine pH.Anti-ulcer drugs are used to treat and prevent ulcers in the stomach and duodenum by targeting different aspects of gastric acid production, mucosal protection, and infection control. The major classes and their mechanisms of action are as follows: Proton Pump Inhibitors (PPIs): it inhibits the hydrogen ion potassium ion due to passes through the adenosine triphosphate enzyme in the controlling on gastric acid secretion. H_2-Receptor Antagonists (H_2 Blockers): it is effect by histaminic activity due to H_2 receptor on gastric parietal cells and also reduced by the cAMP levels. Antacids: the antacid act by the decrees on the gastric acid secretion in the stomach, controlling their and maintain the pH level and also have protect by the mucosal layer of stomach.

Keywords: Proton Pump Inhibitors, H_2-Receptor Antagonists, hypocalcaemia, H. Pyloric.

Review on Medicinal uses and Phytochemical properties of Clove *(Syzygium aromaticum)*

Shubham Goutam *, Mohd. Faiz
Institute of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
gautamshubham123123@gmail.com

Abstract

Clove is obtained from the dried flower buds of *Syzygium aromaticum* (syn. *Eugenia caryophyllata*) and Clove belongs to the Myrtaceae family. Due mostly to their antibacterial and antioxidant properties, spices like clove, oregano, mint, thyme, and cinnamon have been used for ages as medical plants and food preservatives. The antibacterial, antifungal, antiviral, and anti-carcinogenic qualities of spice plants are now supported by several reports. Among the spices, cloves have garnered the most interest because of their strong antibacterial and antioxidant properties. Clove represents one of the major vegetal sources of phenolic compounds as flavonoids, hydroxy benzoic acids, hydroxy cinamic acids and hydroxy phenyl propens. The primary bioactive ingredient in cloves, eugenol, ranges in concentration from 9 381.7 0 to 14 650.00 mg per 100 g of fresh plant material. Clove flower buds have concentrations of essential oil up to 18%. Roughly, 89% of the clove essential oil is eugenol and 5% to 15% is eugenol acetateand β –cariofileno. α-humulen is another significant component that can be detected in clove essential oil at quantities of up to 2.1%. Clove essential oil also contains smaller amounts of limonene, farnesol, benzaldehyde, 2-heptanone, ethyl hexanoate, and β-pinene. A database containing the polyphenol content and antioxidant activity of various foods has recently been created by the US Department of Agriculture in partnership with academic institutions and private businesses. Based on this database, pérez -jiménez et al.

Keyword: β –pinene, polyphenol, hydroxy cinamic acids, phenolic compounds, flavonoids.

Review on Histological Review of Morphine

Sumit Singh, Shubham Goutam*
Institute of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
gautamshubham123123@gmail.com

Abstract

Morphine is a potent opioid analgesic drug that is derived from the opium poppy (Papaver somniferum). It is widely used in clinical practice for management of moderate to serve pain, particularly in case of post-surgical pain, and palliative care. Morphine is widely used as a narcotic analgesic effect. In 1804 the general pharmacist friedrich serturner isolated morphine from opium naming it after Morpheus. In 1817, Friedrich serturner experiment morphine on animals and confirm that powerful pain relive properties. In 1827, the German pharmaceutical company Merck starts production of morphine. In 1830- 1850 morphine is widely used in medicine for treating serve pain. In 1847, the formula of morphine is given by Laurent. In 1853-1855: Scottish physician alexander physician Alexander physician and French surgeon Charles Pavraj release hypodermic syringe, allowing for injection of morphine. In 1850-1860 morphine is used during American civil war (1861-1865) for diseases. In 1925, the structure of morphine is given by Robinson IN 1973, the discover of opioid receptor by semantrons pert and Snyder Pharmacology of morphine:- morphine primarily act on the mu-opioid receptors(MOR) that present on the central nervous system(CNS) although it has some affinity for kappa and delta receptors. Upon binding to these receptors, morphine inhibits the neurotransmitter such as substance P and glutamate, leading to analgesia, sedation, and euphoria. Absorption: - morphine can be administered as various route like oral intravenous subcutaneous Metabolism of morphine: - morphine is metabolized in the liver and kidney Morphine convert into morphine-3-glucuronide in the presence of UGT_2B_7 enzyme (90) And morphine converts into morphine-6-glucuronide in the presence of UGT_2B_7 (10) Excretion of morphine: - 90 percent Within 24 hours, the body primarily excretes morphine in the form of urine. Therapeutics uses of morphine pain, trauma myocardial infarction, musculoskeletal pain, and Myocardial infarction pain severe arthritis.

Keywords: myocardial infarction, musculoskeletal pain, and Myocardial infarction pain severe arthritis.

Review on Advancement in Neuroscience

Shubham Goutam*, Amartya Dwivedi
Institute of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
gautamshubham123123@gmail.com

Abstract

Neuroscience and neurotechnology are quickly revolutionizing medical treatments and human capabilities. Brain-computer interfaces enable individuals with disabilities to control devices using thought alone. Companies like Syncron and Neural ink are introducing both invasive and minimally invasive BCIs to improve communication and mobility. Neuro stimulation therapies are evolving treatment for neurological disorders such as Parkinson' s and depression including neuro transcranial magnetic stimulation (TMS) deep brain stimulation (DBS).Adaptive brain scanning systems that respond to real-time brain activity are improving efficacy and patient outcomes. Neuro prosthetics are evolving beyond cochlear implants to include retinal implants for vision restoration and advanced robotic limbs that mimic natural movement. Sensory neuro prosthetic devices such as artificial retinas and bionic eyes bring back lost sensory experiences. Cognitive enhancement by brain injury is being explored to improve memory and focus but ethical concerns regarding privacy and misuse remain. AI and machine learning play a crucial role in the decoding of brain activity personalizing neuro stimulation therapies and predicting neural networks. Future development will see greater collaboration between researchers and regulatory agencies and industry to accelerate innovation while ensuring safety. Hybrid neuro technologies combining mobile and implantable devices could bring BCIs to mainstream use expanding their applications beyond medicine into everyday life.

Keywords
Neuro stimulation therapies, Cognitive enhancement, neuro technologies, neuro transcranial magnetic stimulation (TMS) deep brain stimulation (DBS).

Review on pharmacological action of during Protein-Drug Binding

Aditya Srivastava, Shubham Goutam *
Institute of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
gautamshubham123123@gmail.com

Abstract

Drugs and blood components from both reversible and irreversible complexes as a result of protein binding. It can have an impact on the metabolic modification of ligands as well as the pharmacodynamics and pharmacokinetics of medications. The majority of medications undergo reversible binding with blood components including erythrocytes or plasma proteins such serum albumin, alpha-1 acid glycoprotein (AAG), and lipoproteins. An active site, binding site, or binding pocket is a void on the outside or inside of a protein that has sufficient characteristics to bind a ligand. The anions with the highest affinity for albumin are organic ones, such as warfarine, phenylbutazone, and carbenoxolone. Drugs that bind to lipoproteins include cyclosporine A, amiodarone, halofantrine, amphotericin B, nystatin, and eritoran. Because of their exceptionally low isoelectric point, alpha-1 acid glycoproteins are very acidic proteins that can bind to both basic (like steroid hormones) and acidic (like phenobarbital) medicines. Patients with conditions like diabetes mellitus, cancer, liver and kidney illness, and burn injuries have changed protein binding. The plasma albumin levels in older patients were significantly lower, which leads to less protein binding and, eventually, more free (unbound) medicines in the blood, which can be hazardous. In order to obtain optimal clinical efficacy and reduced toxicity, protein binding data is monitored, assessed, and then utilized to develop precise dose that guarantees a constant concentration of target pharmaceuticals in the patient. Protein binding was reduced in neonatal neonates due to lower albumin levels. The concentration of plasma protein can be altered by a number of conditions, including pregnancy, liver or renal disease, stress, and surgery. According to other reports, protein binding is influenced by pH and temperature.

Keywords: Binding pocket, plasma protein, toxicity, drug design

Review on medicinal uses and phytochemical properties of *Butea Monosperma*

Aditya Srivastava, Shubham Goutam *
Institute of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
gautamshubham123123@gmail.com

Abstract

Butea monosperma, a member of family Fabaceae, class Magnoliopsida, Order Fabales and Genus Butea Roxb. ex Wild. Is commonly known as "Flame of forest" in English, "Palas" in Hindi, "Muriku" in Malayalam and "Palash" in Sanskrit is a deciduous tree which grows all over India and in South Asian peninsula. It acts as a medicinal plant and is used in treatment of various diseases in Ayurveda. Almost every part of Butea monosperma is used to produce pharmacological activity which includes its flowers, barks, seeds, fruits and leaves. Its flower contains metabolites such as Triterpene, butein, butin, isobutrin, isocoreopsin, sulphurein, monospermosideand flavonoids. These metabolites are shown to exhibit antioxidant, anti-inflammatory, antimicrobial and anticancer properties. The seeds contains metabolites such as isomonospermoside, which gives antioxidant and anti-diabetic properties, monospermoside, which gives anti-oxidant and anti-inflammatory properties and allophanicacid, which has antifungal properties, while its resin contains jalaric esters I, II and laccijalaric esters III, IV α amyrin, β-sitosterone, which were also proven to give similar antimicrobial and ,anti-inflammatory properties. Its leaves contain kino oil which have oleic acid and and linoleic acid and is used to treat skin conditions and heal wounds.It also had glucosides which had similar properties. The bark of Butea monosperma contains kino-tannic aci, which has astringent and anti-inflammatory properties and Gallic acid, which has neuro-protective and anticancer properties.In addition to these other parts of the plant had metabolites present in them like the stem had Stigmasterol-β-D-glucopyranoside, which showed hypoglycemic activity, and nonacosanoic acid, which has antiocidant properties in them whereas the gum had pyrocatechin, which showed similar antioxidative and andti-inflammatory properties.

Keywords: pyrocatechin, antioxidative and andti-inflammatory, glucosides, Stigmasterol-β-D-glucopyranoside.

Review on Medicinal properties and Phytochemistry of *Datura stramonium*

Nitesh Kumar, Shubham Goutam *
Institute of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
gautamshubham123123@gmail.com

Abstract

Datura stramonium or Jimson weed is a wild shrub belonging to the kingdom of Planate; the family is Solanaceae, the class is Magnoliopsida, the order is Sultanates, and the species is Datura stramonium. It also has both properties of toxicity and medicinal use. The chemical constituents of alkaloids main active compounds such as atropine 0.1%-0.6%, scopolamine 0.02%-0.5%, hyoscyamine 0.04%- 0.7%, and other compounds such as flavonoids 1%-3%, tannins 1%-2%, steroids 1%- 3%, saponins 2%-4% and carbohydrates 5%-10%. These alkaloids are responsible for its ant cholinergic activity. Saponins (seed leaves, roots) contribute to their antimicrobial and anti-inflammatory properties. Steroids are Present in small amounts. These include phytosterols like beta-sitosterol, which may have roles in immune modulation. The chemical composition of Datura stramonium Leaves {Hyoscyamine: 0.2–0.6%, Atropine: 0.08–0.5%, Scopolamine: 0.06–0.2, Flavonoids, tannins, and phenols (minor components)}Seeds (Hyoscyamine: 0.2–0.5%, Atropine: 0.2–0.4%,Scopolamine: 0.05–0.15%,Fixed oils: 15–30%, Proteins: 10–20%)Flowers (Hyoscyamine: 0.2–0.3%, Atropine: 0.1–0.25%, Scopolamine: 0.05–0.1%)Roots (Hyoscyamine: 0.3–0.7%, atropine: 0.1–0.5%, Scopolamine: 0.1–0.3%)Stems(Hyoscyamine: 0.1–0.3%, Atropine: 0.05–0.2%, Scopolamine: 0.02–0.1%) Fruits (Hyoscyamine: 0.2–0.4%, Atroatropine5–0.3%, Scopolamine: 0.05–0.1%). Herbal (Ayurvedic) medicine is used in skin disorder, ear, and pain, antiasthmatic and sedative. The pharmacological activities of Datura stramonium are ant cholinergic activity, analgesic and anti-inflammatory and antimicrobial activity, CNS effects, and antioxidant properties.

Keywords: Anti cholinergic activity, analgesic and anti-inflammatory and antimicrobial activity, CNS effects, and antioxidant properties.

A Review of medicinal properties of vinca

Shubham Goutam*, Savej Khan
Institute of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
gautamshubham123123@gmail.com

Abstract

Catharanthus roseus (Linn.) G. Don is a well-known medicinal plant belonging to family Apocynaceae that have been traditionally used as medicine since ancient times. C. roseus is a well-recognized herbal medicine due to its anticancer bisindole alkaloids. In the Ayurvedic system of medicine, different parts of C. roseus are used in folklore herbal medicine for treatment of many types of cancer, diabetes, stomach disorders, kidney, liver and cardiovascular diseases. Currently, the use of medicinal and phytochemical plants, which have various therapeutic effects and have potential strategy for treating depression. According to the studies, medicinal plants have a variety of effects on the brain system and have antidepressant properties such as synaptic modulation of serotonin, noradrenalin and dopamine as well as inflammatory mediators. According to the literature review, Vinca Rosea extract has a variety of pharmacological activities the clinical interest of Vinca alkaloids was clearly identified as early as 1965 and so this class of compounds has been used as anticancer agents for more than 30 years. Today, two natural compounds, vinblastine and vincristine and two semi-synthetic derivatives, vindesine and vinorelbine, have been registered and thus Vinca alkaloids can be considered to represent a chemical class of definite utility in cancer chemotherapy. Clinical and preclinical research suggests that one of the main mediators in the pathophysiology of depression seems to be stress. It has been successfully concluded that vincamine, either alone or in combination with melatonin, may provide a potential role as an antidepressant.

Keywords: Anticancer activity, Madagascar periwinkle, Monoterpene indole alkaloids.

Review on Pharmaceutical importance of *Lantana Camara*

Anand Kushwaha , Shubham Goutam *
Institute Of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
gautamshubham123123@gmail.com

Abstract

Lantana camara, commonly known as lantana or wild sage, is a vibrant and versatile plant that captures the essence of nature's artistic flair. Its leaves, in particular, possess a mystical allure that transcends the ordinary and channels profound abstract concepts. Upon close inspection, the leaves of lantana camara unveil a mesmerizing tapestry of colors, ranging from deep greens to fiery oranges and radiant yellows. Each leaf seems to tell a story of resilience and adaptation, reflecting the plant's ability to thrive in diverse environments. The intricate patterns and veins on the leaves hint at a hidden language, a code of nature waiting to be deciphered by those who seek a deeper connection with the world around them. As the sunlight filters through the canopy above, illuminating the leaves of lantana camara, a symphony of shadows dances on the ground below. These ephemeral patterns evoke a sense of impermanence and transformation, reminding us of the transient nature of existence. The leaves, with their ever-changing hues and shapes, serve as a metaphor for the cycles of life and the constant flux of the universe. In the realm of abstraction, the leaves of lantana camara become gateways to a realm beyond the tangible. They symbolize growth, renewal, and the interconnectedness of all living beings. Each leaf is a unique expression of the plant's vitality and spirit, echoing the diversity and beauty of the natural world. Ultimately, the leaves of lantana camara transcend their physical form to become symbols of unity and harmony in a world too often divided. They remind us that true beauty lies not in perfection, but in the organic, unscripted dance of life.

Keywords: symbols, symbolize growth, Lantana camara, illuminating.

Review on Phytochemical constituents and medicinal uses of *Moringa Oliefera*

Ritika Singh , Shubham Goutam *
Institute of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
gautamshubham123123@gmail.com

Abstract

Moringa oleifera is commonly called the "miracle tree" or "tree of life." It is an important medicinal plant that has gained extensive therapeutic, nutritional, and commercial applications. Drought-resistance makes the plant native to Afghanistan, Bangladesh, India, and Pakistan-these countries carry global importance with extensive pharmacological properties. Traditionally, different parts of the plant are used as a drug for wounds, pain, ulcers, liver disease, heart disease, cancer, and inflammation. Almost every part of M. oleifera contains bioactive compounds that contribute to its medicinal benefits, including leaves, seeds, bark, roots, and flowers. Scientific studies have proven the hepatoprotective, cardioprotective, anti-inflammatory, anticancer, and antihypertensive activities of M. oleifera extracts. From phytocomponent analysis over 100 bioactive compounds like alkaloids, flavonoids, anthraquinones, vitamins, glycosides, and terpenes were identified. Notably, new isolates marasmoid A & B and nlazimin A & B showed significant antioxidant, anticancer, and hepatoprotective activities. Dried leaves contain as much as 70% oleic acid content, which is used in skincare formulations. Moringa oleifera is also widely used in phytopharmaceuticals, herbal medicine, and dietary supplements. The leaves are rich in beta-carotene, calcium, potassium, and essential nutrients, making them an affordable and reliable source of nutrition, particularly in malnourished populations. Powdered leaves are used in beverages such as "Zija" in India, while the bark and roots have been traditionally used to treat ulcers, toothaches, hypertension, helminthiasis, and paralysis. Flowers have aphrodisiac properties and help in the treatment of ulcers and spleen enlargement. It has been effective in treating malnutrition in infants and lactating mothers, thereby adding more value to its contribution in global health.

Keywords: alkaloids, flavonoids, anthraquinones, vitamins, glycosides, and terpenes, hypertension, helminthiasis, and paralysis, aphrodisiac.

Review on Human Metapneumo virus (HMPV)

Shubham Goutam*, Bablu kumar
Institute of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
gautamshubham123123@gmail.com

Abstract

Human metapneumo virus (HMPV) is a respiratory virus first identified in 2001. It primarily affects young children, older adults, and immune compromised individuals, causing respiratory tract infections. Symptoms include cough, fever, nasal congestion, and shortness of breath, with severe cases leading to bronchitis or pneumonia. HMPV spreads through direct contact with respiratory secretions or contaminated surfaces. Preventative measures such as hand hygiene, surface disinfection, and self-isolation when symptomatic can help reduce transmission. Currently, no specific antiviral treatment or vaccine is available; medical management focuses on symptom relief.Recent reports indicate an increase in HMPV cases, particularly in the UK following a surge in China. As of January 2025, approximately 1 in 20 hospital patients tested positive for HMPV, the highest levels recorded this winter. Patients exhibited coughs, fevers, and, in some cases, severe respiratory complications. The World Health Organization (WHO) acknowledges the rising case numbers but notes that the situation aligns with seasonal trends. HMPV typically circulates during winter and spring, causing mild to moderate respiratory illness in most cases. While outbreaks may raise public concern, health authorities consider current levels within expected ranges. Overall, HMPV remains a well-known respiratory pathogen with established seasonal patterns. Although recent case increases have been noted, these trends do not necessarily indicate an unusual outbreak. Continued adherence to hygiene measures and monitoring of symptoms, particularly among vulnerable populations, remains crucial in managing HMPV infections.

Keywords : Human metapneumo virus (HMPV), respiratory pathogen, coughs, fevers, World Health Organization.

Medicinal properties and pharmacological importance of *Erythroxylum coca*

Shubham Goutam *, Satish Yadav
Institute of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
gautamshubham123123@gmail.com

Abstract

The coca plant, known scientifically as *Erythroxylum coca*, is a perennial shrub native to the Andean region of South America. Cultivated for thousands of years by indigenous cultures, the plant holds great cultural significance and has a complex history intertwined with traditional and modern practices. The plant's leaves contain psychoactive alkaloids, primarily cocaine, which has both medicinal and recreational applications. The leaves of the coca plant (Erythroxylum coca), a bush that grows wild in Peru, Bolivia, and Ecuador and is grown in many other countries, are the source of cocaine, a white crystalline alkaloid. Cocaine's chemical formula is $C_{17}H_{21}NO_4$. Because it prevents impulses from passing through nerves, particularly those in the mucous membranes of the throat, nose, and eyes, cocaine has an anaesthetic effect. More significantly, cocaine reduces appetite, relieves exhaustion, and increases mental alertness when taken in modest doses. It also causes feelings of euphoria and well-being. Cocaine can cause melancholy, anxiety, irritation, sleep issues, chronic exhaustion, mental disorientation, paranoia, and potentially fatal convulsions when used in larger doses and repeatedly.
In all of its pure forms, long-term or obsessive cocaine use can result in serious personality disorders, insomnia, and appetite loss. Paranoid delusions and unsettling tactile hallucinations, when the user feels insects crawling under his skin, are signs of a toxic psychosis. Cocaine abuse, which had been a minor drug problem for the majority of the 20th century, surged dramatically in a number of nations in the latter half of the century and is now a significant contributing factor to drug-related mortality.

Keywords: Perennial, anxiety, mental disorientation, Psychoactive, recreational.

Review on Pharmaceutical importance in *Zingiber officinale*

Niteesh Kumar , Shubham Goutam *
Institute of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
gautamshubham123123@gmail.com

Abstract

Zingiber officinale has a long history of medicinal use in many countries such as India Japan, and China. The kingdom is plantae, species zofficinale, gene zingiber, family is Zingiberaceae, a class monocotyledon, phylum Spermatophytes and subphylum angiosperms an alternative medicine used to prevent motion sickness and nausea treat rheumatologic conditions and as anti-inflammatory. Some herbal medicines include blood sugar, pain, blood pressure, immune system, heart disease, digestion, vomiting, pregnancy, and cancer chemotherapy. The chemical constituents of ginger (zingiber officinale) are 160 constituents zingiberene 25-30% beta-bisabolene 10-15%, alpha-farnesene 1-3% beta-sesquiphellandrene 10-20% alpha-curcumin 1-5% carbohydrates 50-70%, lipids 6-8%, proteins 9-10% like protease, minerals 1-2% potassium, magnesium, calcium, vitamins vita. C, vita. B licks B6. The main pharmacological action of zingiber officinale and compound is isolated and therefore includes immune modulatory inflammatory anti-apoptotic, anti-hyperglycemic, and anti-emetic action sometimes ginger is a stronganti-oxidant substance and prevents the genetic of the free radicals. More studies are required in animal's humans (man and woman) on the kinetics of the Zingiber officinale. The zingiber officinale constituents and the effects of their consumption overall long period. Zngiber officinale in this rewiveprovindig and upto date understanding of the scientific evidence on the developed of ginger active compounds as health benefit agents in future clinical trials of the people and animals. Zingiber officinale grow samples of fresh Chinese white and Japanese yellow varieties of ginger.

Keywords: anti-apoptotic, anti-hyperglycemic, and anti-emetic, beta- sesquiphellandrene, zingiberene.

Review on Phytochemistry and medicinal importance of *Delonix regia*

Shubham Goutam *, Akansha Barnawal
Institute of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
gautamshubham123123@gmail.com

Abstract

Delonix regia is a widely cultivated ornamental tree of the family Fabaceae. It is a native of Madagascar and grows in tropical and subtropical regions of the world. This tree is deciduous with bright red-orange flowers. Ethno botanical, medicinal, and economic importance is of great significance with this tree. Flowers, leaves, bark, seeds, and roots of D. regia have been traditionally used for treatment of various ailments. The plant contains various bioactive compounds that have been found in different parts of the plant, such as alkaloids, flavonoids, tannins, glycosides, saponins, steroids, phenols, and anthocyanins. These constituents explain its wide range of pharmacological properties. The plant shows anti-diarrheal, anti inflammatory, anthelmintics, antimicrobial, hepatoprotective, hypoglycemic, antioxidant, analgesic, and anti-malarial activities. Flowers are said to be the richest part of the plant in terms of medicinal value, with wound-healing, gastro protective and anti-arthritic properties. The leaves are reported for their antiemetic and antimicrobial effects, while the seeds have nutritional benefits and haem agglutination activity. The bark and roots are traditionally used for fever, inflammation, and bacterial infections. Traditionally, D. regia has been used in Ayurveda and folk medicine for treating gastrointestinal issues, diabetes, joint pain, fever, bronchitis, and gynecological disorders. The tree also holds economic value, with its wood being used for furniture and fuel, while its gum has applications in the textile and food industries. The seeds produce fatty oil that is useful in tanning, and the tree itself plays a role in apiculture and soil erosion control. Further studies are needed to explore its potential in ant fertility, anticonvulsant, and enhanced wound-healing treatments.

Keywords: Anti-inflammatory, Anthelmintics, Antimicrobial, Hepatoprotective, Hypoglycaemics, Antioxidant, Analgesic, Anti-malarial activities.

A Review of Medical Properties of *Eucalyptus*

Shubham Goutam*,Mohd Irfan Khan
Institute of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
gautamshubham123123@gmail.com

Abstract

Eucalyptus is a genus of fast-growing flowering trees and shrubs that belong to the family Myrtaceae. Native to Australia and surrounding regions, eucalyptus trees are widely known for their adaptability, economic importance, and distinctive aromatic leaves. The discovery and classification of Eucalyptus trees are closely tied to European exploration and the scientific study of Australian flora during the 18th century. The genus Eucalyptus was formally described and named by French botanist Charles Louis L'Hertier de Brutally in 1788. He based his description on specimens collected in Australia by English botanist David Nelson, who accompanied Captain James Cook on his second voyage. Etymology: The name Eucalyptus is derived from the Greek words "eu" (well) and "kalyptos" (covered), referring to the operculum (a cap-like structure) that covers the flower bud. Significant Species: One of the first species described was Eucalyptus obliqua, known as Messmates Stringybark. It was classified from specimens collected in Tasmania. Over time, explorers and botanists, including Joseph Banks, who traveled with Captain Cook, and Robert Brown, who accompanied Matthew Flinders, discovered and classified numerous Eucalyptus species. Spread beyond Australia: By the 19th century, Eucalyptus seeds were introduced to other parts of the world, particularly for economic purposes like timber, fuelwood, and essential oil production. The botanical name of Eucalyptus is Eucalyptus. It is a large genus of flowering trees and shrubs in the Mytle species of Eucalyptus, so the specific botanical name depends on the species. For example: 1. Eucalyptus Globules (Blue Gum). 2. Eucalyptus Camaldulensis (River Red Gum). Native Rang: Australia- The majority of Eucalyptus species are endemic to Australia, where they dominate many ecosystems, from arid deserts to tropical rainforests. Tasmania- Home to some unique Eucalyptus species, like the Giant Eucalyptus regnace (Mountain Ash), the tallest flowering plant in the world. Now Guinea and Indonesian- A few species naturally occur in the areas. Asia- Widely row in India, China, and Southeast Asia for timber, paper production, and essential oils. Africa- Extensively planted in countries like South Africa and Ethiopia for forestation, soil conservation, and fuel wood. Europe- Cultivation in countries like Portugal, Spain, and Italy, especially for pulp and paper production.

Keywords: Myrtraceae, Etymology, operculum, Eucalyptus oblique, Voyage, Messmates Stringybark, Guinea

Biopharmaceuticals: The Future of Therapeutic Proteins

Miss Aman, Mr Purnendra Gupta*,Mr. Anuj Singh
Rameshwaram Institute of Technology and Management, Lucknow, India
purnendragupta32@gmail.com

Abstract

The Future of Therapeutic Proteins Biopharmaceuticals, such as monoclonal antibodies, recombinant proteins, and vaccines, have revolutionized therapeutic treatments, especially for autoimmune diseases, cancers, and infections. Biologic drugs have the benefit of targeted action with fewer side effects than conventional small molecule drugs. Biopharmaceuticals have also introduced production, stability, and delivery issues, resulting in formulation technology advancements. The growing application of biosimilars, designed to be as effective as reference biologics, provides cost-saving options. Biopharmaceuticals will continue to revolutionize therapeutic paradigms, providing new treatment options for previously untreatable diseases.

Keywords: Biopharmaceuticals, therapeutic proteins, monoclonal antibodies, recombinant proteins, biosimilars.

The Impact of Drug Formulation on Patient Compliance

Miss Prinkya Singh, Mr. Purnendra Gupta*
Rameshwaram Institute of Technology and Management, Lucknow, India
purnendragupta32@gmail.com

Abstract

The Role of Drug Formulation in Patient Adherence Drug formulation is a critical factor in determining patient adherence to therapy. Taste of the drug, size of the drug, ease of dosing, and dosage form are some of the factors that could influence a patient's adherence to a drug treatment. Oral drug forms like capsules and tablets are the most commonly used, but recent advances in controlled-release types like transdermal patches and oral dissolving tablets offer benefits in adherence. A multidisciplinary team of pharmacists, physicians, and scientists must be employed to design formulations that are patient-preferred, leading to better health outcomes and reduced healthcare costs.

Keywords: Drug formulation, patient compliance, dosage form, controlled-release, healthcare outcomes.

Drug Repurposing: A Strategy for Rapid Therapeutic Development

Miss Kanak Yadav, Mr. Purnendra Gupta*
Rameshwaram Institute of Technology and Management, Lucknow, India
purnendragupta32@gmail.com

Abstract

A Plan for Accelerated Therapeutic Discovery Drug repurposing is a strategy of investigating known drugs for new therapeutic applications, a quick and inexpensive drug development process. The process is especially valuable in the case of emerging infectious diseases and those with unmet medical needs. Repurposed drugs can quickly be evaluated by clinical trials because their safety profile is already known. The development of artificial intelligence and big data analysis has also sped up the drug repurposing process by selecting likely candidates with new mechanisms of action. Its worth aside, challenges are regulatory barriers and the requirement for rigorous clinical validation.

Keywords: Drug repurposing, therapeutic development, clinical trials, artificial intelligence, big data.

Advances in Nanotechnology for Drug Delivery Systems

Miss Garima Pal, Diksha, Mr. Purnendra Gupta*
Rameshwaram Institute of Technology and Management, Lucknow, India
purnendragupta32@gmail.com

Abstract

Nanotechnology has revolutionized the pharmaceutical industry by presenting new drug delivery systems with higher bioavailability, site-specific targeting, and reduced side effects. Nanoparticles like liposomes, dendrimers, and solid lipid nanoparticles have been extensively researched as drug carriers for various drug molecules to facilitate more efficient drug delivery to the targeted location in the body. These advances result in the development of controlled-release formulations and can be utilized in the management of chronic diseases, cancer, and infections. Applications of nanotechnology in crossing biological barriers like the blood-brain barrier are of great relevance to brain-targeting therapies. Research continues to enhance nanoparticle design, surface modification, and drug loading to achieve maximum therapeutic gain.

Keywords: Nanotechnology, drug delivery, bioavailability, targeted delivery, nanoparticles.

How AI Has an Impact on Drug Safety Monitoring

Yash Kumar Singh*, Pragti Singh, Prof. (Dr.) Manju Pandey
Institute of Pharmacy, Shri Ramswaroop Memorial University Lucknow-Dewa Road, U.P, India
yashsingh995592@gmail.com

Abstract

Pharmacovigilance is an important aspect of public health that tracks medicine safety and adverse drug reactions (ADRs). It's key to public health. As health data gets bigger and more complex, the old ways to handle it just don't cut it anymore. This is where AI and ML step in bringing smart fixes to make things better. AI can handle huge amounts of data from all sorts of places, like health records social media, and medical studies. With tools such as NLP, it's easier to scan messy data, find what matters, and catch bad drug reactions than with older methods. The other layer of efficiency offered by machine learning models is in the detection of patterns and trends that are far too difficult to crack. Besides these, increased detection and report trade will save time and minimize the possibility for error. Allow for prevention and damage reduced activities under healthcare guidance. Although AI holds great potential. The probable complexity of data privacy issues, biases in algorithms, inaccuracies in transparent decision-making, the need for transparency, and explanations from those algorithms need to be dealt with. AI should be built in such a way that it is ethically sound and rigorously validated. AI is reading the story of pharmacovigilance-an efficient method of ADR detection coupled with enhanced data management. Such area thus requires responsible integration of AI and other technologies to prepare the healthcare sector.

Keywords: Artificial Intelligence, Pharmacovigilance, Adverse Drug Reactions, Machine Learning

Vaccine Failure

Harshita Rana, Pooja Nigam, Harshvardhan Gupta
Shri Ramswaroop Memorial University
harshitar107@gmail.com

Abstract

The different reasons that contribute to vaccine failures can be broadly categorized into two sets. The first set has to do with concerns of the vaccine itself relative to immunization modalities and schedules, the level of vaccine attenuation and vaccine administration. The second set is the issue associated with the host, covering elements like host's genetic make-up, age, health, degree of immune protection, or nutritional status and all susceptibility factors that could result to primary or secondary vaccine failures. Primary vaccine failure means failure to respond to the first vaccine dose while loss of protection termed as secondary failure occurs after the vaccine has been used successfully. Our interest is focused on the immunological factors that lead to primary vaccine failures across populations at risk, where primary mechanisms are not well defined. This is where we review the present state of knowledge and results of our work. Around 2–10% of the general population are unable to mount a satisfactory antibody response following standard vaccinations. Comparison of immune responses of non-responders and exceptionally high responders to different vaccines reveal that hypo-responsiveness is dependent on the particular vaccine or antigen at the humoral level but not at the level of cellular immunity. Evidence suggests that T-regulatory and B-regulatory cells and IL-10 production are associated with non-responsiveness or hyponormal responses.

Keywords: vaccine, failure, protection, immune, antibody.

Synergistic Antioxidant Potential of *Urena lobata, Acmella oleracea,* and *Shagneticola trilobata*: A Multi-Plant Approach for Herbal Formulations

Kumari Sadhana Singh,
Faculty of Pharmacy, IFTM University, Moradabad, UP, India
singhsadhana521@gmail.com

Abstract

Medicinal plants have been studied from their richest known phytochemical composition to their possible antioxidative properties, and as a result, they are useful medications. Phytochemical screening and investigation of the antioxidative properties of three selected leaf extracts, including *Urena lobata, Acmella oleracea,* and *Shagneticola trilobata*, of medicinal value based on tradition, while scientific comprehensive valuations have a limited role assigned to it due to unexamined antioxidant chief chemical constituent. To determine the presence of relevant secondary metabolites such as alkaloids, Glycosides, flavonoids, Tannins, phenolics, saponins, Resins and terpenoids, these all extracts will undergo for preliminary phytochemical screening. All of three plants have significant pharmacological significance in the treatment of oxidative stress-related diseases. Antioxidant capacity of these three plants will be tested by using In vitro test with the help of DPPH (2,2-diphenyl-1-picrylhydrazyl) radical scavenging, ABTS (2,2'-azino-bis (3-ethylbenzothiazoline-6-sulfonic acid)), H_2O_2 NO_2, and the total antioxidant capacity. These all tests will provide information on the free radical scavenging ability of plant extracts, which will help in understanding their involvement in fighting oxidative stress and related disease. These will contribute to the current information base on medicinal plants, increasing their potential value in pharmaceutical and nutraceutical applications. However, because the findings are currently unknown, experimental confirmation and quantitative measures will be required to determine whether these plant extracts are effective. This work can also aid in giving the basis for additional research that can be made in the unification of bioactive chemicals and also to examine pharmacological actions in terms of regulating diseased.

Keywords: Urena lobata, Acmella oleracea, Shagneticola trilobata, Antioxidant activity, synergistic effect of extract.

Antihypertensive Drugs: Classification, Mechanism, and Clinical Considerations in Hypertension Management

Amit Kumar*, Sushma Singh, Zahid Husain
Shri Ramswaroop Memorial University, Lucknow, Deva Road
ak4652593@gmail.com

Abstract

Hypertension, commonly known as high blood pressure, is a major global health concern associated with an increased risk of cardiovascular diseases, stroke, and kidney failure. Antihypertensive drugs Play a crucial Role in managing and controlling hypertension, thereby reducing morbidity and mortality. These Medications are Classified into several categories based on their mechanisms of action, including diuretics, Beta-blockers, calcium Channel blockers, angiotensin-converting enzyme (ACE) inhibitors, angiotensin II receptor blockers(ARBs), and Direct vasodilators. Each class exhibits distinct pharmacological effects, targeting specific pathways Involved in Blood pressure regulation. Diuretics, such as thiazides, promote sodium and water excretion, reducing blood volume and Pressure. Beta-blockers, like metoprolol, decrease heart rate and myocardial contractility, leading to lower cardiac output. Calcium channel blockers, including amlodipine, inhibit calcium influx in vascular smooth Muscles, causing vasodilation. ACE inhibitors, such as enalapril, prevent the conversion of Angiotensin I to angiotensin II, a potent vasoconstrictor, while ARBs, like losartan, directly block Angiotensin II receptors, leading to vasodilation. Direct vasodilators, such as hydralazine, act on Vascular smooth muscles to decrease peripheral resistance. The selection of antihypertensive therapy is influenced by factors such as the patient's age, Comorbidities, and risk profile. Combination therapy is often employed to achieve optimal blood Pressure control while minimizing side effects. Despite their efficacy, these medications may Cause adverse effects, including electrolyte imbalances, bradycardia, dizziness, and renal Dysfunction. Therefore, continuous monitoring and individualized treatment plans are essential for Effective hypertension management.

Keywords: Hypertension, Antihypertensive drugs, Diuretics, CCBs, ACE inhibitors, Combination therapy.

Review on Myasthenia Gravis

Sahil Sharma.
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki
sharma050sahil@gmail.com

Abstract

Myasthenia gravis is an autoimmune disorder affecting about 1 in 10,000 population, duet development of antibodies directed to the nicotinic receptors (NR) at the muscle endplate The number of free NM conceptors may be reduced to 1/3 of normal or less and structural damage to the neuromuscular junction. This disorder is mediated by an autoimmune CD4+ T cell process that mediates the activation of B cells and the pathogenic synthesis of IgG1 and 3 autoantibodies or the IgG subclass Nicotinic acetylcholine receptor is a heterogender consisting of two α-subunits and one each of β-, δ-subunit, and γ-subunit embryonic type) or ε-subunit elder type, which are organized around a central pore. Antibodies against the acetylcholine receptors are found in approximately 80% of MG patients. At least half of the autoantibodies are directed at the acetylcholine receptor α-subunits. The eyelid, external ocular, facial and pharyngeal muscles are generally involved first. Later, limb and respiratory muscles get affected. Myasthenia that affects children can be classified into the following 3 forms: transient neonatal myasthenia, congenital myasthenic syndromes, and juvenile myasthenia gravis (JMG). Treatment must be individualized, and may include symptomatic treatment with cholinesterase inhibitors and immune modulation with corticosteroids, azathioprine, cyclosporine, and mycophenolate mofetil. Treatment options for MG consist of symptomatic treatment (such as pyridostigmine), immunosuppressive treatment, or thy mectomy. Juvenile myasthenia gravis is associated with antibodies to the acetylcholine receptor in most patients.

Keywords: Acetylcholine, Pyridostigmine, Juvenile MG, Antibodies, Nicotinic.

Pharmaceutical Approaches for Enhancing Solubility and Oral Bioavailability of Poorly Soluble Drugs

Himanshu Jaiswal*, Pragti Singh
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India (225003)
himanshudbz13@gmail.com

Abstract

High solubility of drug in water and bodily fluids is essential for an active pharmaceutical ingredient to achieve its desired therapeutic effect. As we all know that pharmaceutical substances exhibit limited solubility in water and are inclined towards decreased and inconsistent absorption following oral administration consequently resulting in variability in therapeutic outcomes. Pharmaceutically active molecules with low solubility have the higher risk of failure for drug innovation and development. Pharmacokinetics, pharmacodynamics and several of the parameters such as drug distribution protein binding and absorption are majorly affected by their solubility among all pharmaceutical dosage forms oral dosage forms cover more than 50% and the drug molecule should be water soluble. For good therapeutic activity by the drug molecule on the target site are solubility and bioavailability crucial factors. Bioavailability is defined as a fraction of an administered dose that reaches systemic circulation and is a critical determinant of a drug's therapeutic efficacy, safety profile and commercial viability. In order to solve the issue of poorly water-soluble medications, formulation scientists employ a variety of approaches, including both physical and chemical methods such as prodrug synthesis, salt formation, solid dispersions formation, hydrotropic substances utilization, solubilizing agents incorporation, cosolvent addition, polymorphism exploration, cocrystal creation, cyclodextrins complexation, lipid formulations, particle size reduction and nanoformulation techniques. Despite the utilization of these diverse approaches, the new drug development still fails because of poor aqueous solubility of pharmaceutical compounds.

Keywords: Solubility, bioavailability, Pharmacokinetic, Drug formulation, Therapeutic efficacy.

AI-Powered Prediction of Adverse Drug Reactions: Advancing Pharmacovigilance Systems

Sania Siddiqui*, Saurabh Kashyap, Manasvi Gupta, Pragti Singh, Prof. (Dr.) Manju Pandey
Institute of pharmacy, Shri Ramswaroop Memorial University Lucknow-Dewa Road, U.P. India
sanianjum786@gmail.com.

Abstract

Introduction: Adverse Drug Reactions are unwanted or harmful reactions experienced following the administration of a drug or combination of drugs under normal conditions of use and are suspected to be related to the drug. Adverse drug reactions represent a consequential challenge in healthcare services, jeopardizing patient safety and increasing healthcare expenses. Prediction of ADRs has been an important aspect of pharmacovigilance because of its impact on the pharmaceutical industry. Traditional methods for detecting ADRs are usually insufficient because of their reactive nature and dependence on post-marketing surveillance, which can delay the detection of potential risks.

Aim & Objective: Artificial Intelligence (AI) offers transformative potential in predicting and preventing ADRs through proactive, data-driven approaches. This paper delves into the role of artificial intelligence in advancing ADR prediction and improving patient compliance. It also describes AI applications in pharmacovigilance and their impact on health service productivity and cost-effectiveness.

Method: By leveraging advanced machine learning algorithms and predictive models, AI can analyze vast amounts of data from clinical records, genetic information, and drug interaction data to identify patterns and predict individual susceptibility to ADRs.
Result: AI-powered predictive modelling facilitates early risk identification, personalized treatment regimens, and continuous patient monitoring, resulting in improved patient outcomes and a reduced incidence of adverse drug reactions. Challenges include data quality, ethical considerations, and integration with existing systems.

Summary & Conclusion: Future directions involve advancing AI technologies and fostering collaboration among stakeholders to optimize ADR prediction and management. As the technology advances, it will play a crucial role in refining drug safety practices and ensuring that medications are tailored to individual needs, ultimately leading to more effective and safer healthcare outcomes.

Keywords: Adverse Drug Reaction; Pharmacovigilance; Post market surveillance; Patient safety; Artificial Intelligence.

Pharmacological evaluation of herbal medicine for Neuroprotective Drugs

Himanshu Yadav*, Sushma Singh, Zahid Husain
Shri Ramswaroop Memorial University, Lucknow Deva Road
himanshu8853732450@gmail.com

Abstract

Neuroprotective drugs are pharmacological agents designed to preserve neuronal structure and function by preventing or slowing the progression of neurodegenerative diseases. These drugs exert their effects through multiple mechanisms, including antioxidant activity, anti-inflammatory actions, inhibition of excitotoxicity, and modulation of neurotrophic factors. Common neuroprotective agents include NMDA receptor antagonists, cholinesterase inhibitors, monoamine oxidase inhibitors, and free radical scavengers. Additionally, natural compounds such as flavonoids and polyphenols have demonstrated neuroprotective properties. These drugs play a crucial role in managing conditions like Alzheimer's disease, Parkinson's disease, stroke, and multiple sclerosis. Despite significant advancements, challenges such as blood-brain barrier penetration, long-term efficacy, and potential side effects remain areas of active research. Future developments in neuroprotection may involve gene therapy, stem cell-based treatments, and precision medicine approaches to enhance therapeutic outcomes. This review highlights the pharmacological mechanisms, clinical applications, and ongoing research in the field of neuroprotection, emphasizing the need for novel therapeutic strategies.

Keywords: Neuroprotection, Neurodegenerative Diseases, Antioxidants, Excitotoxicity, Neurotrophic Factors, Pharmacology

Potentials of fibrates as an effective PPARγ agonist in the management of immune-mediated inflammatory diseases: An in-silico Approach

Alpana Singh*, Vikas Mishra
Department of Pharmaceutical Sciences, Babasaheb Bhimrao Ambedkar University, Vidya Vihar, Raebareli Road, Lucknow-226025, (U.P.), India
alpanasingh161@gmail.com

Abstract

Peroxisome proliferator-activated receptor gamma (PPARγ) is a nuclear receptor that is essential for the regulation of glucose metabolism, inflammation, and lipid homeostasis. Recent findings underscore the promising therapeutic applications of PPARγ agonists in the treatment of immune-mediated inflammatory diseases, including rheumatoid arthritis, psoriasis, and inflammatory bowel disease. Fibrates, commonly prescribed for dyslipidemia because of their activation of PPARα, also demonstrate partial agonistic effects on PPARγ, positioning them as potential candidates for repurposing in the treatment of various inflammatory diseases. Examining the in-depth mechanisms through which fibrates demonstrate anti-inflammatory effects, such as the inhibition of nuclear factor kappa B (NF-κB) signaling, suppression of pro-inflammatory cytokines, and modulation of immune cell differentiation is crucial. Moreover, fibrates have demonstrated the ability to decrease oxidative stress and enhance metabolic irregularities frequently linked to chronic inflammation. This study employed a computational docking approach to explore the binding affinities and molecular interactions of fibrates with the PPARγ ligand-binding domain. Molecular docking simulations demonstrated that fibrates establish stable hydrogen bonds and hydrophobic interactions with crucial residues associated with PPARγ activation, akin to established full agonists. Binding energy analyses revealed promising docking scores, indicating robust receptor-ligand stability. Furthermore, fibrates exhibited the ability to influence receptor conformations in a way that promotes the transcriptional activation of anti-inflammatory pathways, such as the inhibition of NF-κB signaling and the upregulation of regulatory cytokines. The findings highlight the promise of fibrates as effective therapeutic agents for multiple inflammatory diseases and emphasize the value of computational methods in enhancing drug discovery and repurposing initiatives. However, additional in vitro and in vivo studies are necessary to confirm these computational predictions and investigate the complete therapeutic potential of fibrates in managing inflammatory diseases.

Keywords: Inflammation, PPARγ, Molecular Docking, Fibrates

Antidiabetic Potential of Medicinal Plants and Their Active Components

Shivam Upadhyay*, Dr. Yasmin Khatoon
Shri Ramswaroop Memorial University, Lucknow, Deva Road
shivamupadhyay1890@gmail.com

Abstract

Diabetes mellitus is one of the major health problems in the world; the frequency and associated mortality are adding. shy regulation of the blood sugar imposes serious consequences for health. Conventional antidiabetic medicines are effective, still, also with necessary side goods. On the other hand, medicinal shops may act as a necessary source of antidiabetic agents. samples of medicinal shops with antidiabetic eventuality are described, with a focus on preclinical and clinical studies. The salutary eventuality of each factory matrix is given by the combined and combined action of their profile of biologically active composites. Diabetes mellitus (DM) is a serious, habitual, and complex metabolic complaint of multiple etiologies with profound consequences, both acute and habitual. Also known only as diabetes, DM and its complications affect people both in developing and developed countries, leading to a major socioeconomic challenge. It's estimated that 25 of the world population is affected by this complaint. inheritable and environmental factors contribute significantly to the development of diabetes. During the development of diabetes, the cells of the body cannot metabolize sugar duly due to deficient action of insulin on target tissues performing from insensitivity or lack of insulin (a peptide hormone that regulates blood glucose).

Keywords: Diabetes mellitus, medicinal shops, antidiabetic, hypoglycemic, antihyperglycemic

Pharmacological Evaluation of Herbal Medicines for Cardiovascular Disease

Vishal Kumar Singh*, Sushma Singh, Zahid Husain
Shri Ramswaroop Memorial University, Lucknow, Deva Road
ftdrgolu28@gmail.com

Abstract

Cardiovascular diseases (CVDs) remain the leading cause of morbidity and mortality worldwide, necessitating safer and more effective therapeutic alternatives. Herbal medicines, with their diverse bioactive compounds, have gained significant attention in CVD management due to their cardioprotective, anti-inflammatory, and antioxidant properties. This review explores the pharmacological evaluation of various medicinal plants used in the treatment of cardiovascular disorders, focusing on their mechanisms of action, efficacy, and clinical potential. Several herbs, such as *Terminalia arjuna* (Arjun tree), *Crataegus oxyacantha* (Hawthorn), *Ginkgo biloba* (Ginkgo/Maidenhair tree), and *Panax ginseng* (Asian ginseng), have demonstrated significant cardioprotective effects through mechanisms including vasodilation, platelet aggregation inhibition, cholesterol reduction, and modulation of oxidative stress. Polyphenols, flavonoids, and saponins found in these plants contribute to improved endothelial function, reduced inflammation, and enhanced myocardial function. Preclinical and clinical studies support the role of herbal extracts in lowering blood pressure, improving lipid profiles, and reducing the risk of atherosclerosis. Despite promising pharmacological activities, herbal medicines face challenges such as standardization, bioavailability issues, and potential herb-drug interactions. Advanced drug delivery systems, including nanoparticles and phytosome formulations, offer solutions to enhance the therapeutic efficacy of herbal compounds. Further research through randomized controlled trials is necessary to establish the safety, dosage, and long-term benefits of herbal medicines in CVD treatment.

Keywords: Cardiovascular disease, herbal medicine, cardio protection, phytochemicals, oxidative stress, endothelial function, lipid metabolism, bioavailability.

Penicillin- By Alexander Fleming in 1928

Aastha Rawat*, Sushma Singh, Zahid Husain
Shri Ramswaroop Memorial University, Lucknow, Deva Road Mail Id: -
aastharawat59@gmail.com

Abstract

Chemical point of view, this family comprises the beta-lactam antibiotics that contain a thiazolidine ring fused to the beta-lactam ring. Natural penicillins (or first-generation penicillins) are produced biotechnologically by fermentation of the fungus Penicillium chrysogenum. Benzylpenicillin (penicillin G) and phenoxymethylpenicillin (penicillin V) belong to this group of penicillins. Second-generation penicillins, also called penicillinase-resistant, are semisynthetic modifications of natural penicillins. This group comprises the antibiotics oxacillin, dicloxacillin, nafcillin, methicillin, cloxacillin, and flucloxacillin. Third-generation penicillins (amino penicillins) are semisynthetic modifications of natural penicillins that have an extended spectrum of activity compared to previous generations of penicillins. This group includes other compounds such as bacampicillin and pivampicillin. Fourth- generation penicillins are semisynthetic penicillins with an extended spectrum of activity. Penicillin is an antibiotic used to treat bacterial infections. It's used to treat many types of infections, including throat infections, meningitis, and syphilis. Penicillin is also used to prevent rheumatic fever and other conditions. How penicillin works Penicillin kills bacteria or prevents their growth It works by inhibiting enzymes that build bacterial cell walls It activates enzymes that break down the protective barriers of bacteria.

Keywords: Penicillin, chrysogenum, beta- lactam, bacterial infection

Challenges & opportunities in the management in skin disorder

Ajeet Singh[1]*, Tanushka Singh[1], Sarita Singh[1], Manju Pandey[1], Vinay Tripathi[2],
[1]Institute of Pharmacy of Shri Ramswaroop Memorial University, Deva Road, Barabanki, Uttar Pradesh India- 225003
[2]Maharana Partap school of Pharmacy Mohanlal Ganj Lucknow Utter Pardesh
ajeetpharmacy009@gmail.com

Abstract

Skin diseases affect a significant portion of the global population, especially in resource-poor regions, with neglected tropical diseases being a major concern. Psychiatric disorders can also be intertwined with skin conditions, necessitating a holistic approach to treatment. Recent opportunities in the management of skin disorders include advancements in targeting molecular events leading to phenotypes like atopic dermatitis (AD). New therapeutic strategies have been developed to address the complex pathophysiology of AD, focusing on genetic predisposition, epidermal dysfunction, and T-cell-driven inflammation. Additionally, for common skin disorders like psoriasis and eczema, treatments have evolved to include topical corticosteroids, vitamin D3 analogs, calcineurin inhibitors, biologic agents, and narrowband UV-B light therapy. Moreover, the integration of Machine Learning (ML) and Deep Learning (DL) models in dermatology has shown promise in automating skin disease recognition from dermoscopic images, aiding in early diagnosis and accurate decision-making for dermatologists. Current therapies for skin disorders encompass a wide range of approaches. Autoimmune bullous skin disorders are typically managed with glucocorticoids as the first-line treatment, although long-term use may lead to adverse effects, necessitating adjuvant therapies. Advanced therapies utilizing human mesenchymal stem cells have shown promise in treating various skin pathologies like wounds, burns, and psoriasis, with positive outcomes in reducing wound size and improving disease parameters. Hyperpigmentation disorders are often treated with conventional agents like hydroquinone and kojic acid, but newer alternatives such as solid lipid nanocarriers and platelet-rich plasma are being explored. For allergic skin diseases, topical corticosteroids are commonly used, but alternative anti-inflammatory agents like PDE4 inhibitors, anti-IgE agents, and JAK inhibitors are considered when corticosteroids are ineffective. Additionally, psychoneuroimmunology highlights the importance of stress reduction techniques like meditation and cognitive-behavioral therapy in improving dermatologic conditions.

Keywords: Skin disorder, Machine Learning, Hyperpigmentation, Autoimmune, Epidermal dysfunction

Advances in Biomaterials for drugs delivery

Ajeet Singh*[1], Dr. Manju Pandey[1], Dr. Neelchancal Trivedi[2]
[1]Institute of Pharmacy of Shri Ramswaroop Memorial University, Deva Road, Barabanki, Uttar Pradesh India- 225003
[2]Institute of Pharmacy, Invertis University Bareilly Utter Pardesh
ajeetpharmacy009@gmail.com

Abstract

Biomaterials play a crucial role in drug delivery systems, offering unique properties that make them promising candidates for various medical applications. They can be tailored to provide passive and active drug delivery mechanisms, targeting specific sites within the body. Biomaterials, both fibrous and non-fibrous, are utilized in drug delivery applications, with methods like electrospinning and self-assembly being employed for fiber production. In the realm of cancer research, biomaterials have been extensively explored for immunotherapy and targeted drug delivery systems, showcasing their potential to treat malignancies effectively. Recent advances in biomaterials for drug delivery systems have shown promising developments in overcoming challenges in various medical fields. Biomaterial-based drug delivery systems offer controlled and targeted drug delivery, ensuring efficient and safe administration of therapeutic agents to specific sites within the body. These systems help maintain therapeutic drug concentrations, reduce toxicity, and enhance treatment efficacy by delivering drugs precisely where needed. For conditions like Glioblastoma multiforme (GBM) and Inflammatory Bowel Disease (IBD), biomaterials have been explored for their biocompatibility, sustained drug release, and ability to target specific pathophysiological changes in affected tissues. Innovations in biomaterial processing and engineering have paved the way for the design of advanced drug delivery systems that hold great promise for improving patient outcomes in various medical conditions. Current advancements in biomaterials for drug delivery systems encompass a wide array of innovative strategies. These include utilizing nanoscale-based biomaterials to enhance drug delivery efficiency, exploring chitosan-based systems for inflammatory skin diseases like atopic dermatitis, employing atom transfer radical polymerization (ATRP) for designing nanostructured polymeric materials for drug delivery and leveraging immunomodulatory biomaterials such as silk, collagen, and hyaluronic acid for various diseases. These advancements aim to overcome challenges like the blood-brain tumor barrier in glioblastoma multiforme (GBM), adverse reactions from current treatments, and the need for precise drug release mechanisms.

Keywords: Adavances biomaterials drugs delivery system, Inflammatory Bowel Disease, Biocompatibility, Applications Biomaterials.

Assessment of drug utilization pattern in tertiary care hospital as per nabh standards

Mazhar Jamil*[1], Abdullah Khan[1], Md. Rehan[1], Mohd Asjad[1], Mohd Aftab Siddiqui[1], Mohd Tariq Salman[2],*

[1]Department of Pharmacy Practice, Faculty of Pharmacy, Integral University, Lucknow, U.P., India

[2]Department of Pharmacology, Integral Institute of Medical Sciences & Research (IIMSR), Integral University, Lucknow, U.P., India

mtsalman@iul.ac.in

Abstract

Background: Any preventable incident that might result in improper drug usage or patient injury when the medicine is under the control of the patient, healthcare provider, or consumer is considered a medication error, according to the US Federal Drug Administration (FDA). Medication error may have a major impact on patient care, thus it's critical to identify them quickly to minimize clinical practice errors and avoid their negative effects. Healthcare providers may be reluctant to disclose an error, despite the fact that error reporting methods are less costly, because of the clear risk of severe consequences. Hence, auditing and reporting of medications errors is important.

Aim & Objectives: To evaluate the adherence to NABH medication safety standards in the prescribing, dispensing, indenting and administration of medicines in orthopedics department in tertiary care hospital at IIMSR Lucknow.

Methodology: A cross-sectional observational study was conducted in hospital orthopedics department, according to National Accreditation Board of Hospitals (NABH) standards, from October 2024 to February 2025. Data was gathered from 70 case files and examined to determine medication errors including prescription, dispensing, indenting and administration errors.

Results: Analysis of 70 case files revealed a total number of 430 errors (3.0%), out of which most common were prescription error (384, 89%) followed by administration error (31, 13.8%). Most of the errors were type A (412, 95.8%) followed by B & C respectively. Most common error encountered was non-usage of generic name (248, 55%), followed by no dose mentioned (77, 17.9%) and non-usage of capital letters for drug name (31, 7%).

Conclusion: A program designed to raise awareness among prescribers about the need of selecting the appropriate dosage and writing prescriptions using the generic and in capital letters would aid in rational use, which would lower treatment costs and improve patient care. Additionally, awareness programs for enhancing nurses' efforts to ensure that the right paperwork is kept will assist in improving patient care.

Keywords: Medication error, National Accreditation Board of Hospitals (NABH), prescription errors, Prescription audit, rational use of medicines, medicine dispensing errors.

Regulatory Challenges and Advancements in Artificial Intelligence-Driven Medical Devices in Pharmacy

Dr. Ankur Singh
Sahu Onkar Saran School of Pharmacy, Faculty of Pharmacy, IFTM University, Moradabad.
ankursingh108@gmail.com

Abstract

The integration of artificial intelligence (AI) in medical devices has revolutionized patient care, diagnostics, and pharmaceutical applications. However, the rapid advancement of AI-driven technologies poses significant regulatory challenges, requiring stringent frameworks to ensure safety, efficacy, and compliance. This paper explores the regulatory landscape governing AI-based medical devices in the pharmaceutical sector, highlighting key challenges and advancements in global compliance standards. Regulatory authorities such as the U.S. Food and Drug Administration (FDA), European Medicines Agency (EMA), and other international agencies have been working towards adaptive regulatory pathways to address the unique challenges posed by AI-powered devices. The dynamic nature of AI algorithms, their real-time learning capabilities, and the need for transparency necessitate specialized guidelines that differ from traditional medical device regulations. This paper also discusses the role of Good Machine Learning Practices (GMLP) in ensuring AI-driven medical devices meet safety and ethical standards. Additionally, post-market surveillance, real-world evidence collection, and cybersecurity considerations are explored as critical factors influencing regulatory compliance. The integration of AI in pharmacy, including automated drug dispensing systems, personalized medicine, and AI-assisted pharmacovigilance, further underscores the need for an updated and harmonized regulatory approach. In conclusion, while AI presents transformative opportunities in medical devices and pharmacy, regulatory frameworks must evolve to address safety, ethical, and compliance concerns. Collaboration between regulatory agencies, industry stakeholders, and AI developers is crucial to fostering innovation while ensuring patient safety.

Keywords: Regulatory Affairs, Medical Devices, Artificial Intelligence, Pharmacy, Compliance

Drug utilization pattern of antipsychotics in tertiary care Hospital: an observational cross-sectional study

Sajid Ali*[1], Shad Raza[1], Mohd Yaseen[1], Nikhil Rakesh Mall[1], Badruddeen[1], Anurag Jaiswal[2], Mohd Tariq Salman[3]

[1]Faculty of Pharmacy, Integral University, Lucknow-226026, U.P., India.

[2]Department of Psychiatry, IIMSR, Integral University, Lucknow-226026, U.P., India.

[3]Department of Pharmacology, IIMSR, Integral University, Lucknow-226026, U.P., India

sajidquraishi2525@gmail.com

Abstract

Background: Mental disorder is among the top ten group diseases in the world, causing a significant burden on the global cale. Psychosis is a mental health condition characterized by disconnection from reality. Since the ailments are so common, effective therapy would be immensely valuable. Drug utilization studies among people with psychosis would help to better understand optimal treatment protocols leading to improving patient care.

Materials and Methods: This cross-sectional study was carried out in the psychiatry department of IIMSR, Lucknow. The study comprised of 23 patients. Patient case sheets were used to gather patient data, which was then entered into a structured case record form and analysed. The commonly used drugs were noted.

Results: A total of 23 prescriptions from patients diagnosed with psychiatric disorders and receiving at least one antipsychotic drug were evaluated at the psychiatry out patient department (OPD). The majority of patients belonged to the 50-60 years age group, with females (65.21%) outnumbering males (34.78%). A total of 98 drugs were prescribed across 23 prescriptions, with 25 being antipsychotics. Atypical antipsychotics (84%) were more commonly prescribed than typical antipsychotics (16%). Among atypicals, olanzapine (56%) was the most frequently prescribed, followed by risperidone (12%). Olanzapine has been the overall most commonly prescribed antipsychotic in the study. Sedative-hypnotics (30.23%) were the most commonly co-prescribed drug group, indicating their role in managing associated symptoms like agitation and providing sedation. Other concomitant medications included antidepressants, mood stabilizers, and other psychotropics. This prescribing pattern highlights the preference for atypical antipsychotics due to their better tolerability and fewer side effects compared to typical antipsychotics. The prescriptions were complete and followed principles of rational prescribing in majority of cases, except in some, where polypharmacy has been seen.

Conclusion: We conclude that atypical antipsychotics particularly olanzapine are the most commonly used drug in patients with psychosis along with antipsychotics, sedative and hypnotics, most commonly. Most of the prescriptions followed principles of rational prescribing.

All these will help in improving the quality of patient health care and lower the burden on the health-care system

Keyword: Cross sectional study, NLEM, Prospective Drug Utilization

Investigating the Anti-Asthmatic Activity of Araucaria columnaris (G. Forst.) Hook. Leaf Extract Effects on Catalepsy and Milk-Induced Leukocytosis in Asthma Models

Devendra Kumar Rawat
Research Scholar, School of Pharmacy, LNCT University, Bhopal, MP
Devendrarawat1990@gmail.com

Abstract

Research on botanical extracts for investigating their antiasthma tic activities has become a focal point of interest in contemporary studies. The Present study investigated the antiasthma tic potential of *Araucaria columnaris* leaf extract in asthma models. Although, *Araucaria columnaris* (G. Forst.) Hook. stands out for its abundance of bioactive compounds which are derivatives of flavonoids, phenolics, terpenoids, steroids, and tannins, it's importance for asthma treatment is unexplored. The study focused on the effects of the leaf extract on catalepsy and milk-induced leucocytosis. Ethanolic extract of *A. columnaris* leaves ((300mg/Kg) significantly reduced clonidine and haloperidol-induced catalepsy in mice, suggesting potential antihistaminic activity. Additionally, the ethanolic extract (300mg/Kg) has demonstrated a statistically significant reduction in total leukocyte and eosinophilia counts in a dose-dependent manner, indicating their potential anti-allergic and anti-eosinophilic activities. This study contributes to the exploration of natural remedies for asthma treatment, emphasizing the importance of *A. columnaris* as antiasthma tic agents.

Keywords: Asthma, Araucaria columnaris, clonidine, Eosinophilia, haloperidol

A review on *Plumeria alba* linn. leaves

Pooja Bhardwaj*, Kakli Rai, Km. Shveta Yadav
Pharmacy College Azamgarh, Dr. A.P.J. Abdul Kalam Technical University, Lucknow, Uttar Pradesh, India, 226031
bhardwajrajesh958@gmail.com

Abstract

Plumeria alba Linn. a member of the Apocynaceae family (also known as the Dogbane family), is a flowering plant. Plumeria alba, known as frangipani or West Indian jasmine, is a plant with a rich history in traditional herbal medicine, prized for its antimicrobial, anti-inflammatory, and antioxidant properties. The extracts from the leaves, bark, and flowers of P. alba are frequently utilized to treat bacterial, fungal, and viral infections, including herpes, scabies and various fungal conditions. The components of the P. alba plant have demonstrated potential anthelmintic, antipyretic, and antirheumatic effects. *Plumeria alba*, a small tree or shrub with lacticiferous properties, is indigenous to tropical America and is popularly known as White Champa. The plant's leaves and stems have been analyzed for their phytoconstituents and are utilized in traditional medicine to treat a variety of diseases. The leaves are either lance-shaped or inversely lance-shaped, and the white flowers, which are fragrant, grow in corymbs-like clusters. The fruit is edible. The medicinal properties of the plant are mainly due to its latex, which is often potent and corrosive. Latex from this plant is used to treat ulcers. Its seeds have hemostatic properties, while the bark is crushed and applied as a plaster for hard tumors. Other parts of the plant are utilized for their purgative, cardiotonic, diuretic, and hypotensive effects. The medicinal benefits of this Plumeria species in treating a wide range of ailments are documented in ancient texts like the Ayurveda, Charaka Samhita, and Sushruta Samhita. For centuries, the people of India have primarily relied on plant-based medicines to address various health issues. This alternative form of medicine is becoming increasingly popular worldwide.

Keywords: Antimicrobial, Apocynaceae, Phytoconstituents, Pharmacological activity, Plumeria

A Comprehensive Review on Herbs with Anti-Inflammatory Activity

Hakim Singh Rajput*, Dr. SunderSingh
Oriental University Indore, Sanwer Road, Jakhya, Indore, Madhya Pradesh 453555
hakimrajputddugky@gmail.com

Abstract

Polyherbal formulations have been utilized for centuries within traditional medicine systems to address a variety of health issues, particularly inflammatory diseases. These formulations generally comprise several herbs known for their anti-inflammatory effects, which are thought to work in concert, offering enhanced therapeutic advantages compared to single herbs. Preclinical investigations have yielded encouraging outcomes in animal models of inflammation, and numerous clinical trials have confirmed the efficacy of polyherbal formulations in alleviating pain and inflammation in individuals suffering from osteoarthritis, rheumatoid arthritis, and other inflammatory disorders. Nonetheless, additional research is necessary to evaluate the safety and potential side effects of these formulations, as well as to gain a deeper understanding of their mechanisms of action. Despite these challenges, polyherbal formulations present significant potential as a complementary strategy for managing inflammatory diseases, potentially serving as a safe and effective alternative to conventional pharmacological treatments. The development of polyherbal formulations has gained significant attention due to their synergistic potential in enhancing therapeutic efficacy and minimizing adverse effects. This study aims to develop and evaluate a polyherbal formulation with potential anti-inflammatory properties. The formulation combines active ingredients from multiple medicinal plants, known for their anti-inflammatory and analgesic properties. Toxicity studies revealed that the formulation was safe at the recommended dosage. The findings suggest that the polyherbal formulation demonstrates promising anti-inflammatory activity and could be developed as a viable alternative in the management of inflammatory disorders.

Keywords: Analgesic, Herbal medicine, Anti-Inflammatory, Clinical Studies, Safety, Inflammation, Polyherbal formulations.

Acridone Derivatives: Mechanisms and Therapeutic Applications as Potential Anticancer Agents

Abhishek Kumar*, Kamal shah
Institute of Pharmaceutical Research,GLA University,Mathura,Uttar Pradesh,India
abhiworld1997@gmail.com

Abstract

Acridone derivatives, a class of heterocyclic compounds, have shown promising potential in cancer treatment due to their diverse pharmacological effects. These compounds exhibit anticancer activity by triggering apoptosis, inhibiting cell proliferation, and targeting key signaling pathways involved in tumorigenesis. The interaction of acridone derivatives with DNA and RNA plays a significant role in preventing cancer cells from replicating and surviving. Additionally, their ability to inhibit topoisomerase and kinases is crucial in hindering tumor progression. Preclinical studies have shown strong cytotoxic effects against various cancer types, including breast, lung, and colon cancers. However, issues related to bioavailability, stability, and selectivity need to be addressed. Research is ongoing to improve the pharmacokinetics of these compounds, enhancing their anticancer potential through structural modifications. Acridone derivatives represent an exciting potential in cancer therapy, and their clinical application will determine their viability as cancer treatments.

Keywords: Acridone derivatives, anticancer agents, apoptosis, DNA binding, preclinical studies.

Using Acridone Derivatives to Overcome Chemoresistance in Cancer Therapy

Abhishek Kumar*, Ms. Apurwa Singh, Shikha Srivastava, Shivangi Sharma, Shraddha Pandey
Institute of Pharmacy, Shri Ramswaroop Memorial University, Lucknow Dewa Road,Uttar Pradesh, India,225003
abhiworld1997@gmail.com

Abstract

Chemoresistance remains a major hurdle in cancer treatment, limiting the effectiveness of traditional chemotherapy drugs. Acridone derivatives have shown the ability to overcome this challenge by targeting multiple mechanisms of drug resistance, such as upregulation of anti-apoptotic proteins, enhanced DNA repair mechanisms, and alterations in drug efflux systems. By modulating these pathways, acridone derivatives sensitize cancer cells to conventional chemotherapies. Some acridone derivatives inhibit P-glycoprotein, a key contributor to drug resistance by pumping chemotherapy drugs out of cells, and also enhance caspase activity to promote apoptosis in chemoresistant cancer cells. These findings suggest that acridone derivatives could be used as adjuvants to improve chemotherapy efficacy, particularly for patients with multidrug-resistant cancers.

Keywords: Acridone derivatives, chemoresistance, apoptosis, P-glycoprotein, multidrug resistance.

Acridone Derivatives in Targeted Cancer Therapy: Synthesis and Clinical Implications

Abhishek Kumar*, Ms. Apurwa Singh, Shikha Srivastava, Shivangi Sharma
Institute of Pharmacy, Shri Ramswaroop Memorial University, Lucknow Dewa Road,Uttar Pradesh, India,225003
abhiworld1997@gmail.com

Abstract

Acridone derivatives have been extensively studied for their potential in targeted cancer therapy, which aims to deliver drugs directly to cancer cells with minimal harm to healthy tissues. Structural modifications of acridone derivatives can enhance their specificity for tumor cells, often through conjugation with targeting ligands or nanoparticles. These compounds selectively target tumor cells by binding to overexpressed receptors like folate receptors or epidermal growth factor receptors (EGFR). Studies have shown that combining these compounds with nanotechnology can improve drug accumulation at tumor sites, enhancing their therapeutic effect. Although preclinical studies show promise, clinical trials are needed to confirm the safety and efficacy of acridone-based targeted therapies.

Keywords: Acridone derivatives, targeted therapy, precision medicine, nanoparticle conjugation, clinical trials.

Acridone Derivatives in Cancer Metastasis Inhibition: New Insights for Cancer Therapy

Abhishek Kumar*, Ms. Apurwa Singh, Shikha Srivastava, Shivangi Sharma, Shraddha Pandey
Institute of Pharmacy, Shri Ramswaroop Memorial University, Lucknow Dewa Road,Uttar Pradesh, India,225003
abhiworld1997@gmail.com

Abstract

Cancer metastasis, the spread of cancer cells to distant organs, is a leading cause of mortality in cancer patients. Acridone derivatives have shown great potential in inhibiting metastasis by targeting key processes such as cell migration, invasion, and angiogenesis. These compounds block matrix metalloproteinases (MMPs), enzymes responsible for degrading the extracellular matrix, which is essential for cancer cell invasion and metastasis. Additionally, acridone derivatives reduce angiogenesis by lowering the expression of vascular endothelial growth factor (VEGF), preventing the tumor from developing a blood supply. These findings highlight the potential of acridone derivatives in preventing metastasis and provide hope for new therapeutic strategies to halt cancer progression.

Keywords: Acridone derivatives, metastasis, cell migration, angiogenesis, matrix metalloproteinases.

Mechanistic approach via Novel Drug Delivery for CNS disorders

Adarsh Pandey*, Dr. Shikha Srivastava
Institute of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
adarshpandey2105@gmail.com

Abstract

Central Nervous System (CNS) disorders, because of their complex pathophysiology and limited available treatments, illnesses of the central nervous system (CNS), including neurological and psychiatric conditions, carriage a serious threat to world health. Due to the blood-brain barrier (BBB), which restricts the majority of therapeutic drugs from getting to their intended locations in the brain and spinal cord, traditional drug delivery techniques frequently encounter major obstacles when trying to treat CNS disorders. Recent developments in innovative medication delivery techniques for the treatment of CNS diseases are inspected in this study. These include novel cargoes like liposomal formulations, intranasal delivery, gene therapy, and nanoparticle-based systems that are all intended to help drugs pass through or past the blood-brain barrier. Furthermore, the potential for more accurate and regulated medication delivery is explored in relation to new technologies like magnetic targeting, focused ultrasound, and bioengineering methods. The innovative treatment of multiple sclerosis, Parkinson's disease, Alzheimer's disease, and other mental health issues through the integration of these systems into clinical practice may lead to better patient outcomes. Additionally emphasized are difficulties including scalability, biocompatibility, and regulatory barriers. Novel drug delivery systems are an important topic of research in neuropharmacology because they have the potential to improve the therapeutic potential for CNS illnesses.

Keywords: Central Nervous System (CNS), Novel drug delivery systems, blood-brain barrier (BBB), nanoparticles, neuropharmacology, gene therapy.

A review of potential nanotechnological strategies for the treatment of psoriasis

Md Rehan Alam, Abdur Rahman, Vaseem Ahmad Ansari, Mohammad Shariq
Faculty of Pharmacy, Integral University, Lucknow, U.P, India
mdrehanalam8750@gmail.com

Abstract

Psoriasis is an immune-mediated, chronic skin disease characterized by hyperproliferation of keratinocytes, inflammation, and the formation of red, scaly plaques. Conventional therapies, including topical formulations, phototherapy, and systemic therapy, are hampered by side effects, limited skin penetration, and low patient compliance. Nanotechnology offers a novel approach to overcome these limitations by providing targeted drug delivery, enhancing the therapeutic response, and reducing systemic toxicity. This review analyzes the possibilities of nanotechnological methods for effective treatment of psoriasis. An exhaustive literature review was conducted, investigating studies on various nanocarriers, i.e., liposomes, niosomes, solid lipid nanoparticles, dendrimers, and polymeric nanoparticles, for the delivery of anti-psoriatic drugs. Critical parameters like drug encapsulation efficacy, penetration in the skin, and therapeutic outcome were evaluated to analyze the efficiency of these nanotechnological systems. Nanocarriers showed better stability of the drug, controlled release properties, and greater penetration in the skin compared to conventional formulations. Liposomes and niosomes facilitated site-specific delivery of the drug with reduced systemic absorption, thus lowering side effects. Nanotechnology-based treatment approaches hold huge promise to revolutionize the treatment of psoriasis by bypassing the shortcomings of conventional treatments. They are able to improve drug stability, facilitate better penetration into the skin, and provide targeted delivery, thereby providing improved therapeutic benefits with reduced side effects. Nevertheless, in order to completely achieve their promises, additional clinical trials are needed to determine their safety, efficacy, and scalability for general application in clinical practice. These researches will assist in establishing how nanotechnology can be incorporated into routine psoriasis therapies, eventually resulting in more efficient and tailored therapeutic interventions for patients.

Keywords: Psoriasis, Oleogels, Drug Delivery, Invasomes

A Review on Current Pharmacological treatments for Alzheimer's disease

Akash Tiwari[*1], Ajeet Singh[2],Sarita Singh[3], Manju Pandey[4], Ankur Pratap Singh[5]
[1,2,3,4]Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India (225003)
[5]IFTM University, Moradabad, India (244102)
tiwariakash2779@gmail.com

Abstract

Alzheimer's disease (AD) is a chronic neurodegenerative disorder characterized by cognitive impairment, memory loss and behavioural changes. The majority of current pharmacological therapies are symptomatic and thus, it would be highly desirable to identify new medications that directly modulate the pathology. The major group of drugs capable to control the symptoms are represented by cholinesterase inhibitors (donepezil, rivastigmine and galantamine) and N-methyl-D-aspartate (NMDA) receptor antagonists memantine. Cholinesterase Inhibitors (ChEls) increase cholinergic transmission through inhibition of acetylcholine breakdown, in mild to moderate AD, providing some cognitive enhancement. Memantine acts on glutamate pathways to decrease excitotoxicity and promote neuroprotection in moderate-to-severe disease. The most recent addition to AD treatment may come in the form of monoclonal antibodies like aducanumab or lecanemab, aimed at removing amyloid-beta plaques – a central pathology feature of AD – but their clinical efficacy is controversial with conflicting trial results and safety signals: such as incidence of amyloid-related imaging abnormality (ARIA). Although these drugs represent a landmark change in AD therapy, hurdles in patient selection and the cost-benefit ratio hinder their impact on long-term benefit. Other potential targets that are in research, seeking new and better therapeutic strategies include tau protein and neuroinflammation.

Keywords: Alzheimer's disease, Cholinesterase inhibitors, NMDA receptor antagonists, Monoclonal antibodies, Amyloid-beta.

Advancements in Natural Super Disintegrants for Oral Dispersible Tablets: A Comprehensive Review

Vijay Sharma[*1], Amit Kumar[2], Alankar Shrivastav[1], Mhaveer Singh[1], Pawan Singh1, Deepak Singh Chaudhary[1], Navneet Verma[1]
[1]Faculty of Pharmacy, IFTM University, Moradabad, U.P.
[2]Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India (225003)
vijaysrampur@gmail.com

Abstract

Oral Dispersible Tablets (ODTs) have gained popularity in pharmaceutical formulations because they are easy to administer, disintegrate quickly, and enhance bioavailability. The success of ODTs relies largely on disintegrants, which help the tablet break down rapidly after ingestion. While synthetic disintegrants have been the conventional choice, there is a growing focus on utilizing natural super disintegrants as alternatives. These naturally derived substances are attractive due to their biocompatibility, environmental sustainability, and lower risk of side effects. This review highlights recent developments in natural super disintegrants, particularly those derived from plants, polysaccharides, and starches. It discusses their mechanisms, properties, formulation techniques, and effectiveness in ODT formulations. Additionally, it explores the challenges and opportunities of incorporating these natural disintegrants, underscoring their potential to enhance patient compliance and improve drug delivery. The review aims to offer valuable perspectives on the future of ODT development with natural super disintegrants based on the latest research findings.

Keywords: Oral Dispersible Tablets (ODTs), Natural Super Disintegrants, Drug Delivery, Biocompatibility, Formulation Strategies

Approaches for treatment of ulcer

Vishnu gond*, Sushma Singh, Zahid Husain
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India (225003)
vishnugond847@gmail.com

Abstract

Antiulcer agents are medications that reduce stomach acid production, promoting healing and preventing recurrence of peptic ulcers. They work by inhibiting histamine, acetylcholine, or gastrin, which stimulate acid secretion. Common antiulcer agents include H2 receptor antagonists (ranitidine), proton pump inhibitors (omeprazole), and antacids (aluminum hydroxide). H2 receptor antagonists and proton pump inhibitors decrease acid production, while antacids neutralize stomach acid. Antiulcer agents are often used in combination with antibiotics to eradicate Helicobacter pylori, a common cause of peptic ulcers. Effective treatment of peptic ulcer disease requires accurate diagnosis, appropriate medication, and lifestyle modifications. Patients should avoid NSAIDs, alcohol, and smoking, which can exacerbate symptoms. By reducing stomach acid production and promoting healing, antiulcer agents play a crucial role in the management of peptic ulcer disease, improving patient outcomes and quality of life.

Keyword: Proton pump inhibitors), H2- receptor antagonist, Antacid, Gastroprotective.

Computational Screening of Natural and Synthetic Inhibitors Targeting MAO-B for Parkinson's Disease

Shashi Prabha
Department of Pharmaceutical Chemistry, Mangalayatan University, Aligarh, Uttar Pradesh
shashi04830@gmail.com

Abstract

Parkinson's disease (PD) is a progressive neurodegenerative disorder characterized by the depletion of dopamine due to the overactivity of monoamine oxidase-B (MAO-B). Inhibition of MAO-B has emerged as a promising therapeutic strategy to restore dopamine levels and reduce oxidative stress. This study employs a computational approach to screen and evaluate potential natural and synthetic inhibitors targeting MAO-Baiming to identify novel drug candidates for PD treatment. Molecular docking of Luteolin, Baicalein, β-Carboline Derivatives, Hermine, Scopolamine, Curcumin, Selegiline, Rasagiline, Chalcone Derivatives, 9-Methyl-β-Carboline using Auto Dock was done to predict their binding affinity and interaction profiles with the active site of MAO-B. The top-ranked inhibitors were subjected to ADMET analysis to assess their pharmacokinetic properties and drug-likeness.

Our findings indicate that certain β-carboline derivatives, flavonoids, and coumarins exhibit strong MAO-B inhibitory potential with high binding affinity (-8.5 to -11.2 kcal/mol) and favorable pharmacokinetic properties. MD simulations confirm the stability of these compounds within the MAO-B active site, highlighting key interactions with FAD cofactor and active-site residues (Tyr398, Tyr435, Phe343) that contribute to enzyme inhibition. Notably, some natural compounds demonstrated better bioavailability and blood-brain barrier (BBB) permeability. In conclusion, this study provides valuable computational insights into the design and discovery of MAO-B inhibitors for Parkinson's disease. The identified compounds, particularly those with natural scaffolds, offer potential for further drug development and optimization as neuroprotective agents.

Keywords: MAO-B Inhibition, Molecular Docking, ADMET Prediction, Parkinson's Disease.

Diabetes Decoded: The stem cell blueprint for a healthier future

Shriyashi Gupta*, Ekagra Mishra, Pragti Singh
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India (225003)
shriyashigupta78@gmail.com

Abstract

Chronic diabetes mellitus is characterized by abnormal glucose metabolism, either due to a shortage of insulin or resistance to it, which leads to hyperglycemia and associated problems. Today, insulin injections and oral hypoglycemic medications are used to treat diabetes and associated symptoms that have no known cause or cure. Diabetes is being treated with stem cell therapy, which is thought to be a stem cell-related condition. Various stem cell types, such as mesenchymal stem cells (MSCs), induced pluripotent stem cells (iPSCs), and embryonic stem cells (ESCs), can boost insulin production, improve immune system tolerance, and replace beta cells in the pancreas. Analysis of stem cell-based treatments for type 1 and type 2 diabetes from preclinical to clinical application and their mechanisms will also take into account the immunological, ethical, and tumorigenic hurdles. Gene editing, biomaterials, stem cell therapy, and patient-centered care will all be used in this treatment to improve the patients' quality of life. Beta-cell production through the controlled differentiation of ESCs into endoderm. The recovery of beta-cells from the liver and pancreas. The application of glucagon-like peptide-1 to encourage beta-cell regeneration in vivo. Technology based on protein transduction for improved cell differentiation into insulin-producing cells. Even with these developments, there are still issues, such as immunological or moral rejection, as well as the functionality and safety of the transplanted cells. Gene editing, encapsulating technologies, and optimised differentiation processes are the subjects of numerous ongoing studies. Compared to the existing therapies and methods, this approach appears to be more successful and has the potential to significantly lower the fast-rising incidence of diabetes mellitus and its associated problems.

Keywords: Hyperglycaemia, Embryonic, Endoderm, Biomaterial, Tumorigenesis.

From Molecules to Medicines: Analog Design in Pharmaceutical Research

Megha Mishra*, Sagar Dangi
VNS Group of Institutions, Faculty of Pharmacy Neelbud Bhopal M.P.
dangs4197@gmail.com

Abstract

Analog design is a pivotal strategy in pharmaceutical research, facilitating the transformation of lead compounds into clinically viable drugs. This review provides a comprehensive overview of the principles, applications, and challenges of analog design in pharmaceutical research. We discuss the key concepts of molecular similarity, bioisosterism, and structure-activity relationships, as well as the role of analog design in lead optimization, and pharmacokinetic/pharmacodynamic improvement. Furthermore, we examine the integration of analog design with emerging technologies, such as artificial intelligence and machine learning, and discuss future directions in the field. In this review we will discuss how to design an analog or to do modification in the pre-discovered nucleus in order to make it more pharmacologically effective. This review aims to provide a thorough understanding of analog design in pharmaceutical research, underscoring its significance in the quest for innovative medicines.

Key words: Analog, Bioisosterism, Analog design, pharmaceutical research, Drug discovery, Molecular design, Medicinal chemistry.

Nanotechnology: An Emerging Therapy for Cancer

Kartik Agarwal* Sushma Singh, Zahid Husain
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India (225003)
kartikagarwal7786975934@gmail.com

Abstract

This abstract provides a comprehensive overview of the advancements and future potential of nanotechnology in the realm of cancer treatment. Nanotechnology serves as a valuable tool for the prevention, diagnosis, and treatment of cancer, offering significant promise for the targeted delivery of drugs, genes and proteins directly to tumor tissues, thereby reducing the toxicity of anticancer agents on healthy tissues. Cancer remains one of the foremost causes of mortality globally, with projections indicating approximately 12 million cancer-related deaths by 2030. As one of the most rapidly evolving fields of the 21st century, nanotechnology encompasses a variety of Nanosystems that have been employed in the diagnostics and therapeutics of numerous diseases. To address the limitations associated with traditional cancer therapies, nanotechnology has gained substantial attention. Nanotechnological innovations are applicable to oncological treatments, including arrays of Nano cantilevers, nanotubes, and nanowires for multiplex detection, as well as multifunctional injectable Nano vectors for both therapeutic and diagnostic purposes. It will illustrate how nanotechnology can tackle one of the most persistent challenges in medicine: the elimination of cancer while preserving normal body tissues. There are also contemporary nanotechnology platforms for anticancer drug delivery, such as polymeric nanoparticles, liposomes, dendrimers, Nano shells, carbon nanotubes, superparamagnetic nanoparticles, and nucleic acid-based nanoparticles (including DNA, RNA interference (RNAi), and antisense oligonucleotides (ASO)). Enhancement in cancer therapy can be promoted by knowing the benefits of nanotechnology

Keywords: Nanomaterials, Nanotechnology, Cancer, Diagnosis, Treatment,

Neuroscience and Neurodegenerative Diseases: A review

Siddhartha Gupta*, Zahid husain, Sushma Singh, Ajeet Singh
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India (225003)
siddharthareward13@gmail.com

Abstract

Neuroscience is an ever-evolving field, and it deals with the intricacies of the brain, neural networks, and cognitive functions that characterize human experience. It essentially seeks to understand how neurons communicate, how memories are formed, and how emotions influence behavior. Advances in neuroimaging, artificial intelligence, and molecular biology now allow scientists to unravel the intricate mechanisms that underlie both normal brain function and neurological disorders.

Neurodegenerative diseases such as Alzheimer's, Parkinson's, and Huntington's have both medical and social challenges due to their progressive, mostly irreversible nature. In these conditions, neuronal loss and synaptic disconnection progressively lead to loss of memory, motor function, and eventually complete independence. To date, no current treatments reverse the established neurodegeneration but provide only symptomatic care. However, breakthroughs in neuroplasticity—the brain's ability to reorganize and repair itself offer a promising avenue for potential therapies. New discoveries in stem cell therapy, gene editing through techniques like CRISPR, and AI-based diagnostics hold out promises for the earliest possible interventions and individualized treatment plans. Key biomarkers may be used to predict disease onset before any symptomatology can manifest, paving the way for preventative measures. Additionally, the union of neurogenetics and biotechnology has helped accelerate research on targeted drug therapies that attack the root causes rather than treating the symptoms themselves.

Essentially, neuroscience will be the one unlocking some of the greatest medical mysteries of our time. And with interdisciplinary approaches, we edge closer to some of the more transformative breakthroughs that may, in the near future, actually halt or reverse neurodegenerative diseases for millions of people, giving them a chance at a healthier future.

Keywords: Neuroscience, Neurodegeneration, Brain Disorders, Neural Networks, Neuroplasticity, Alzheimer's,

Pharmacovigilance Data Management and Technology

Preeti Kumari*, Pragti Singh, Manju Pandey
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India(225003)
preetu0318@gmail.com

Abstract

Clinical product development requires a comprehensive and exacting approach to risk assessment. However, despite regulated clinical trials, almost every safety problem. The amount of patients exposed to a product, which includes patients with comorbid diseases and those receiving concurrent prescription treatment, typically increases significantly once it is marketed. In order to assess and characterise a product's risk profile and to make well-informed decisions about risk minimisation, post-marketing safety data collecting or clinical risk evaluations based on observational data are therefore essential. Time savings, high quality, cost savings, and enhanced efficiency with safer and more effective medications are just a few of the fundamental advantages that information science promises to bring through excellent e-clinical or e-health solutions. The creation and application of a standard-based pharmacovigilance system that integrates with electronic health records, health information technology, and clinical data management systems has the potential to be a useful tool for clinical collaborations between various functional groups or clinical partners, data mining, early drug safety detections, and results interpretation. It would be even easier to identify and communicate safety hazards if there was a publicly available, regularly updated worldwide safety database. More regulatory enforcement and accountability demand for patient protection and welfare have been placed on the pharmaceutical industry as a result of recent high-profile medication safety issues. Biopharmaceutical businesses must address medication safety and pharmacovigilance more proactively in light of this shifting environment.

Keywords: Clinical Products, Post Marketing, Medications, Pharmacovigilance, Health Records, Drug Safety.

Phytochemical and medicinal properties of madhuca longifolia leaf

Dilip Kumar Chanchal
Glocal School of Pharmacy, The Glocal University, Mirza Pur Pole, Saharanpur, Uttar Pradesh 247121, India.
chanchaldilip014@gmail.com

Abstract

Madhuca longifolia, commonly known as the Mahua tree, is a valuable medicinal plant widely distributed across India and Southeast Asia. While its flowers and seeds have been extensively studied for their economic and therapeutic importance, its leaves remain an underexplored resource with significant pharmacological potential. This review highlights the phytochemical composition, traditional uses, and medicinal benefits of Madhuca longifolia leaves. Rich in bioactive compounds such as flavonoids, tannins, saponins, and polyphenols, the leaves exhibit antioxidant, anti-inflammatory, antimicrobial, and hepatoprotective properties. Traditional medicine systems utilize these leaves for treating skin disorders, ulcers, diabetes, and respiratory ailments. Recent scientific studies suggest their potential in managing oxidative stress-related diseases and microbial infections. Further research on isolation and characterization of active compounds can enhance their applications in pharmaceuticals and nutraceuticals. This study underscores the need for in-depth pharmacological and clinical investigations to validate the therapeutic efficacy of Madhuca longifolia leaves and explore their role in modern medicine.

Keywords: Madhuca longifolia, Mahua leaves, phytochemicals, medicinal properties, antioxidant, anti-inflammatory, antimicrobial.

Polyphenols and Allergy Management: Unraveling Mechanisms, Diagnosis, and Emerging Natural Treatments

Meera Kumari[1]*, Mhod. Aftab Siddiqui[1], Moni Rawat[2]
[1]Faculty of Pharmacy, Integral University, Lucknow, U.P., India
[2]Goel Institute of Pharmacy and Sciences, Lucknow, U.P., India
meerauipl@gmail.com

Abstract

Allergies are immune system hypersensitivities triggered by substances like pollen, food, and medications, affecting millions globally. These reactions vary from mild symptoms to severe conditions like anaphylaxis. The immune system mistakenly recognizes allergens as harmful, activating immunoglobulin E (IgE) and mast cells, which release histamines and inflammatory mediators. This response contributes to allergic diseases, including asthma and rhinitis. Understanding these mechanisms is key to improving diagnosis and treatment. Recent advancements in allergy detection have improved precision. While traditional methods like skin prick tests and serum IgE analysis remain widely used, molecular allergen profiling now make possible more accurate identification of specific allergens, leading to modified treatment plans. Therapeutic approaches for allergies continue to evolve. Antihistamines, corticosteroids, and immunotherapy are effective, but newer treatments provide additional options. Biologic drugs, such as omalizumab, which target IgE, offer relief for severe allergies. Alongside pharmaceutical treatments, natural alternatives like polyphenols are gaining interest for their potential in allergy management. Polyphenols, plant-derived compounds originate from fruits, vegetables, and herbs, have demonstrated immunomodulatory benefits. Their antioxidant, anti-inflammatory, and antihistamine properties may help regulate immune responses and reduce allergic reactions. Research suggests flavonoids, catechins, and phenolic acids can suppress inflammatory cytokines, inhibit mast cell activation, also balance immune responses. These effects may alleviate symptoms of allergic rhinitis, asthma, and food allergies by reducing oxidative stress along with inflammation. As research progresses, polyphenols may offer a promising natural strategy for allergy relief. Although further clinical studies are needed to confirm their efficacy and optimal dosage, they represent a potential holistic alternative for managing allergies. This review highlights the mechanisms of allergic reactions, advances in diagnosis, and emerging treatments, emphasizing polyphenols' role in reshaping allergy management for long-term relief.

Keywords: Allergies, Immunoglobulin E (IgE), Mast Cell Activation, Polyphenols, Histamine Release.

Real time drug safety monitoring in pharmacovigilance using Artificial Intelligence

Manasvi Gupta*, Saurabh Kashyap, Sania Siddiqui, Pragti Singh
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India (225003)
manasvigupta1120@gmail.com

Abstract

Pharmacovigilance is an integral approach through which safety and efficacy in pharmaceutical products can be achieved, monitored for detecting and preventing adverse drug reactions. Traditional pharmacovigilance is effective but often encounters the drawbacks of underreporting of ADRs, complexities of data management delays, and rectification of potential drug safety issues. It is in this continuum that the rise of real-time drug safety monitoring through AI, along with machine learning techniques, makes substantial progress in the industry.
This review article addresses the transformative effect of real-time monitoring systems on pharmacovigilance practice. By including technologies like AI and ML, we can process vast amounts of data from worldwide sources, including electronic health records, the internet, and patient registries, with revolutionary speed and accuracy. The inclusion of real-time monitoring into current pharmacovigilance frameworks increases the precision and speed of ADR detection while also being supportive of proactive risk management and the development of safer drugs. With case studies and initiatives around the globe, we illustrate the success of AI in the pharmacovigilance space and ongoing challengesThe article also discusses the future directions and opportunities for Gen AI in pharmacovigilance which include enhanced signal detection algorithms, personalized safety assessments, and predictive risk modelling and incorporation of emerging technologies like blockchain and IoT that can complement Gen AI and improve data security and real-time monitoring.

Keywords: Pharmacovigilance, Real-time monitoring, Adverse drug reactions (ADRs), Artificial intelligence (AI), Machine learning (ML), Drug safety.

Respiratory Stimulant Life Saving drugs

Rama Tripathi*, Sushma Singh, Zahid Husain
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India (225003)
ramatripathi4444@gmail.com

Abstract

Respiratory stimulants can be life-saving in certain emergency or medical situations where there is a need to restore adequate breathing or reverse respiratory depression. Some of these drugs help stimulate the body's natural respiratory mechanisms, while others can counteract the effects of substances that depress breathing. Respiratory stimulants can treat conditions such as asthma, chronic obstructive pulmonary disease (COPD), respiratory depression, and apnea of prematurity. Respiratory stimulants work by stimulating the respiratory center in the brainstem and medulla, or by causing bronchodilation in the lungs. Respiratory stimulants primarily work by directly stimulating the respiratory center located in the medulla oblongata of the brainstem, thereby increasing the rate and depth of breathing by triggering a response to perceived low oxygen or high carbon dioxide levels in the blood; some can also act peripherally by stimulating chemoreceptor in the carotid bodies, ultimately leading to increased respiratory drive. Respiratory stimulants can cause side effects such as muscle tremors, agitation, anxiety, irritability, and insomnia. Few examples of respiratory stimulants are doxapram, caffeine, theophylline, aminophylline, amiphenazole and Doxofyllin.

Keywords: COPD, Apnea, Respiratory stimulant, Chemoreceptors

Smart Bandages for wound healing

Anki Gautam*, Zahid Husain
Institute of pharmacy, Shri Ramswaroop Memorial University, Deva Road, Barabanki, Uttar Pradesh-225003
ankit23gautam@gmail.com

Abstract

The management of wounds is a critical aspect of healthcare as it affects patient's quality of life and puts a financial burden on the healthcare industry. The development of smart bandages has shown great potential in wound monitoring and targeted treatment. Chronic wounds are a major health concern as they affect 1.89 per 1000 people in India and 1.51 to 2.21 per 1000 people worldwide. They are susceptible to infection and are the leading cause of non-traumatic limb amputation worldwide. Smart bandages technology can monitor various biomarkers such as temperature, moisture, oxygen, blood flow, external pressure, pH and infection status in real time. This technology provides targeted treatment by integrating drug delivery systems that can release drugs on demand based on wound condition. These drug delivery tools are embedded on bandages to facilitate precise temporal and spatial control over drug release .It is observed that cells rapidly migrate into wounds and regenerate skin tissues in the area making 30% more rapid healing than normal bandages in mice. With the ability to noninvasively diagnose wound parameters, reduce pain and accelerate wound healing. Smart bandages are expected to play a significant role in future wound care.

Keywords: Chronic wound, Smart bandage, Amputation.

Soft gold of the Himalayas: the healing power of caterpillar fungus

Megha Ashawat*, Astha Mishra
Department of Pharmacy, Banasthali Vidhyapith Jaipur, Rajasthan
meghaashawat31@gmail.com

Abstract

Soft gold better known as the caterpillar fungus Ophiocordyceps sinensis is a medicinal mushroom increasingly used as a dietary supplement for various health conditions, including fatigue, chronic inflammation, and male impotence. It has the most harmless side effects which come up as diarrhoea when overdosed. Originally used in traditional Tibetan and Chinese medicine, is called either it has over 30 bioactivities, such as immunomodulatory, antitumor, anti-inflammatory, and antioxidant activities and much more. It has been shown that O. sinensis can be used to treat conditions such as hyposexuality, night sweats, hyperglycaemia, hyperlipidaemia, asthenia, arrhythmias, and other heart, respiratory, renal and liver disease anti-inflammatory, antihypoxia, and antitumor properties and has the ability to regulate the endocrine system, enhance immune function, and protect the kidneys, lung, liver, and other organs. Upon performing the chemical analysis, it has been found that several constituents like nucleosides, cordycepin, d-Mannitol, sterols, fatty acids, and flavonoids participate in the treatment of the above stated sufferings. Breast cancer one of the most prevailing tumours in feminine world is also believed to be treated under the wonders of the soft gold. Its exceptional anti-tumour properties help it to fight the dangerous tumour conditions. Cancer is said to be one of the most fatal diseases of all time considering its ability to spread and damage other parts of the tissues. Secondly, it does not showcase any cardinal features on its own until it reaches a stage where discomfort comes up and the individual has to visit the doctor.

Keywords: Fungus, Ophiocordyceps Sinensis, Mushroom, Soft gold, Cancer

Stroke: A life-threatening problem

Vivek Nishad*, Sushma Singh, Zahid Husain
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India (225003)
vn868716@gmail.com@gmail.com

Abstract

Stroke is a clinically defined syndrome of acute, focal neurological deficit attributed to vascular injury (infarction, hemorrhage) of the central nervous system. Stroke is the second leading cause of death and disability worldwide. Stroke is not a single disease but can be caused by a wide range of risk factors, disease processes and mechanisms. Hypertension is the most important modifiable risk factor for stroke, although its contribution differs for different subtypes. Most (85%) strokes are ischaemic, predominantly caused by small vessel arteriolosclerosis, cardioembolism and large artery athero-thromboembolism. Ischaemic strokes in younger patients can result from a different spectrum of causes such as extracranial dissection. Approximately 15% of strokes worldwide are the result of intracerebral haemorrhage, which can be deep (basal ganglia, brainstem), cerebellar or lobar. Deep haemorrhages usually result from deep perforator (hypertensive) arteriopathy (arteriolosclerosis), while lobar haemorrhages are mainly caused by cerebral amyloid angiopathy or arteriolosclerosis. A minority (about 20%) of intracerebral haemorrhages are caused by macrovascular lesions (vascular malformations, aneurysms, cavernomas), venous sinus thrombosis or rarer causes; these are particularly important in young patients (<50 years). Knowledge of vascular and cerebral anatomy is important in localizing strokes and understanding their mechanisms. This guides rational acute management, investigation, and secondary prevention.

Keywords: Cerebrovascular disease, Intracerebral haemorrhage, Ischaemic stroke.

The role of AI and Big Data in Pharmacovigilance and patient safety.

Rohan Kumar*, Govind Tiwari, Satyam Additya, Achal Anand
SRM Modinagar College of Pharmacy, SRMIST Delhi-NCR Campus, Ghaziabad Uttar Pradesh (201204)
rohan980149rohan@gmail.com

Abstract

Artificial Intelligence (AI) and Big Data enjoy rising prevalence in the field of pharmacovigilance along with patient safety; besides, more advanced tools are available today for moment-to-moment monitoring, an even more thorough analysis, and accurate forecasts of undesirable drug reactions (ADRs). Spontaneous reporting schemes and clinical trials have always been the main functional sources of information in pharmacovigilance with a small amount of data or a delay in safety signal detection. By applying Big Data and AI algorithms, a researcher can analyze large heterogeneous amounts of data retrieved from social media, clinical trials, electronic health records, and global surveillance networks, and thus, the machinery for a warning of a new safety issue is enhanced in the process. Machine learning algorithms, which are smarter since time goes by, can more accurately predict ADRs and detect their patterns, therefore, there is time to act earlier and prevent risks to the patients. Additionally, natural language processing (NLP) provides the required facilities for the extraction of structured information from unstructured data originating from any data source and therefore, it allows refinement. Through the combination of AI and Big Data technologies, the identification of drug-related risk is not only expedited, but it also improves the patients' outcomes, and consequently, the healthcare systems are trusted. As the regulatory bodies start adopting both Big Data and AI, it can be said that pharmacovigilance and patient safety will soon be revolutionized in the healthcare industry. Thus, the health ecosystem becomes more proactive and responsive.

Keywords: Pharmacovigilance, Artificial intelligence, Big Data, Natural language processing.

The role of inflammation in diabetic retinopathy: "A review of the current evidence"

Ishita Yadav*, Pragti Singh
Institute of pharmacy, Shri Ramswaroop Memorial University, Deva Road, Barabanki, Uttar Pradesh-225003
ankit23gautam@gmail.com

Abstract

Diabetic retinopathy (DR) is a progressive microvascular complication of diabetes mellitus and a leading cause of blindness worldwide. Emerging evidence suggests that inflammation plays a pivotal role in the pathogenesis and progression of DR, alongside hyperglycemia and oxidative stress. This review synthesizes current evidence on the mechanisms linking inflammation to DR and highlights therapeutic strategies targeting inflammatory pathways. Chronic hyperglycemia causes a cascade of inflammatory processes: activation of nuclear factor-kappa B (NF-dB), pro-inflammatory cytokines up-regulation, including tumour necrosis factor-alpha (TNF-α) and interleukin-6 (IL-6), and an increase in vascular endothelial growth factor (VEGF) expression. These inflammatory mediators contribute to endothelial dysfunction, blood-retinal barrier breakdown, and subsequent retinal neovascularization. Furthermore, leucocytosis and activation of microglial cells exacerbate retinal damage through the release of reactive oxygen species (ROS) and proteolytic enzymes. Recent studies have shown that DR can be counteracted by use of some anti-inflammatory drugs like corticosteroids, NSAIDs, and others targeting specific inflammatory pathways, such as monoclonal antibodies against TNF-α and inhibitors of interleukin signalling, showing promise in preclinical and clinical settings. Despite these advances, the translation of such therapies to conventional clinical practice is still an important gap, mainly because of the intricate interplay between inflammatory and metabolic pathways in DR. This review provides a hub for the evidence-based approach for the management of DR, integrating glycaemic control into anti-inflammatory interventions. Future research can target the identification of biomarkers that would be useful for the early onset of inflammation-driven DR and evaluate the long-term efficacy of such anti-inflammatory therapies. An understanding of the intricate role of inflammation in DR will open up innovative treatments, hence improving the prognosis of patients suffering from diabetes.

Keywords: Diabetic retinopathy, Anti Inflammatory Intervention, Neovascularization, Proteolytic Enzyme.

Vaccine Development: Challenges and Innovations

Devam Kumar Sharma*, Ankit Jayswal, Shani Gupta, Awinish Shrivastaw
Rameshwaram Institute of Technology and Management, Sitapur Rd, opposite AKTU campus, Govind Puram, Mubarakpur, Lucknow, Uttar Pradesh 227202, India
sharma.devam04@gmail.com

Abstract

The field of vaccine development has made great strides, particularly during the COVID-19 pandemic, which demonstrated the possibility of rapid vaccine production. Innovations in mRNA technology, viral vector platforms, and protein subunit vaccines played a key role in achieving this progress. However, challenges like vaccine distribution, storage requirements, and public hesitancy still persist. The future of vaccine development lies in overcoming these obstacles and expanding the range of vaccines available for infectious diseases, while also focusing on developing vaccines for non-communicable diseases, such as cancer and autoimmune disorders.

Keywords: Vaccine development, mRNA technology, viral vector, protein subunit vaccines, public health.

Advancements in Needleless Injection Technology

Yuvraj Kashyap*, Zahid Husain, Sushma Singh
Institute of Pharmacy of Shri Ramswaroop Memorial University, Deva Road, Barabanki, Uttar Pradesh India- 225003
20yuvraj20@gmail.com

Abstract

The primary problem with needle injections is the potential for infection or transmission of bloodborne diseases if the needle is not properly sterilized or reused, leading to complications like abscesses, hepatitis B and C, and HIV, especially when sharing needles; other issues include pain at the injection site, nerve damage if injected incorrectly, and allergic reactions to the medication itself.
Needleless injection technology has become a groundbreaking development in the healthcare sector, offering a viable alternative to traditional needle-based drug delivery systems. Recent advancements have focused on improving the safety, precision, and comfort of these devices, making them more effective and user-friendly. By utilizing mechanisms such as high-pressure jets, microneedles, and jet injectors, needleless devices allow for the administration of medications and vaccines without the need for needles, minimizing the pain and anxiety commonly associated with injections. Notable innovations include compact, at-home use devices and smart injectors with digital features that enable real-time monitoring, dose tracking, and enhanced patient control. Needleless injection systems are now being widely used for treatments such as insulin delivery, vaccinations, and biologic therapies, offering faster, less invasive, and more efficient ways to administer drugs. However, challenges such as device cost, accuracy, and the need for comprehensive patient education still persist. As the technology continues to evolve, needleless injection devices have the potential to significantly improve patient adherence, support public health initiatives, and reduce the risks associated with needle-related injuries and infections. Recent advancements in needleless injection technology have significantly improved the way medications are administered, offering a range of benefits over traditional needle-based methods. Here are some of the notable advancements like Jet Injection Technology, Needle-Free Vaccine Delivery, Insulin Delivery for Diabetes, Piston and Spring-Loaded Devices.

Keywords - Needleless technology, microneedles, allergies, infection.

Alzheimer Disease pathogenesis and monoclonal antibodies

Shivam Yadav*, Zahid Husain, Sushma Singh
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India(225003)
Sy174247@gmail.com

Abstract

Alzheimer's disease (AD) is a vastly operable neurological disease that typically affects people over the age of 65. As individuals age, the number of neurons in their brains tends to decrease gradually in healthy individuals, but AD sufferers' brains exhibit a substantial rise in neuron death, frequently leading to a considerable decline in cognitive function. At this time, only postmortem brain biopsies can provide a conclusive diagnosis of AD by identifying extracellular amyloid beta plaques and intracellular hyperphosphorylated tau neurofibrillary tangles. In recent years, researchers have developed monoclonal antibodies that can target and remove amyloid-beta proteins, which are believed to contribute to the development & progression of AD. These antibodies include drugs like Aducanumab, Bapineuzumab, Gantenerumab, Solanezumab, and Lecanemab. The idea behind these drugs is that a breakdown in the body's natural ability to clear amyloid-beta protein can contribute to the development of AD. Clinical studies have been carried out to test the effectiveness of these antibodies in treating AD. Further research on the beneficial and harmful effects of these drugs on anti-amyloid beta AD has to be explored.

Keywords: Alzheimer's disease, Intracellular, Immunotherapy, Antibodies

Anginal Agents: Mechanisms, Classification, and Applications

Jay Singh Chaudhary, Sushma Singh, Zahid Husain
Shri Ramswaroop Memorial University, Lucknow, Deva Road
jaysinghchaudhary465@gmail.com

Abstract

Angina pectoris, a clinical manifestation of myocardial ischemia, results from an imbalance between myocardial oxygen demand and supply. Anti-anginal agents are pharmacological interventions designed to alleviate angina symptoms, improve exercise tolerance, and prevent ischemic complications. These agents function through various mechanisms, including reducing myocardial oxygen consumption, enhancing oxygen delivery, and modulating cardiac workload. Anti-anginal drugs are broadly classified into three major categories: nitrates, beta-blockers, and calcium channel blockers. Nitrates act as vasodilators, reducing preload and afterload, thereby decreasing myocardial oxygen demand. Beta-blockers lower heart rate and contractility, reducing myocardial oxygen consumption. Calcium channel blockers improve coronary perfusion and decrease vascular resistance. Other emerging agents, such as ranolazine and ivabradine, offer additional therapeutic options by modulating metabolic and electrical pathways. The clinical application of these drugs depends on patient-specific factors, comorbidities, and drug interactions. Combination therapy is often employed to optimize therapeutic outcomes. This review provides an in-depth analysis of the mechanisms, classifications, and clinical applications of anti-anginal agents, highlighting their significance in managing ischemic heart disease.

Keywords: Anti-anginal agents, myocardial ischemia, nitrates, beta-blockers, calcium channel blockers, ischemic heart disease.

Artificial tissue fabrication

Bipasha Ray
Pharmacy College Azamgarh Itaura, Azamgarh, U.P. 276001
bipasharay0111@gmail.com

Abstract

Artificial tissue fabrication is a highly evolving field of tissue engineering. Artificial intelligence (AI) can be applied in a variety of ways speed up procedures and improve accuracy and efficiency, affordable, and reduce post-transplant complications. It integrates biomaterials, bioengineering, and regenerative medicine. Artificial tissue fabrication aims to provide to enhance patient-specific treatments by providing personalized medicines, improving drug testing models, and also in developing of functional tissue constructs for medical applications. All the technologies are designed to mimic extracellular matrix and to support cell growth. Developments in biocompatible materials, such as hydrogels and biodegradable polymers have greatly enhanced tissue integration and functionality. Although with advanced features there must be challenges such as biological processes, immune response and properties. In future, researchers aim to refine tissue fabrication techniques and develop fully functional tissue capable of coordinating seamlessly within the human body.

Keywords: Artificial tissue fabrication, Scaffold-based tissue engineering, biomaterials, 3D bioprinting, electrospinning, biological process, Applications and Limitations.

Assessing pharmaceutical knowledge and practice regarding the management of drug storage

Mishra Jay, Pragti Singh *
Institute of Pharmacy, Shri Ramswaroop Memorial University (SRMU)
pragtisingh.pharma@srmu.ac.in

Abstract

Proper management of drug storage is very important to ensure that pharmaceutical products maintain their quality and effectiveness. This involves several key practices. First, controlling the temperature at which drugs are stored prevents them from degrading. Humidity control is also important to ensure that drugs remain stable. In addition, some drugs are sensitive to light and should be protected from exposure by storing them in dark or opaque containers. The storage areas should also be kept clean and free from dust and contaminants. Labelling of drugs is essential for correct usage and must include their name, dosage, expiration date, and storage conditions. Separate drugs should not be mixed so that cross-contamination does not occur, and storage areas must be secure in order to limit unauthorized access.

Regulatory guidelines, such as Good Manufacturing Practices (GMP) and Good Distribution Practices (GDP), are followed to ensure the quality standards of drugs. The International Pharmacopoeia also provides standards for the storage and transportation of pharmaceuticals.

Staff dealing with pharmaceuticals must be adequately trained and qualified. High standards must be maintained by having regular training on safety procedures and hygiene. The storage facilities and equipment should be designed to ensure optimal conditions for drug storage with the use of monitoring equipment in order to keep temperature and humidity levels constant.

Through such practices, pharmaceutical companies can ensure their products are safe and effective for patients.

Keyword: Good Storage Practices (GSP), Segregation, Regulatory Guidelines , Good Manufacturing Practices (GMP), Good Distribution Practices (GDP), International Pharmacopoeia, Personnel Training Safety

CRISPR/Cas9 Nanoparticle Delivery for Neurodegenerative Diseases Treatment

Akash Tiwari*, Zahid Husain
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India (225003).
tiwariakash2779@gmail.com

Abstract

The utilization of CRISPR/Cas9 as a gene-editing tool is beneficial in advanced gene therapy due to its Capability. The technology demonstrated its potential to correct genetic mutations and modulate genes involved in diseases. The delivery of CRISPR components to the central nervous system (CNS) is still impeded by biological barriers, such as the blood brain barrier (BBB). Progressive neurodegeneration, which includes Parkinson's and Huntington's disease, is characterized by limited treatment options and progressive neuron loss. This technology is made up of a pair of short guide RNAs (gRNA) that are used for identifying the target DNA sequence and Cas9 protein that acts as cleave enzymes to break and cut DNA. A promising way to address these limitations is through the use of nanoparticle-based delivery systems. The stability, specificity, and efficiency of CRISPR-Cas9 delivery can be improved by the use of nanocarriers, including lipid nanoparticles or polymeric nanoneedles, as well as inorganic nanomaterials. This review explores recent developments in nanoparticle mediated CRISPR-Cas9 delivery for neurodegenerative diseases treatment.

Keywords: Neurodegenerative Diseases, Blood-Brain Barrier (BBB), Lipid Nanoparticles, CRISPR-Cas9.

Development and Evaluation of Buccal Drug Delivery System for Analgesic Medications

Aman Yadav*, Apurwa Singh, Shikha Srivastava
Institute of Pharmacy of Shri Ramswaroop Memorial University, Deva Road, Barabanki, Uttar Pradesh India- 225003
amanydvkvs@gmail.com

Abstract

The oral route is the most preferred method of drug delivery among various options available to patients. The buccal drug delivery system offers several significant advantages compared to other administration routes. These benefits include the potential to bypass the first-pass metabolism, enhanced patient compliance, and reduced presystemic elimination within the gastrointestinal tract. Within the realm of mucoadhesive drug delivery systems, buccal patches have garnered attention due to their ease of administration, extended drug release rates, and higher patient acceptance relative to other mucoadhesive devices such as buccal tablets, films, and gels. In this study, buccal patches were formulated for several analgesic medications, including tramadol hydrochloride, lornoxicam hydrochloride, and aceclofenac, as well as a combination patch containing tramadol hydrochloride and paracetamol, utilizing appropriate polymers such as HPMC, HPC, chitosan, Carbopol, and sodium CMC. The patches were made flexible through the incorporation of plasticizers, specifically glycerin or propylene glycol, and combinations of polymers were also explored. Additionally, the patches were reinforced with a backing membrane composed of ethyl cellulose. The evaluation of the prepared patches included assessments of tensile strength, surface pH, swelling behavior, drug release profiles, and morphological characteristics. Compatibility between the drugs and polymers was analyzed using FTIR spectroscopy. The drug release from the buccal patches was quantified, and the release mechanisms were investigated. Stability studies indicated that the drugs remained stable and intact within the patches throughout their shelf life. Further validation of the therapeutic efficacy of these buccal patches will require pharmacokinetic and pharmacodynamic studies conducted in human subjects.

Keywords: Buccal drug delivery, Analgesic medications, Drug release profiles, Polymer compatibility

Evaluation of Antiulcer Activity of Fresh Rhizome Juice of "Curcumma amada

Samiksha Devi, Manu Tripathi, Chandan Kumar Bharti
Aryakul College of Pharmacy and Research, Raibareli, U.P, India
kumkum8794@gmail.com

Abstract

In this study, the operation of fresh Curcuma amada rhizomejuice was administered studying the antiulcer results orally. Toxicity experiments on albino rats over a period indicate nomorality at a dose of 2ml / kg Duration: 14 days. In the rats, nosignificant was seen during the study. This assist in predicting this It contains no toxicity whatsoever and is completely healthy. So 2 ml/kg b.w fresh (1/10th dose) Juice of that dose was chosen for further analysis. The comments suggested the long-term. The extract administration had no negative impacts on the pets' general health. No Important variations in body weights or in animal food intake were observed. Thus, this formulation can be medically used. The animals had ethanol induced ulcer Aspirin and the ulcerated pets were handled with fresh juice at a dosage of 2ml / kg Standard oral pantoprazole prescription. Peptic ulcer just as other acidic indications influence up to 10 percent of individuals with enough seriousness to empower casualties to look for clinical consideration. Human life expectancy having a peptic ulcer is around 10 rate focuses for Americans guys and four rate focuses for females. Peptic ulcers are caused in injuries which are most generally influenced in the number of inhabitants in more youthful to more established individuals, even though this can be recognized in grown-up life. In some cases, they happen with no clear sign and impact, following a time of days to long periods of dynamic illness measure, it can recoup with or without medicate treatment. This likewise influences bacterial H diseases.

Keywords: Fresh rhizome juice, Curcuma amada, phytochemical studies

Formulation and optimization of gel for anti-aging activity

Pallavi kasaudhan*, Archana
Saroj Institute of Technology and Management, Ahimamau, Lucknow,226002.
guptapallavi229@gmail.com

Abstract

The naturally occurring process of wrinkles on the skin is complicated and impacted by both exogenous (extrinsic) and inherent (intrinsic) elements. Since skin wellness and attractiveness are seen as one of the primary indicators of general "well-being" and the impression of "health" in people, a number of anti-aging techniques have been developed in recent years. This article's goal is to examine the most significant anti-aging techniques now employed by dermatologists, including as preventive measures, cosmetic techniques, topical and broad medicinal agents, and surgical treatments. Skin wrinkles and abnormal coloration are signs of aging skin caused by intracellular and extracellular oxidative stress brought on by reactive oxygen species (ROS). Skin aging is typically considered in relation to UV exposure since UV increases the production of ROS in cells. An efficient way to stop the signs of photo-induced skin aging is to take antioxidant supplements. The processes by which ROS are produced and removed from the body are outlined in this review. There is also consideration of the consequences of ROS produced in the skin and how they change its appearance. Additionally, a summary of representative antioxidants' effects on the skin is provided, with an emphasis on skin aging. Skin becomes drier along with more susceptible to wrinkles as we age because collagen and elastin in the skin degrade. Collagen is further broken down by ultraviolet (UV) light exposure and certain lifestyle choices including smoking and consuming alcohol. Individuals who frequently make facial expressions like frowning or squint are more likely to discover long-lasting wrinkles on their forehead or around their eyes.

Keywords: antioxidant-rich substances, optical fibers, peeling off, dermal fillers, botulism, hormone replacement treatment, cell regulators, advancing age, rejuvenation, and preventive.

Injectable hydrogel-based systems for delivery of drugs in cancer treatment

Ameenuddin Ansari*, Zahid Husain, Ajeet Singh, Sushma Singh
Institute of Pharmacy, Shri Ramswaroop Memorial University Lucknow-Deva Road Barabanki 225003, Uttar Pradesh ,India
ansariameenuddin34@gmail.com

Abstract

Chemotherapy frequently results in detrimental effects on healthy cells and tissues. To mitigate these adverse outcomes, localized chemotherapy presents a viable alternative, as it reduces the systemic toxicity associated with traditional chemotherapy while ensuring a prolonged release of therapeutic agents directly at the cancer location. Consequently, the utilization of injectable hydrogels as drug delivery systems for chemotherapeutics has gained significant attention. As a novel drug carrier, hydrogels have been extensively employed in the delivery of medications to cancer .The thing that makes its utility even more enhanced is that they make themselves more recognizable to the body tissues and hence can stay inside the body for a longer time, enhancing the efficiency of the delivery, which otherwise is negatively affected since the drug is identified by the human immunity as a foreign substance, and thus, an attack of the immunity begins on the drug injected. A variety of hydrogels such as thermosensitive, pH-sensitive, and magnetism-responsive hydrogels have been included and their potential usage in drug delivery. Injectable thermosensitive hydrogels are increasingly recognized as promising drug delivery systems due to their ability to undergo a sol-gel phase transition in response to temperature changes upon injection. Recently, these hydrogels have gained significant attention in the field of cancer treatment, as they offer advantages such as high local drug concentrations, sustained release profiles, minimal invasiveness, and reduced systemic toxicity.

Keywords: Chemotherapy, biodegradable hydrogels, cancer, chemotherapeutics

Naphthalene-based pH-sensitive colorimetric probe for sensing an alkaline environment

Neelam Gupta[a], Jyoti Parkash[b], Abha Sharma[a,*]

[a] Department of Medicinal Chemistry, National Institute of Pharmaceutical Education and Research, Raebareli, Transit Campus, Lucknow, Uttar Pradesh, India

[b] Department of Zoology, School of Biological Sciences, Central University of Punjab, Ghudda, Bathinda, Punjab, India

abha.sharma@niperraebareli.edu.in

Abstract

Monitoring the pH of textile material used in surgical dressings is of utmost importance to avoid delayed healing due to pH changes. Similarly, the control over the pH of soil and is also of great importance as the soil pH changes significantly impacts the plant growth and biomass yield. As a result, maintaining the pH of soil is important for optimum soil health and agricultural productivity. To maintain a healthy skin the pH balance is also crucial as the normal pH range of skin is slightly acidic (4.1–5.8) which helps to keep the skin hydrated, regulate microbial growth and essential for enzyme activity. The cleansing agents with alkaline pH can disrupt the skin's natural acidic pH which can result in compromise with the normal skin functioning. In this work, a naphthalene-based colorimetric probe (HN-DNP) was developed for pH sensing application. The probe HN-DNP displayed an absorbance wavelength at 408 to 418 nm in pH 1-10 that increased to 445 nm in pH 11, 485 nm in pH 12 and 506 nm in pH 13 solutions respectively. Apart from the spectral changes colorimetric response from yellow to peach and purple colour while shifting to pH 12 and 13 was also observed. The pKa value for the probe was calculated to be 11.16 using UV vis spectrophotometer. To study the effect of interfering ions on sensing pH interference study was performed and the probe displayed negligible interference in the presence of commonly available cations in sensing the pH 12 and pH 13 solutions. The mechanism of pH sensing was studied by ^{1}H NMR and DFT. The probe can be reversibly used for sensing basic pH for at least 5 times. The probe was converted to portable paper strips and was used for on-site and real-time sensing of pH of water, soil, soap. The probe was also capable of sensing the alkaline pH of textile material used in surgical dressings.

Keywords: Colorimetric, pH sensor, naphthalene, reversibility, textile material, soil pH

Telemedicine: Bridging the Gap in Modern Healthcare

Ved Mani Sharma
Ankerite College of Pharmacy, Lucknow
blpvedmani@gmail.com

Abstract

Telemedicine, a cutting-edge technology in contemporary healthcare, has rapidly become an essential remedy to close the gap in accessibility between healthcare providers and patients. By applying digital technology, telemedicine facilitates distant medical consultations, diagnosis, and treatment, vastly improving access to quality care for patients in remote and underserved communities. Not only does this revolutionary strategy enhances patient outcomes but also provides affordable healthcare options and greater convenience. Telemedicine minimizes the requirement of in-person visits, thus saving travel time and related costs for patients as well as health professionals. Furthermore, telemedicine aids in continuity of care, especially for chronic care and post-op follow-ups, so that the patient gets the right medical intervention at the right time and uniformly. The innovations of newer technologies like artificial intelligence, machine learning, and IoT have further contributed to the success and scope of telemedicine. These technologies aid in accurate diagnoses, customized treatment protocols, and real-time tracking of health metrics, which helps improve the quality of the patient experience. But the integration of telemedicine with mainstream healthcare has its challenges too, such as regulatory barriers, privacy of data, and establishment of strong digital infrastructure. Efforts to counter these challenges are needed from all stakeholders, namely policymakers, medical professionals, and technology developers. While discussing the future of telemedicine, the presentation will deliver a complete grasp of its effects on contemporary health care delivery and its ability to redefine the face of medicine. By filling the health care access gap, telemedicine guarantees a more even and effective health care system for everyone.

Keywords: Telemedicine**,** Digital technology**,** Remote medical consultations**,** Patient outcomes**,** Artificial intelligence (AI)**,** Healthcare access gap.

A Comprehensive Review of Herbal Products in Dental Care Solutions.

(Neem, Tulsi, Ginger, Amla)

Ayaz Ahmed*, Zahid Husain, Sushma Singh
Institute of Pharmacy of Shri Ramswaroop Memorial University, Deva Road, Barabanki, Uttar Pradesh India- 225003
ayaz.ahamed1511@gmail.com

Abstract

There is growing interest in using herbal products for dental care because they can help improve oral health and prevent or treat dental problems. This review looks at the benefits of key herbal ingredients like Neem (Azadirachta indica), Tulsi (Ocimum sanctum), Ginger (Zingiber officinale), Amla (Phyllanthus emblica), and Mentha (Mentha spicata) in maintaining oral hygiene and fighting oral infections. Neem is known for its antibacterial and anti-inflammatory properties, which make it effective for treating gingivitis and plaque. Tulsi and Ginger help reduce oral bacteria and promote the healing of gum tissues due to their antioxidant and anti-inflammatory effects. Amla, which is rich in vitamin C, helps strengthen the gums and teeth, while Mentha has a refreshing, cooling effect thanks to its natural antiseptic properties. Other herbal products like clove oil and licorice also help relieve toothaches and reduce harmful bacteria. These natural ingredients offer a more holistic approach to dental care, with fewer side effects than chemical-based products. As more people prefer natural and sustainable health solutions, herbal dental products are expected to become more popular. However, more research is needed to fully understand the effectiveness and safety of these herbs in modern dental care.

Keyword: Herbal dental care, Neem, Tulsi, Oral health, antimicrobial agents

Advantages and disadvantages of pharmaceutical packaging

Ravi Rai*, Zahid Husain, Sushma Singh
Institute of Pharmacy of Shri Ramswaroop Memorial University, Deva Road, Barabanki, Uttar Pradesh India- 225003
ravi811501@gmail.com

Abstract

The packaging of a medicine is very important during its production. It helps to protect the inside parts of the medicine and maintain its quality. Packaging plays a crucial role in distinguishing products manufactured by various companies. It is essential for the packaging to be functional and fulfill all the necessary criteria throughout the entire lifespan of the product. During transportation, the packaging serves as a shield, safeguarding the contents from potential damage caused by mechanical pressure and environmental factors such as light and moisture. There is a wide range of packaging materials, such as glass, metal, and plastic. The company has efficiently fulfilled the present requirements of meeting global standards in a significantly shorter time frame by utilizing diverse packaging equipment. Additionally, container closures play a vital role because they directly impact the contents within them. Closure system made of rubber are extensively used for sealing purposes. The pharmaceutical packaging industry is continuously progressing and has experienced notable transformations due to advancements in dosage forms and their specific packaging needs. This review primarily focuses on elucidating the various categories of packaging materials and their composition in relation to dosage forms. The choice of packaging material is crucial in assessing the stability of the dosage form. Nowadays, biodegradable polymers are widely used in the production of packaging materials. The comprehensive composition of packaging materials encompasses glass, plastic, rubber, and numerous others, accompanied by detailed descriptions.

Keywords: plastic, rubber, biodegradable.

An ethnobotanical survey of medicinal plants used in terai forest of western Nepal

***Syed Shazan Ali, Vanshika Saraswat, Shruti Tiwari, Ms. Pragti Singh**
Institute of Pharmacy, Shri Ramswaroop Memorial University Lucknow- Dewa Road, UP, India
syedshazanali018@gmail.com

Abstract

Nepal Terai forest, a natural beauty and biodiversity hotspot, has often been a treasure house of medicinal plants consumed by the indigenous people for a long time. This ethnobotanical survey aimed to document and analyse the traditional knowledge of medicinal plants used by local communities in the Terai region. A field study, large scale in magnitude, was conducted in six districts of the Terai forest region with 120 informants belonging to 15 ethnic groups. There were 150 medicinal plant species (i.e., 71 families) collected and identified. Outcomes show that the plant parts that are most commonly exploited are leaves (40%), roots (25%), and fruits (15%). Most of the medicinal plants are applied to cure diseases like fever (23%), digestive disorders (20%), and skin diseases (15%). According to this research, there is also evidence of a deep traditional knowledge of plant medicines among the indigenous people of the Terai region, and 70 respondents used plant medicines for health care as a primary activity. The findings of this research highlight the importance of safeguarding the medicinal plant endemism of the Terai forest and indigenous traditional knowledge in order to advance sustainable health and livelihoods in the region. The uses of these plants can extend from gastrointestinal diseases, headaches, and fevers to respiratory tract disease, dermatological problems, snake bites, ophthalmic problems, and cuts and wounds. The results of the present research can be used by policymakers to act upon conservation, sustainable use, and equitable benefit sharing of traditional medicinal plant resources in Nepal. Accordingly, the documentation of such information is a critical step towards protecting traditional knowledge, conserving and managing the unique plant resources, and commercially exploiting ethnomedicines.

Keywords: dermatological problems, opthalmic problems, ethnomedicines, informants, indigenous

Analysis of Drug Prescribing Pattern in Orthopaedics Department At Tertiary Care Hospital In North India

Md Rehan*[1], Abdullah Khan[2], Mohd Asjad[3], Mazhar Jamil[4], Mohd Aftab Siddiqui[5], Mohd Tariq Salman[6]

[1,2,3,4,5]Department of Pharmacy Practice, Faculty of Pharmacy, Integral University, Lucknow

[6]Department of Pharmacology, Integral Institute of Medical Sciences and Research, Integral University, Lucknow

mdrehan.ast@gmail.com

Abstract

Background: The aim of the rational use of medicines (RUM) is the proper availability, accessibility, and prescription of drugs. Application of RUM becomes even more necessary when there is limited financial resource and low patient affordability. This study evaluated the rationality and prescribing pattern of drugs in orthopedic department based on the World Health Organization/International Network for Rational Use of Drugs (WHO/INRUD) prescribing indicators.

Methodology: This cross-sectional study was carried out in the orthopedic department of Integral Institute of Medical Sciences and Research (IIMSR), Lucknow, among 70 patients. In-patient case sheets were utilized to collect prescribing information which was entered into a pre-designed case record form and analyzed with the help of WHO/INRUD prescribing indicators. Frequently prescribed drugs were also recorded.

Results: Average number of drugs per prescription was 5.7 ± 2.12, out of which, average number of drugs prescribed by generic name was 1.01 ± 0.97, and number of drugs prescribed from WHO Essential medicines List was 2.61 ± 1.65 (43.72% ± 24.34%). Number of antibiotics and number of injections prescribed per prescription were 1.36 ± 1.01 and 2.16 ± 2.00 respectively. The most frequent medications were analgesics (tramadol and a fixed dose combination of aceclofenac, paracetamol and serratiopeptidase) and antibiotics (ceftriaxone and amikacin). Polypharmacy was seen in most prescriptions (57%).

Conclusions: Polypharmacy was commonly seen and most medications were prescribed by brand name and not from the essential medicines list. Awareness programs for sensitizing the prescribers about selecting fewer drugs from the essential medicines list and writing prescriptions by generic names would facilitate rational drug utilization, lower treatment costs, and enhance the quality of care for patients.

Keywords: Rational use of medicines, prescribing indicators, WHO/INRUD, analgesics, antimicrobial, Drug utilization study, Rational prescribing.

Diagnosis And Treatment of Peptic Ulcer

Azad Singh*, Pragti Singh, Prof. (Dr.) Manju Pandey
Institute of Pharmacy, Shri Ramswaroop Memorial University, Lucknow, Dewa Road, U.P,India
thakrazadsingh9@gmail.com

Abstract

Peptic ulcer disease occurs. Sores form within the stomach lining or upper part of the small intestine. Ulcers result from an infection with bacteria called Helicobacter pylori (H. pylori) and from taking painkillers such as aspirin or ibuprofen (NSAIDs) over a long period. Stress smoking, and alcohol don't cause ulcers but can make them worse. People with ulcers might feel a burning pain in their stomach, bloating, or sickness. In bad cases, the stomach may bleed. Doctors use various tests to spot peptic ulcers. Endoscopy stands out as the most effective method. It involves inserting a small tube with a camera into the stomach to look for ulcers. Tests like the urea breath and stool antigen test play a role in identifying H. pylori infection. Blood tests can also detect H. pylori, but they don't work well to spot active infections. Treatment of peptic ulcers depends on the cause. If H. pylori is present, doctors prescribe combination of antibiotics (amoxicillin and clarithromycin) along with proton pump inhibitors (PPIs) to reduce stomach acid. If the painkiller medication was the cause of the ulcers, then the healing will be accomplished by stopping the medication and starting treatment with PPIs or H2 blockers. Sometimes when medication fails to heal ulcers, doctors will recommend alternate treatments. These might include sucralfate, a medicine for keeping the stomach safe, or surgery in some cases. Peptic ulcers are located and treated, which prevents grave matters such as bleeding or a puncture in the stomach. Scientists still look for new treatments because some bacteria don't respond to antibiotics anymore.

Keywords: Peptic ulcer, Antibiotic, PPIs, H. pylori

Effect Chronic Stress Induced Metabolic Syndrome: An In-Vivo Approach

Arjun Singh Kaushik*, Dr. Vikas Mishra
Department of Pharmaceutical Sciences, Babasaheb Bhimrao Ambedkar University, (A Central University), Vidya Vihar, Raebareli Road, Lucknow – 226025
arjunkaushik244@gmail.com

Abstract

Metabolic syndrome (MS) is a complex disorder characterized by hyperglycemia, dyslipidemia, high blood pressure, and insulin resistance, increasing the risk of cardiovascular diseases and type 2 diabetes. Chronic stress, through persistent activation of the hypothalamic-pituitary-adrenal (HPA) axis, plays a key role in MS by altering metabolic, hormonal, and inflammatory pathways. This study employs an in-vivo approach to investigate the physiological and biochemical changes induced by chronic stress. we first validated a rat model of chronic unpredictable stress (CUS) and assessed the characteristic features of MS. The CUS rats were exposed to random stressors daily for 8 weeks. The stress response was then confirmed by behavioral alteration and elevated serum corticosterone levels in rats, as measured by various behavioral tests and an ELISA kit. Moreover, metabolic parameters, including fasting glucose, serum lipids, systolic blood pressure were measured. The findings demonstrated increased dyslipidemia, hyperglycemia, and elevated corticosterone levels and Behavioral alteration in stressed animals and chronic stress triggered pro-inflammatory responses and insulin resistance, contributing to metabolic dysregulation. These results suggest that chronic stress is a critical factor in MS onset and progression. The in-vivo approach provides insights into the mechanisms linking chronic stress to MS with potential implications for developing targeted therapeutic interventions for this public health concern.

Keywords: Chronic Stress, Corticosterone, Metabolic syndrome, Hypertension

Effectiveness of nano formulation for the treatment of schizophrenia

Nirvesh Chaudhri*, Vaibhav Rastogi
TMU- Teerthankar Mahaveer University, College of Pharmacy, Moradabad, 244001. India
nirvesh.pharmacy@gmail.com

Abstract

A comprehensive analysis of recent advancements in nanomedicine and nano-based drug delivery for schizophrenia is highlighting the role of nanomaterials in enhancing novel drug efficacy. Schizophrenia, a mental illness, is defined by continuous or intermittent periods of psychosis. the drugs may now be delivered to their specific locations through advanced nano formulations. Schizophrenia symptoms are managed with antipsychotic medication, aiming for the lowest possible dosage. Novel lipid nanocarrier technology offers a realistic strategy for creating antipsychotic formulations, which improves drug absorption in brain tissues. The development of Lipid-based nano formulation like nanostructured lipid carriers (NLC) involves the application of spray drying, solvent emulsification, solvent evaporation, ultra-sonication, and homogenization techniques. Lipid-based nanostructures, boost the solubility because of their nano size and the presence of lipids, which facilitates the passive diffusion of small molecules across the BBB. These lipid nano formulations are nano conjugates to boost brain tissue targeting, accomplish prolonged retention periods to increase drug absorption into brain tissue and protect drugs from enzymatic breakdown. They overcome the drug's side effects with easy penetration of BBB during the treatment of schizophrenia. NLC offers several key advantages, including improved stability and biocompatibility, enhanced permeability and retention, and precise targeting capabilities. Precise control of nanocarriers for improved therapy is possible because of NLC's flexibility in size, shape, softness, and multifunctional properties. The primary focus is on nano formulations with the capacity for passive or active targeting of mental disorders, while overcoming inherent physiological obstacles.

Keywords: Nanomaterials, Mental disorders, NLC, schizophrenia, nano formulations

From Ancient Wisdom To Modern Science: The Medicinal Legacy Of Cynodon dactylon (Doob Grass)

Sneha Singh
Goel Institute of Pharmacy & Sciences, Ayodhya Road, near Indira Canal, Lucknow, Uttar Pradesh
singhsneha8707@gmail.com

Abstract

Background: Cynodon Dactylon is a perennial herb also known as Bermuda grass, from Poaceae family, this grass is used in the Ayurveda system of medicine. Described in the Puranas In Hinduism, it has importance in worship. It has been a part of Hindu rituals since Vedic times. Durva grass has several medicinal uses for its numerous health benefits, such as: Treats acidity, boost immunity, controls sugar, cures Poly Cystic Ovarian Syndrome and solves menstrual problems, cures constipation, treats obesity, cures bleeding of gums, cures eye infection and stops nose bleeding.

Method: Different kinds of extracts i.e. aqueous extract, ethanolic extract, alcoholic extract, hydro-alcoholic extracts etc. of C. dactylon were taken into account to study their curing potential against ailments organically.

Results: According to earlier research, Cynodon dactylon has properties that are protective, antimicrobial, antiparasitic, insecticidal, gastrointestinal, antioxidant, immunological, anti allergic, anti-inflammatory, antipyretic, analgesic, anticancer, dermatological, diuretic, and immune system-related was found. Phytochemical study shows the presences of flavonoids and sterols in Cynodon dactylon (Doob Grass) which exhibit hypoglycemic activity and are also known for their ability of beta cell regeneration of pancreas. Sterols have also shown to decrease blood sugar in experimental animal models.

Conclusion: Several studies showed clear evidence that C. dactylon is a natural crude drug having a widespread of biological and pharmacological functions. Doob grass contains proteins, carbohydrates, vitamins, and minerals, along with phytochemicals like β-sitosterol, flavonoids, and alkaloids, contributing to its health benefits.

Keywords: Perennial herb, Poly Cystic Ovarian Syndrome, Hypoglycemic activity, Natural crude drug,

Modulation of IRE1 RNase Activity by Ribonuclease Inhibitor 1 (RNH1): A Review

Vikas Jain*, Amrita Singh
Department of Pharmaceutics, JSS College of Pharmacy, JSS Academy of Higher Education and Research, Mysuru-570015, India
vikasjain@jssuni.edu.in

Introduction: The endoplasmic reticulum is the organelle that every cell requires for folding proteins and homeostasis. When misfolding proteins build up, ER stress brings on unphased protein response (UPR) to set the balance right. The most important UPR regulator is IRE1, which sets the adaptive response rolling through its ribonuclease, mainly acting by splicing XBP1 mRNA. However, the new reports have revealed that RNH1, known for the inhibition of ribonucleases, also plays a role in modulating IRE1 function. Knowing how RNH1 influences the IRE1 activity has possible future therapeutic implications for diseases caused by ER stress like those of neurodegeneration, cancer, and metabolic disorders.

Methodology: Various experimental approaches have been employed to study the regulation of IRE1 by RNH1, including molecular and biochemical ones. Protein-protein interaction assays were established using Co-IP and Western blotting to demonstrate the direct binding of RNH1 to IRE1. Functional studies based on RNH1 overexpression or knockdown established the role of RNH1 in IRE1-mediated RNA splicing. qPCR has been a reliable means to evaluate XBP1 mRNA splicing, affirming that RNH1 negatively regulates IRE1 RNase activity. In addition to that, the confirmation of this result using luciferase reporter assays measuring transcriptional changes in response to ER stress offers more caffeination to the reasoning. RNH1 appears to increase cell survival by attenuating the effects of excessive UPR activation, as suggested from cell viability assays. Putting together, the above findings show that RNH1 modulates IRE1 to maintain ER homeostasis.

Results: Recent studies revealed that RNH1 is involved in the regulatory process of IRE1 through direct interaction with its RNase domain. RNH1 has been reported to inhibit XBP1 mRNA splicing, implicating an inhibitory role on IRE1's enzymatic action. Conversely, the knockdown of RNH1 activates IRE1, increasing the expression of BiP and—CHOP, which are markers for ER stress. In addition, the results of various cell viability assays show that under stress conditions, cell survival is promoted in a higher RNH1 context, who are further susceptible to apoptosis when lacking RNH1. These observations illustrate that RNH1 acts as a protective regulator fine-tuning IRE1 action, preventing unnecessary stress responses leading to cell death.

Conclusion: this review presents the newly recognized role of RNH1 in the modulation of IRE1 RNase activity, a key determinant of UPR signalling. RNH1 is involved in XBP1 mRNA splicing regulation, balancing the cellular stress response, and consequently impacting disease outcomes. Hence, future studies should focus on understanding the precise molecular mechanisms governing this regulation and the potential for therapeutically targeting RNH1 alleviating ER stress-associated diseases.

Keywords: IRE1, RNH1, ER stress, UPR

Nanoparticles: based targeted therapies for cancer

Abhishek Pandit*, Atharva Jaiswal, Belal Ansari
Department of Pharmacy, Faculty of Pharmacy, Integral University, Lucknow- India (226026)
abhishkbp@student.iul.ac.in

Abstract

Nanoparticle-based targeted therapy represents a transformative approach in oncology, addressing the limitations of conventional cancer treatments such as systemic toxicity and non-specific biodistribution. By leveraging the unique physicochemical properties of nanoscale materials— including liposomes, polymeric nanoparticles, dendrimers, and metallic nanoparticles (e.g., gold, iron oxide)—these systems enable precise delivery of therapeutic agents to malignant cells. Targeting is achieved through passive mechanisms, such as the enhanced permeability and retention (EPR) effect, which exploits the leaky vasculature of tumors, and active strategies utilizing surface-modified ligands (e.g., antibodies, peptides, aptamers) that bind to overexpressed receptors on cancer cells. This dual targeting enhances drug accumulation at tumor sites while sparing healthy tissues, thereby improving therapeutic efficacy and reducing adverse effects. Beyond drug delivery, nanoparticles serve as multifunctional platforms integrating diagnostics and therapy (theranostics), with metallic nanoparticles enabling imaging modalities like MRI and photoacoustic tomography. Stimuli-responsive designs further enhance specificity by releasing payloads in response to tumor microenvironment cues (e.g., pH, enzymes). Challenges persist, including potential nanotoxicity, manufacturing scalability, and heterogeneity in EPR effects across tumor types. Additionally, regulatory and biocompatibility hurdles must be addressed for clinical translation. Future directions emphasize personalized medicine, advanced biomimetic coatings, and combinatorial strategies to overcome biological barriers. As research progresses, nanoparticle-based systems hold promise for revolutionizing oncology through smart, adaptable therapies tailored to individual patient profiles.

Keywords: Nanoparticles; Targeted therapy; Drug delivery systems; Enhanced Permeability and Retention effect; Active targeting; Ligand-functionalization; Liposomes; Polymeric nanoparticles; Dendrimers; Metallic nanoparticles.

Nanotechnology: Ayurveda

Asmit Singh*, Sushma Singh, Zahid Husain
Shri Ramswaroop Memorial University, Lucknow, Deva Road
asmitsingh745@gmail.com

Abstract

Ayurveda, an ancient system of medicine originating from India over 5,000 years ago, is based on a holistic approach to health and well-being. Rooted in the Vedic texts, Ayurveda emphasizes the balance between mind, body, and spirit through natural therapies, dietary practices, and lifestyle modifications. It is founded on the principle of three doshas-Vata, Pitta, and Kapha-that govern physiological and psychological functions. The primary goal of Ayurveda is disease prevention and the promotion of longevity by aligning the body with nature's rhythms. This traditional system incorporates various healing techniques, including herbal medicine, Panchakarma detoxification, yoga, meditation, and Ayurvedic nutrition. Unlike conventional medicine, which primarily targets symptoms, Ayurveda seeks to address the root cause of ailments by restoring internal harmony. The use of plant-based remedies, minerals, and organic substances plays a crucial role in Ayurvedic treatments, ensuring minimal side effects while enhancing overall health. Modern research has increasingly recognized Ayurveda's effectiveness in managing chronic conditions such as diabetes, arthritis, digestive disorders, and mental health issues. Its integrative approach has gained global acceptance, with many adopting Ayurvedic principles alongside contemporary medical practices. Additionally, Ayurveda promotes a sustainable lifestyle by advocating natural remedies, mindful eating, and seasonal living, thereby fostering physical and mental resilience. Despite its ancient origins, Ayurveda continues to evolve, blending traditional wisdom with scientific validation to meet modern health challenges. With increasing global interest, it is emerging as a complementary and alternative medicine system, offering personalized and preventive healthcare solutions. This paper explores the fundamental concepts, therapeutic approaches, and contemporary relevance of Ayurveda, highlighting its potential to enhance well-being in today's fast-paced world.

Keywords: Holistic health, Disease Prevention, Mindful eating

To study the effect of fed state on bioavailability of drugs from orally administered dosage forms

Anshika Bharti
Sunrise University, Alwar, Rajasthan
bhartianshika4567@gmail.com

Abstract

Objective: The objective of the present study was to study the effect of food on bioavailability of oral dosage forms in human beings. As part of research work to assess the impact of food, formulation of Nifedipine and Fenofibrate were chosen.

Method: For Nifedipine under fed and fasting conditions: The study was conducted as an open label, balanced, randomized, two-treatment, two-period, two sequence, single dose crossover bioequivalence study comparing Nifedipine ER tablets USP, 90 mg manufactured by Ohm Laboratories Inc., NJ with Procardia XL (Nifedipine) extended-release tablets 90 mg distributed by Pfizer labs, Division of Pfizer Inc, NY, NY 10017 in healthy adult human subjects under fed and fasting condition.
For Fenofibrate under fed and fasting conditions: The study was conducted as an open liable, balanced, randomized, two-treatment, two-period, two-sequence, single-dose, cross-over bioavailability study of Fenofibrate 160mg tablets of OHM Laboratories Inc. USA with Lofibra (Fenofibrate tablets) 160mg of Teva USA, in healthy adult subjects, under fed and fasting condition.

Conclusion: Overall, food has marginal impact on Cmax and AUC and not changes the elimination kinetics of Nifedipine and Fenofibrate therefore; Nifedipine and fenofibrate can be administered without regard to meal.

Keywords: Nifedipine, Fenofibrate, Food effect, Bioavailability, Bioequivalence and Pharmacokinetic parameters.

Artificial Intelligence Application in Clinical Data Analysis

Ankur Pal
Ankerite College of Pharmacy, Lucknow
palankur032@gmail.com

Abstract

Healthcare professionals may now more successfully understand enormous volumes of patient data thanks to artificial intelligence (AI), which has completely changed clinical data analysis. AI finds intricate patterns and linkages in genetic data, medical pictures, and electronic health records, which advances customized care, illness risk prediction, and therapy optimization. AI is very good at predicting illness risk and identifying those who are at high risk for diseases like cancer, diabetes, and heart disease. It reduces mistakes and speeds up therapy by accurately analyzing medical pictures, including MRIs and X-rays, to find anomalies. AI maximizes effectiveness and reduces negative effects by combining genetic, lifestyle, and medical history data to provide tailored treatments. Additionally, it tracks trends in clinical data to identify issues over time, especially when treating chronic diseases.
AI simplifies patient recruiting, improves data analysis, and automates data integration and cleaning in clinical research. In order to give healthcare practitioners real-time insights, key artificial intelligence (AI) techniques such as machine learning, natural language processing, and deep learning extract knowledge from both structured and unstructured data.By increasing efficiency, accuracy, and customization, the use of AI in clinical data processing represents a substantial advancement in healthcare. AI's potential to revolutionize clinical data analysis and healthcare will only increase as it develops.

Keywords: Artificial Intelligence (AI), Clinical Data Analysis, Healthcare, Machine Learning, Personalized Medicine, Medical Imaging.

Artificial Intelligence in the Diagnosis and Management of Lung Infections: Advances, Challenges, and Future Directions

Anshika Pandey*, Safa Marwa, Itee Pandey
Institute of Pharmaceutical Science, Shri Ramswaroop Memorial University, Barabanki Deva Road Lucknow
mails.anshikasingh@gmail.com

Abstract

Lung infections, including pneumonia, tuberculosis, and COVID-19, pose significant global health challenges due to their high morbidity and mortality rates. Timely and accurate diagnosis is crucial for effective treatment and patient management. Artificial intelligence (AI) has emerged as a powerful tool in diagnosing lung infections, leveraging machine learning (ML) and deep learning (DL) techniques to enhance detection, classification, and prognosis. AI-driven models analyze medical imaging, such as chest X-rays and CT scans, to identify infection patterns with high precision, reducing diagnostic errors and expediting clinical decision-making. Beyond imaging, AI integrates clinical, laboratory, and genomic data to improve diagnostic accuracy. Natural language processing (NLP) helps extract relevant information from electronic health records (EHRs), while predictive analytics assesses disease progression and treatment outcomes. AI-powered tools assist in distinguishing bacterial from viral infections, guiding appropriate antibiotic use, and reducing antimicrobial resistance risks. Moreover, real-time AI monitoring systems, combined with wearable technologies, facilitate early detection of respiratory complications, enabling timely interventions. Despite these advancements, challenges such as data privacy concerns, algorithm biases, and the need for standardized protocols hinder widespread AI adoption in clinical practice. Future research should focus on refining AI models to ensure reliability, interpretability, and seamless integration into healthcare workflows. Collaboration between AI developers and medical professionals will be essential in optimizing AI applications for lung infection diagnosis. With continued advancements, AI has the potential to revolutionize respiratory disease management, improving diagnostic efficiency, treatment precision, and patient outcomes.

Keywords: Lung infections, Chest X-rays, Machine learning, and Artificial intelligence.

Breast Cancer: Classification, Pathogenesis and Treatment

Mohd Kaish*, Sushma Singh, Zahid Husain
Shri Ramswaroop Memorial University, Lucknow, Deva Road
kaishm566@gmail.com

Abstract

Breast cancer, recognized as the most prevalent cancer among women globally, presents a significant public health challenge across the world. This disease encompasses a range of biologically and molecularly diverse conditions that originate in the breast tissue. The risk factors associated with breast cancer differ from those linked to other types of cancer; however, genetic predisposition, particularly mutations in the BRCA1 and BRCA2 genes, plays a crucial role in its etiology. Breast cancer can initiate in various regions of the breast, including the ducts, lobules, or the surrounding tissue. Among the wide array of breast carcinomas, distinct types are classified based on their invasiveness in relation to the primary tumor sites. Differentiating between these subtypes is essential, as they exhibit varying prognoses and treatment considerations. Notably, there are significant similarities between the normal developmental processes and the molecular progression of breast cancer, leading to the hypothesis that this malignancy may arise from mammary cancer stem cells. The regulation of normal breast development and mammary stem cells involves several signaling pathways, including estrogen receptors (ERs), HER2, and Wnt/β-catenin pathways, which govern stem cell proliferation, apoptosis, differentiation, and motility. Additionally, emerging research suggests that epigenetic factors and noncoding RNAs may significantly influence breast cancer development, contributing to its heterogeneity and metastatic characteristics, particularly in triple-negative breast cancer. This review aims to provide an extensive overview of the molecular, cellular, and genetic dimensions of breast cancer.

Keywords: breast cancer, risk factors, pathomorphology, therapy, stem cells.

Effectiveness of influencer marketing in healthcare sector

Ankit Pandey, Mr Pankaj Kumar Patel, Dr. Tarkeshwar Prasad Shukla
SCPM College of Pharmacy, Gonda
pandey111103@gmail.com

Abstract

Influencer marketing has emerged as a powerful strategy in the healthcare sector, enabling brands to reach and engage target audiences more effectively. With the rise of digital platforms, healthcare influencers ranging from medical professionals and fitness experts to patient advocates—play a crucial role in shaping public perception, increasing awareness, and driving consumer decisions. This study examines the effectiveness of influencer marketing in the healthcare industry, highlighting its impact on patient education, brand trust, and consumer behavior. One of the key benefits of influencer marketing in healthcare is its ability to build trust and credibility. Consumers tend to rely on recommendations from trusted influencers, particularly healthcare professionals, for information on medical treatments, wellness products, and lifestyle changes. Unlike traditional advertising, influencer marketing fosters a sense of authenticity, making healthcare messaging more relatable and engaging. Studies suggest that healthcare brands leveraging influencer partnerships experience higher engagement rates, improved brand perception, and increased patient adherence to treatment plans. Furthermore, social media platforms have enabled healthcare influencers to disseminate accurate health information, counter misinformation, and promote preventive care initiatives. However, ethical considerations and regulatory compliance remain significant challenges. Ensuring transparency, adhering to advertising regulations, and preventing the spread of misleading medical claims are critical to maintaining the credibility of influencer-driven campaigns.

Keywords: Influencer marketing, Healthcare marketing, Digital healthcare, medical influencers, Health influencers.

Protein-Drug Binding

Aditya Srivastava
Institute of Pharmacy of Shri Ramswaroop Memorial University, Barabanki
adityasrivastava71339@gmail.com

Abstract

Protein binding involves the production of reversible and irreversible complexes between the drugs and blood elements. It affects pharmacodynamics and pharmacokinetics of drugs. Most drugs undergo reversible binding with plasma proteins (e.g., serum albumin, alpha-1 acid glycoprotein (AAG), lipoproteins) or other blood elements. A void in the surface of a protein that have adequate properties for binding a ligand is generally labelled as active site or binding site or binding pocket. Organic anions (e.g., carbenoxolone, phenylbutazone) have the highest affinity for albumin. Highly lipophilic drugs (e.g., cyclosporine A, amiodarone, halofantrine, amphotericin B) bind to lipoproteins. alpha-1 acid glycoproteins are acidic proteins, having low isoelectric point which helps them to bind with basic drugs (e.g., steroid hormones), acidic drugs (e.g., phenobarbital). Protein binding is altered in patient populations such as burn injury patients, cancer, diabetes mellitus, and liver disease. Older patients had substantially decreased concentrations of albumin, which causes reduced protein binding, and ultimately results in higher concentration of free drugs in the bloodstream, causing toxicity. Data of protein binding is observed, evaluated and used to develop accurate dosage which ensures consistent concentration of target drugs in the patient to achieve ideal efficacy and lower toxicity. Infants had decreased levels of albumin which resulted in decrease in protein binding. Various factors such as stress, liver or kidney dysfunction, and pregnancy can change the concentration of plasma protein. Drug-protein binding may be curtailed due to the availability of other drugs As well as endogenous substances. Binding of drug to protein depends upon factors like shape and volume of binding site and physicochemical properties of protein and drug. Identification and understanding of these factor has helped in drug design and drug development (like in the case of development of the drug Raltegravir).

Keywords: Binding pocket, plasma protein, toxicity, drug design.

Vaccine pharmacovigilance

Pooja Nigam*, Harshita Rana, Harshvardhan Gupta
Institute of Pharmacy of Shri Ramswaroop Memorial University, Lucknow -Deva Road Uttar Pradesh, India, 225003
poojanigam702@gmail.com

Abstract

India's AEFI surveillance which was first introduced in 1986 sought to monitor Adverse Events Following Immunization (AEFI) in order to improve vaccine pharmacovigilance and since then the AEFI surveillance guidelines have been reviewed and amended, the most recent update being in 2015. AEFI surveillance in India was a collaborative effort that involved every relevant party from the National AEFI Secretariat to the Central Drug Standard Control Organization alongside health care providers and the National Technical Collaborating Centre. Undesired incidents which occur post vaccination must be collected, monitored and brought to attention. Such activities fall within the realm of pharmacovigilance, which is basically the science that serves the purpose of understanding side effects. It is critical to determine and analyze the nature of negative incidents reported to ascertain whether or not they were due to the vaccination administered. With the increase in individuals availing vaccinations within shorter time frames, combined with the expansion of vaccinations in general, it places a significant workload on the systems in place that have been designed to monitor adverse effects of vaccinations. Reports of such adverse incidents should be prepared, analyzed and evaluated with the intent of improving the side effect profile of the vaccine and its overall reputation. The burden that gets placed on the system responsible for monitoring adverse effects from vaccines also increases with the number of vaccines and the rate of vaccination. To make sure vaccine safety is paramount, the International Society of Pharmacovigilance, and the French National Agency for Medicines and Health Products out of many other organizations are constantly making efforts and collaborating on initiatives.

Keywords: Pharmacovigilance, AEFI , surveillance immunization, vaccine, Covid-19, virus

Antianginal Drugs

Abhishek Tripathi*, Ms. Sushma Singh, Mr. Zahid Husain.
Shri Ramswaroop Memorial University Lucknow, Deva Road
rishitripathi7172@gmail.com

Abstract

Angina pectoris is a clinical syndrome characterized by chest pain or discomfort due to myocardial ischemia, often resulting from coronary artery disease (CAD). Antianginal drugs play a crucial role in the management of this condition by improving oxygen supply to the heart and reducing myocardial oxygen demand. These drugs are classified into three major categories: nitrates, beta-blockers, and calcium channel blockers. Nitrates, such as nitroglycerin, act by dilating blood vessels, thereby reducing preload and afterload, ultimately decreasing myocardial oxygen demand. Beta-blockers, including metoprolol and propranolol, work by decreasing heart rate and contractility, thus lowering oxygen consumption. Calcium channel blockers, such as amlodipine and verapamil, prevent calcium influx into cardiac and vascular smooth muscle cells, leading to vasodilation and reduced myocardial workload. In addition to these primary classes, newer agents like ranolazine modulate myocardial metabolism to enhance efficiency without affecting heart rate or blood pressure. Combination therapy is often employed to achieve optimal therapeutic outcomes, especially in patients with refractory angina. Despite their efficacy, antianginal drugs may have side effects such as hypotension, bradycardia, and dizziness. Ongoing research focuses on developing novel therapeutic strategies with improved efficacy and safety profiles. This review provides an overview of the pharmacological mechanisms, clinical applications, and emerging trends in the development of antianginal drugs.

Keywords : Myocardial ischemia, coronary artery diseases, calcium channel blockers, β - blockers, Anti – anginal.

Cellular organelle dysfunction in diabetes mellitus and obesity

Srishti Sharma[1], Prof. Subrat Kumar Bhattamisra
Central University of South Bihar
srishtisharma401@gmail.com

Abstract

Diabetes mellitus and obesity are one of the most prevalent metabolic disorders that significantly affect cellular function and homeostasis. These conditions are linked to widespread complications that arise from cellular organelle dysfunction, ultimately leading to metabolic dysregulation. Among all the organelles present in the cell mitochondria, lysosomes, endoplasmic reticulum, and nucleus are the key organelles that are essential for maintaining cellular health. Mitochondrial dysfunction leads to disruption of energy metabolism and enhanced oxidative stress whereas endoplasmic reticulum stress (ER stress) produces inflammation and insulin resistance with activation of unfolded protein response (UPR). Lysosomal dysfunction impairs autophagy and lipid metabolism, accelerating disease progression. Furthermore, disruptions in calcium signaling and nuclear transcriptional regulation significantly influence cellular damage. Understanding the mechanisms underlying cellular organelle dysfunction provides a foundation for developing targeted therapeutic strategies. Approaches such as restoring mitochondrial function, reducing ER stress, enhancing autophagy, and employing antioxidant therapy can potentially mitigate the adverse effects of these metabolic disorders. This review highlights the interplay between cellular organelle dysfunction and metabolic diseases, emphasizing novel therapeutic interventions and future research directions to improve disease outcomes.

Keywords: Cellular organelle dysfunction, Lysosomal dysfunction, Obesity, Mitochondrial dysfunction, Endoplasmic reticulum stress.

Copper-Promoted Time-Dependent Transformation of Aldehyde into Nitrile and Amide: One Catalyst Dual Action

Sumit Kumar*,Neeru Bhanwala, Jatin Malik, Km. Jagrati, Gopal L. Khatik*
Department of Medicinal Chemistry, National Institute of Pharmaceutical Education and Research-Raebareli, Uttar Pradesh, India 226002.
sumitkumarsaini475@gmail.com

Abstract

We present an effective, and secure process for converting aldehydes into adaptable cyano and amide derivatives over time. Our approach allows the direct conversion of aryl, alkyl, and heteroaryl aldehydes using $Cu(OAc)_2$ as a catalytic coordinator, NH_4OAc as a nitrogen supplier, and I_2 as an oxidant in DMF (which also acts as a carbon donor). The process produces nitrile derivatives in 69–86% yields in 1–3 hours when circumstances are optimal. With yields of 58–75%, the initially generated cyano intermediates are smoothly transformed in situ into amide products by prolonging the reaction time to 24 hours. A single electron transfer (SET) mechanism is supported by mechanistic investigations, such as free radical quenching tests and cyanide ion detection using picrate paper, which also validate the *in-situ* creation of the reactive cyanide species. The synthetic process is streamlined by this dual-functional transformation, which also makes bioactive scaffolds which are extremely valuable in medicinal chemistry accessible. The method's broad range of substrates and ease of use make it a promising tool for creating intricate molecular structures in applications involving chemical and medicinal synthesis.

Keywords: Catalyst, Amide, Nitrile, free radical, Oxidant, single electron transfer.

Dual Ligand-Functionalized Liposomes for Targeted and Sustained Drug Delivery in Hepatic Fibrosis: Enhanced Cellular Uptake and Therapeutic Efficacy

Vipin Kumar*, Amita Singh, Anurag Kumar Gautam, Vijayakumar M.R*
Department of pharmaceutical sciences, Babasaheb Bhimrao Ambedkar University, Vidya Vihar, Rai Bareli road, Lucknow 226025, India
vipinchoudhary1103@gmail.com

Abstract

Liver fibrosis (LF) is a pathological repair response caused by chronic liver injury, affecting millions of people worldwide. Without timely intervention, LF progresses to life-threatening conditions such as cirrhosis and liver cancer. Nic has shown potential in treating hepatic fibrosis; however, its clinical application is limited by low solubility, poor absorption, high-dose toxicity, and multidrug resistance. Nanoparticle drug delivery systems (NDDS) offer promising solutions by enabling multidrug co-therapy and developing multifactor delivery strategies targeting pathological processes, making them highly suitable for LF therapy. Among these, liposomes are versatile lipid-based nanoparticles capable of encapsulating both hydrophilic and hydrophobic drugs. In this study, dual ligand-coated liposomes loaded with Nic were developed using the thin film hydration method and functionalized on the surface with dual ligands. The particle size (PS), polydispersity index (PDI), zeta potential (ZP), surface chemistry, surface morphology, differential scanning calorimetry (DSC), and crystallinity were the characteristics that were evaluated for the liposomes that had been created. Additionally, in-vitro drug release, drug encapsulation efficiency, and cell line investigations on LX-2 hepatic stellate cells were included in the assessment. The MTT assay on LX-2 cells demonstrated that dual ligand-coated liposomes exhibited higher cytotoxicity compared to non-ligand-coated liposomes and free Nic. Cellular uptake studies using confocal laser scanning microscopy (CLSM) revealed significantly enhanced cellular uptake with dual ligand-functionalized liposomes over various time intervals. In addition, research on blood compatibility revealed that there was only a little amount of hemolysis (less than 2% RBC lysis), which is evidence of the goods high level of biocompatibility and biosafety. These data, taken as a whole, indicate that dual ligand-functionalized, multifunctional liposomes have the potential to be a successful therapeutic option for the treatment of liver fibrosis.

Keywords: Liposomes, Hepatic fibrosis, Ligands, Multifunctional, Nanoparticles.

Ethnobotanical studies of medicinal plants reported from spiti valley in Himachal Pradesh

Vanshika Saraswat*, Shruti Tiwari, Syed Shazan Ali, Ms. Pragti Singh
Institute of Pharmacy, Shri Ramswaroop Memorial University Lucknow -Dewa Road, U.P, India
vanshika.srs@gmail.com

Abstract

The main aim of this paper is to provide a concise report of the high-value threatened medicinal plants which were collected during the extreme climatic conditions of the Spiti Valley. For this, you go to the Spiti valley-the oasis of medicinal plants diversity in Himalaya-having wealth of cultural practices of traditional curing. It was found that Lahauls of Lahaul valley and Bhotias of Spiti valley have a great belief in the Amchi system of medicine in the region which every one in the mentioned tribes respect based on their very own beliefs. The ethnobotanical survey provides documentation about the valued medicinal plants used by the native tribes in Spiti Valley in respect to their traditional knowledge and uses. Using semi-structured questionnaire a total of 150 informants were interviewed from 30 villages. Most of the medicines are prescribed in a powder form, some as juices and decoctions. Among plant parts, leaves were recorded to be used to a large extent for stomach disorders. The study reveals 75 medicinal plant species, belonging to 42 families, used to treat various ailments, including respiratory, gastrointestinal, and dermatological disorders. Such is unique flora comprising species like Hippophae salicifolia, Rheum emodi, and Aconitum rotundifolium. Being medically valuable, such species are highly searched for. Therefore, this research throws a light on the importance of traditional knowledge with respect to preserving biodiversity and achieving sustainable healthcare for the mankind. Besides this, the paper makes a strong call for documentation, validation, and power sharing among locals so that there can be longer-term protection and preservation of indigenous knowledge rights. This study contributes to the development of evidence-based traditional medicine and provides a foundation for future research on the pharmacological and biological activities of these high-valued medicinal plants.

Keywords: Ethnobotanical survey, Amchi System, Spiti Valley, Himachal Pradesh, Indigenous Knowledge

Formulation, optimization and characterization of Combined Modified released Drug delivery system of Anti-diabetic drug formulation

Saurabh Singh*[1,2], Vijay Sharma[2], Anupam Kumar Sachan[1]
[1]Dayanand Dinanath College, Institute of Pharmacy, Kanpur-209214. India
[2]Faculty of Pharmacy, IFTM University, Moradabad-244102
saurabhddcip@gmail.com

Abstract

To develop and formulate the combination drug therapy (Dapagliflozin and Metformin) for better glycaemic control by design of experiment (CCD) and prepare the Solid Lipid Microparticles (SLMs) of both drugs by using the fusion method. Evaluation (*in-vitro*) of optimized dosage form. Formulation of Dapagliflozin Solid Lipid Microparticles (SLMs) by using the suitable polymers fabricate the formulation and prepare the Solid Lipid Microparticles (SLMs) of Metformin by using fusion method and applying the 3^2 central composite design (CCD) model. The independent variable investigated were functional polymers of natural and synthetic origins. The pre formulation parameters like solubility, melting point, UV spectroscopy and post formulation parameters like FTIR, XRD, SEM and DSC of optimized formulation was performed. The pre formulation parameters and post formulation parameters of all SLMs formulations were performed and the optimized formulation was shown the better disintegration, dissolution and the required parameters in acceptable range. The SLMs (solid lipid microparticles) was prepared and all the parameters were evaluated and optimize the formulation. The stability study of optimized formulation shows the controlled parameters according to ICH guidelines.

Keywords: Solid lipid microparticles, Anti-diabetic, Fusion method, ICH guideline.

HMPV: Emerging Therapeutic Advances and Clinical Impact

Aditya Mishra*, Sarita Singh, Vivek Kumar Pandey
Institute of Pharmacy of Shri Ramswaroop Memorial University Lucknow -Deva Road Uttar Pradesh 225003
mishraaditya8907@gmail.com

Abstract

Human metapneumovirus (HMPV) is a negative-sense, single-stranded RNA virus belonging to the Pneumoviridae family and is genetically related to avian metapneumovirus subgroup C. Initially isolated in 2001 in the Netherlands via RAP-PCR techniques, HMPV has since emerged as a significant respiratory pathogen with clinical manifestations similar to those of respiratory syncytial virus (RSV). It is a notable cause of acute respiratory tract infections, particularly among infants and older adults, accounting for approximately 12% of such cases in pediatric populations. HMPV primarily targets the epithelial cells lining the respiratory tract, leading to a range of conditions from mild upper respiratory tract infections, such as the common cold, to severe lower respiratory illnesses that can necessitate hospitalization and emergency care, mirroring the clinical impact of influenza in susceptible groups. The virus exhibits a seasonal pattern, being most active during the winter and spring months in temperate regions, with an estimated infectious period of 3–6 days. Diagnosis is typically achieved through the detection of viral antigens in nasopharyngeal secretions using immunofluorescent antibody assays, which aids in the timely identification of the virus and subsequent patient management. Despite its recognized clinical burden, the replication cycle of HMPV remains incompletely understood. While no specific antiviral treatments have been approved to date, recent advances in therapeutic strategies include the development of monoclonal antibodies and small molecule inhibitors that show promise in preclinical studies. Notably, a candidate modRNA vaccine is currently under clinical evaluation by a leading pharmaceutical company. Recent surveillance data from China have indicated a significant uptick in HMPV-related respiratory infections among children, underscoring the need for enhanced monitoring and continued research into effective therapeutic and preventive strategies.

Keywords: Human metapneumovirus, Pneumoviridae, Respiratory, Immunofluorescent, modRNA.

Moringa oleifera: A Multifunctional Superfood with Promising Pharmacological and Therapeutic Applications

Prafulla Kumar*, Mudit Mishra, Sarita Singh, Vivek Kumar Pandey
Institute of Pharmacy, Shri Ramswaroop Memorial University Lucknow -Deva Road Uttar Pradesh 225003
prafulla3328@gmail.com

Abstract

Moringa oleifera, often referred to as the "miracle tree" or "tree of life," is renowned for its extensive medicinal, nutritional, and commercial applications. Native to regions such as Afghanistan, Bangladesh, India, and Pakistan, its resilience to drought enhances its global significance. Traditionally, various parts of the plant, including leaves, seeds, bark, roots, and flowers, have been utilized to treat wounds, pain, ulcers, liver and heart diseases, cancer, and inflammation. Scientific research has substantiated its hepatoprotective, cardioprotective, anti-inflammatory, anticancer, and antihypertensive properties, attributed to a rich profile of bioactive compounds such as alkaloids, flavonoids, anthraquinones, vitamins, glycosides, and terpenes. Recent isolates, marasmoid A & B and niazimin A & B, have demonstrated notable antioxidant, anticancer, and hepatoprotective effects. *M. oleifera* leaves, with up to 70% oleic acid content, are integral to skincare products and serve as a vital source of beta-carotene, calcium, potassium, and essential nutrients, addressing malnutrition in vulnerable populations, including infants and lactating mothers. Powdered leaves are incorporated into beverages like "Zija" in India, while bark and roots are traditionally used for ulcers, toothaches, hypertension, helminthiasis, and paralysis. Flowers possess aphrodisiac properties and are used for treating ulcers and spleen enlargement. Beyond medicinal applications, *M. oleifera* contributes economically to biogas, fertilizers, and cosmetics production. Despite its wide ethnomedicinal use, many therapeutic potentials remain unexplored, necessitating future research to isolate and characterize synergistic compounds for novel pharmaceutical formulations, thereby enhancing its clinical relevance in traditional and modern healthcare systems.

Keywords: Miracle tree, Antioxidant, Hepatoprotective, Cosmetics, Modern healthcare.

Nanosponges: A Novel Targeted Drug Delivery System

Harshit Srivastava*
Institute of Pharmacy of Shri Ramswaroop Memorial University, Barabanki, Uttar Pradesh, India- 225003
harshitsrivastava2806@gmail.com

Abstract

Nanosponges (NS) have emerged as a revolutionary class of advanced drug delivery systems, offering controlled and targeted drug release with improved therapeutic efficacy. These porous, nanoscale carriers are typically composed of cyclodextrins, hyper-crosslinked polymers, or biodegradable polyesters, which enable the encapsulation of both hydrophilic and hydrophobic drugs. Their unique sponge-like structure provides high drug-loading capacity, enhances drug solubility, and protects active pharmaceutical ingredients from degradation. One of the major advantages of nanosponges is their ability to facilitate controlled and sustained drug release, reducing dosing frequency and minimizing systemic side effects. Furthermore, their biocompatibility and ability to penetrate biological barriers make them ideal for diverse applications, including cancer therapy, antimicrobial delivery, and targeted drug transport to specific organs. Functionalization of nanosponges with ligands or stimuli-responsive materials allows for site-specific drug delivery, further enhancing therapeutic outcomes. Nanosponges have also shown potential in overcoming multidrug resistance (MDR) in cancer therapy by enabling efficient intracellular drug delivery. Additionally, their role in gene delivery and protein stabilization has opened new avenues for biomedical applications. Despite their advantages, challenges such as large-scale production, precise control over drug release kinetics, and regulatory approval need to be addressed. Overall, nanosponges represent a significant advancement in drug delivery systems, offering a versatile and efficient platform for improving drug bioavailability, stability, and targeted therapy. Further research and clinical studies will be crucial in translating their potential into commercially viable pharmaceutical formulations.

Keywords: Targeted drug delivery system, Nanosponges, Cyclodextrins, Hydrophilic and Hydrophobic drugs.

Pharmacovigilance of Advanced Therapy Medicinal Product

Anshika Gupta, Pragti Singh, Prof. (Dr.) Manju Pandey
Institute of Pharmacy, Shri Ramswaroop Memorial University Lucknow-Dewa Road, U.P, India
anshikagupta76543@gmail.com

Abstract

Gene therapy, cellular therapies, and tissue-engineered products are some examples of Advanced Therapy Medicinal Products (ATMPs). While paving the way for hope where we have none for serious diseases, these new treatments also introduce new safety challenges. Because ATMPs contain live cells and introduce genetic changes, they can have unpredictable and long-lasting effects. This makes pharmacovigilance (PV) essential to protect patient safety. Unlike standard drugs, ATMPs require special ways to keep an eye on them. Watchdogs such as the European Medicines Agency (EMA) and the U.S. Food and Drug Administration (FDA) have put rules in place to track how safe these treatments are. They zero in on following up with patients over time gathering real-world info, and spotting side effects. Yet, staying on top of ATMP safety isn't easy because side effects might show up years down the road. The biggest hurdles in keeping tabs on ATMP safety are immune system responses, changes in genes, and the need to watch patients for a long time. To tackle these problems, experts propose using AI to analyze data, set up patient databases, and get researchers, doctors, and drug makers around the world to work together. New ways to keep an eye on safety include digital tracking and asking patients for their feedback.

Keyword*:* Gene therapy, Pharmacovigilance, ATMPs, Tissue engineering, Risk management

Protein-Enriched Biscuits for Enhanced Nutritional Value

Aditya Pratap Singh*, Zahid husain
Institute of Pharmacy of Shri Ramswaroop Memorial University, Deva Road, Barabanki, Uttar Pradesh India- 225003
singhaditya09474@gmail.com

Abstract

Protein biscuits are an innovative food product designed to address the growing demand for convenient, portable, and nutritionally enriched snacks. These biscuits are fortified with high-quality protein sources, such as whey protein, soy protein, or plant-based alternatives, to provide a practical means of supplementing daily protein intake. The primary objective of this study is to explore the formulation, nutritional benefits, and sensory characteristics of protein-enriched biscuits. Research has shown that protein biscuits can be an effective way to meet the dietary needs of various populations, including athletes, vegetarians, and individuals with higher protein requirements. The production of these biscuits involves careful selection of ingredients to ensure optimal protein retention, texture, and taste, while maintaining the traditional qualities of a biscuit. Sensory evaluations indicate that well-formulated protein biscuits can offer a pleasant taste, texture, and appearance, making them an appealing alternative to conventional snack foods. The inclusion of proteins not only boosts the nutritional profile of biscuits but also contributes to satiety, muscle repair, and overall metabolic health. This paper reviews various protein sources used in biscuit formulations and examines their impact on the physical properties of the final product. Additionally, the study highlights consumer acceptance and the potential for widespread adoption in the snack food industry. Overall, protein biscuits represent a promising solution for enhancing protein intake without compromising on convenience or flavor, potentially revolutionizing the snack food market by merging nutrition with indulgence.

Keyword: Biscuits, vegetarians, ingredients, flavour

Revolutionizing Drug Development: The Role of AI in Accelerating Innovation

Om Tiwari*, Sarita Singh, Ruchi Singh, Ajeet Singh, Vivek Kumar Pandey
Institute of Pharmacy of Shri Ramswaroop Memorial University, Lucknow-Deva Road Uttar Pradesh, India 225003
sujalrishu08@gmail.com

Abstract

The pharmaceutical industry is undergoing a profound transformation, where Artificial Intelligence (AI) is integrated into drug development. Artificial intelligence is increasingly employed to reduce the complexity of the drug discovery process, reduction of cost, improvement of efficacy and to improve patient outcomes. AI algorithms can handle very significant volumes of data, identify patterns and provide predictions, enabling scientists to identify candidate drug targets, create novel molecules, improve lead compounds, and forecast clinical trial outcomes. AI tools can also model complex biological systems, disease progression and identify potential biomarkers. The advantages of AI in drug development are multifaceted. AI can reduce time and cost in comparison with traditional drug discovery strategies, improve the accuracy in prediction, improve the efficacy of drugs, and facilitate the personalized treatment. Also, AI learns to identify potential drug-drug interactions, predict adverse event profiles, and optimize the design of clinical trials. The application of AI in drug development, however, also presents several challenges, including data quality and authenticity, regulatory and ethical questions, an AI-ready workforce as well as established standardized AI frameworks and guidelines. Since the pharmaceutical industry continues to evolve, it is projected that the role of AI in drug development will be significant in accelerating the development of new therapeutics and improving patient outcomes. The role that AI will play in drug development is highly promising, and its effect will be felt across all aspects of the pharmaceutical industry.

Keywords: Artificial Intelligence (AI), Drug Development, Pharmaceutical Industry, Personalized Medicine, Machine Learning (ML)

The Role of AI in Drug Development, Safety, and Personalized Medicine

Hariom Dwivedi*, Mudit Mishra, Sarita Singh ,Manju Pandey, Vivek Kumar Pandey
Institute of f Pharmacy of Shri Ramswaroop Memorial University Lucknow -Deva Road Uttar Pradesh 225003
hariomdwivedi886@gmail.com

Abstract

Artificial Intelligence (AI) is revolutionizing the pharmacy field by enhancing efficiency, accuracy, and innovation across various pharmaceutical processes. The primary objective of AI in pharmacy is to develop intelligent systems capable of addressing complex problems using human-like logic and reasoning. Recent technological advancements in AI, such as visual perception, speech recognition, decision-making, and language translation, have significantly contributed to the pharmaceutical landscape by minimizing human effort, reducing costs, and saving time. AI is being integrated into numerous aspects of pharmacy, including drug development, drug design, drug safety, clinical trial research, radiology, radiotherapy, personalized medicine, and the identification of rare diseases. AI-powered algorithms can analyze vast datasets to identify potential drug candidates, predict their efficacy, and optimize drug formulations. In drug safety, AI systems help in pharmacovigilance by monitoring adverse drug reactions and ensuring patient safety. Additionally, AI-driven platforms are transforming clinical trials by streamlining patient recruitment, monitoring, and data analysis. AI applications in personalized medicine offer tailored treatment plans based on an individual's genetic makeup, lifestyle, and health history, thereby improving therapeutic outcomes. In radiology and radiotherapy, AI assists in accurate diagnostics, treatment planning, and real-time monitoring of therapies. A notable example is a US biopharmaceutical company utilizing AI to develop diagnostics and therapeutics in neurology, oncology, and endocrinology. Despite its numerous benefits, AI's rapid development raises ethical and existential concerns. Theoretical physicist Prof. Stephen Hawking cautioned that the pursuit of fully autonomous AI could pose a significant threat to humanity's existence. Therefore, while AI holds immense promise for the pharmacy field, its development must be approached with caution to balance innovation with ethical considerations and human welfare.

Keywords : Artificial Intelligence , Technological advancement ,Diagnostics, Oncology, Endocrinology

Artificial Intelligence in Drug Delivery Design and Healthcare Technology

Disha Sharma
Gahlot Institute of Pharmacy, Navi Mumbai
Dishasharma.3003@gmail.com

Abstract

AI is a disruptive technology used in multiple industries such as healthcare. Artificial intelligence has a significant role to play in pharmacy practice, especially to improve prescription management and patient care. By providing pharmacists with tools and technologies to make precise and evidence-based health decisions. With large amounts of patient data available from medical records, laboratory results, and medication profiles, AI algorithms and Machine Learning can help pharmacists identify possible drug-drug interactions and better evaluate the risks and benefits of both prescription and over-the-counter medicines to guide patient-specific recommendations. Pharma uses specialized technology to help doctors detect and follow up on patients' drug adherence. Machine learning in AI for analytics replicates human analytical processes and provides more accurate data to the pharmaceutical industry. There are numerous benefits AI brings to the pharmaceutical industry. Data analysis is solving problems that previously were intractable because of its greater precision. They improve productivity, lower costs, and ease tasks. Artificial intelligence (AI) insights enhance our comprehension of how users behave, how the market operates, and how clinical trials perform. AI helps identify patients in clinical trials and improves the detection of antiviral substances to ensure their effectiveness, safety, cost-effectiveness, and smooth pharmaceutical processes. By using such predictors from Machine Learning, hospital pharmacists can process a volume of patient data that covers anything from medical history to lab and prescription data to drug-side efforts to formulate risk assessments and recommendations to doctors. Lastly, it will provide integrated information across the patient life cycle (risk assessment, prevention, diagnosis, treatment, monitoring, and cure) and will help in improving the quality of pharmaceutical care, optimization in processes, research, open innovation deployment, and education.

Keywords: Artificial intelligence, clinical trials, safety, research.

Effective communication of Pharmacovigilance

Mohd. Juber*, Pragti Singh
Institutes of Pharmacy, Shree Ramswaroop Memorial University, Lucknow Deva Road, Uttar, Pradesh
mohdjuber824260@gmail.com

Abstract

Pharmacovigilance (PV) plays a key role in drug safety and public health. Successful communication of PV results is important from the standpoint of authorities, physicians, companies, and the lay public. Ineffective communication can lead to misinterpretation, delayed response, and risk of unintentional drug reaction (ADRs) and medication incidents. To effectively spread the PV message, the information must be clear, concise (i.e., simple), and explicitly targeted to the target audience. Regulatory bodies, such as the Food and Drug Administration (FDA), the European Medicines Agency (EMA), and the World Health Organization (WHO), establish standards to ensure reproducibility of reporting and risk communication. The primary tactics are the development and use of organized risk communication resources, e.g., Direct Healthcare Professional Communications (DHPCs), risk management plans (RMPs), and periodic safety update reports (PSURs), etc. These sources of information should be unambiguous, scientifically valid, and presented in a comprehensible way for specialist viewers when such is required. Digital developments have revolutionized PV communication, and the role of social media, mobile health apps, and artificial intelligence in real-time safety monitoring is growing. The use of this type of proactive communication in these channels can contribute to the rapid dissemination of safety-critical information. Effective PV communication also relies on stakeholder engagement. The training programs both enhance the pharmaceutical R&D sector and ADR reporting in the healthcare professional community and facilitate the involvement of patients in the drug safety surveillance through public communication efforts. Conclusion Efficient interactions in pharmacovigilance are crucial for good decision-making, patient safety, and regulatory compliance. Contributing to maximizing PV activities through the use of technology, improved transparency, and fostered stakeholder engagement will be attainable. A properly designed communication plan guarantees that safety signals are detected, evaluated, and acted upon quickly, thereby playing a role in contributing to safer medication use across the world.

Keywords: FDA, RMPs, EMA, WHO, ADR

Exploring the *In Vitro* Antihelmintic Potential of *Monochoria hastata* Leaf Extract Against *Perionyx excavates*

Subhashree Bhoi*, Rashmi Ranjan Hati, Pratap Chandra Acharya
Department of Pharmacy. Tripura University – A Central University
Maa Saraswati Paramedical Institute. Ghazipur. U. P
bhoi.subhashree2017@gmail.com

Abstract

Helminthic infections remain a significant global health concern, necessitating the search for alternative anthelmintic agents. This study evaluates the therapeutic potential of methanolic and ethanolic extracts of *Monochoria hastata* leaves against *Perionyx excavates*, an experimental helminthic model. Indian adult earthworms were collected, cleaned with normal saline, and divided into nine groups (n=27). The anthelmintic activity of methanolic and 50% ethanolic extracts was tested at concentrations of 25, 50, and 100 mg/mL, with albendazole as the standard. Test samples (10 mL) were placed in Petri dishes, and paralysis and death times were recorded. The methanolic and 50% ethanolic extracts caused death at 80 and 105 minutes, respectively, compared to 54 minutes for albendazole. The results suggest that methanolic extract exhibits stronger anthelmintic activity than the ethanolic extract, indicating its potential as a natural alternative to conventional anthelmintics.

Keywords: *Monochoria hastata*, anthelmintic activity, methanolic extract, *Perionyx excavates*, albendazole.

Herbal Drug Ashwagandha: A Review of Efficacy and Safety

Himanshu Chand Kaushik*, Zahid Husain, Sushma Singh
Institute of Pharmacy of Shri Ramswaroop Memorial University, Deva Road, Barabanki, Uttar Pradesh India- 225003
thakurhimanshukaushik78@gmail.com

Abstract

Ashwagandha (*Withania somnifera*), an herb native to India, is a cornerstone of Ayurvedic medicine, renowned for its adaptogenic properties. It has been traditionally used to enhance vitality, alleviate stress, and promote overall health. The plant's bioactive compounds, particularly withanolides, are believed to be responsible for its numerous therapeutic effects. Ashwagandha has gained significant attention for its ability to reduce cortisol levels, which plays a key role in stress management. Recent studies suggest it can help reduce symptoms of anxiety and depression, improve sleep quality, and boost cognitive function, including memory and focus. Furthermore, it is shown to possess anti-inflammatory, antioxidant, and neuroprotective properties, potentially benefiting individuals with chronic conditions such as arthritis, cardiovascular disease, and neurodegenerative disorders. Preliminary evidence also supports its role in enhancing physical endurance and muscle strength, making it a popular supplement among athletes. While the herb shows promising results in various health domains, further clinical research is needed to fully understand its mechanisms and therapeutic potential. Given its wide range of benefits and minimal side effects, ashwagandha holds significant promise as a natural remedy for improving mental and physical well-being.

Keywords: Ashwagandha, adaptogen, stress, cortisol, cognitive function, neuroprotective.

Nanotechnology-Enabled Combination Drug Therapy for Skin Cancer: A Novel Approach

Kahkashan Jabin*, Farhan J. Ahmed, Mohd. Aqil
School of Pharmaceutical Education & Research, Jamia Hamdard, New Delhi-110062
kahkashanjabin_sch@jamiahamdard.ac.in

Abstract

Skin cancer is a common and expanding worldwide health issue that calls for creative approaches to treatment in order to maximize therapeutic effectiveness and reduce adverse effects. Radiation and chemotherapy are examples of conventional treatments that frequently result in systemic toxicity, medication resistance, and less than ideal patient results. Combination medication therapy, which combines synthetic chemotherapeutics with herbal bioactive components to generate increased therapeutic benefits through synergistic interactions, has emerged as a promising strategy to address these issues. Liposomes, polymeric nanoparticles, dendrimers, and lipid-based vesicles are examples of nanocarrier-based drug delivery systems that provide a number of benefits, including enhanced drug solubility, controlled release, deeper skin penetration, and targeted malignant cell targeting. By improving drug absorption and lowering systemic toxicity, this strategy improves therapeutic efficacy and patient satisfaction. Furthermore, the therapeutic potential of synthetic medications like 5-fluorouracil, paclitaxel, and cisplatin is increased by encapsulating herbal substances like curcumin, resveratrol, quercetin, and epigallocatechin gallate (EGCG) in nanocarriers. These phytochemicals have pro-apoptotic, anti-inflammatory, and antioxidant qualities that help suppress cancer cells while reducing damage to healthy tissues. When compared to traditional monotherapies, the synergistic action of synthetic and herbal medicines in formulations based on nanotechnology leads to increased efficacy, decreased drug resistance, and decreased cytotoxicity. Additionally, accurate medication accumulation at tumour sites is ensured via tailored nanocarrier-based delivery, improving treatment outcomes while reducing off-target effects. This innovative strategy offers a more efficient, secure, and customized option to current therapies for skin cancer, marking a substantial progress in the field. To turn this novel treatment into widely used clinical applications, more research is needed to optimize nanocarrier formulations, comprehend drug interactions, and carry out clinical studies.

Keywords: Skin cancer, nanotechnology, combination therapy, synthetic drugs, herbal medicine, targeted drug delivery, nanoparticles, synergistic effects.

Novel Antibiotics in Development Pipeline

Sandhya Verma*, Sunil Kumar Jaiswal
Ankerite college of Pharmacy, Lucknow
sv556787@gmail.com

Abstract

According to estimates, antimicrobial resistance (AMR) killed 1.27 million people in 2019, more than HIV/AIDS and malaria combined. AMR is a serious danger to world health. The global economy is significantly impacted by AMR as well. AMR has the potential to significantly affect the global economy and exacerbate poverty in low- and middle-income nations if it is not adequately handled. Establishing a steady supply of innovative and new antibacterial medications is essential to reducing the possibility of a post-antibiotic society, where the capacity to treat common bacterial diseases is seriously threatened. One of the biggest threats to public health is the ongoing evolution of microorganisms that are resistant to drugs. To aid in the treatment of these diseases, new antibiotics must be found and developed, particularly those with novel mechanisms of action. The 22 novel antibiotics that have been introduced since 2000 are listed in this overview, along with information on the two first-in-class medications that were introduced in 2011 and 2012, respectively: bed aquiline (2) and fidaxomicin (1). The preclinical pipeline analysis found that 252 antibacterial medicines were in preclinical development; more than one-third of them were non-traditional drugs, demonstrating the preclinical pipeline's level of innovation. The fact that governments, the pharmaceutical sector, and other interested parties are presently debating novel concepts is positive.

Keywords: Novel antibiotics, antimicrobial resistance (AMR), post-antibiotic, bed aquiline.

Phytochemical and pharmacological evaluation of *D. malabarica* and *Anacyclus pyrethrum*

Suman Yadav*, Neetesh Kumar Sharma
Faculty of Pharmacy Maulana Azad University, Jodhpur, Rajasthan, India
sumanyadav20june@gmail.com

Abstract

For centuries, traditional medicine has leveraged the therapeutic potential of plants from the *Diospyros* L. genus, particularly in combating infectious diseases. These plants have been widely used across different cultures for their medicinal properties. Researchers have identified and pharmacologically validated a diverse range of bioactive compounds from *Diospyros* species, including triterpenoids, tannins, and naphthoquinones. Their ability to inhibit the growth of harmful pathogens suggests a promising role in modern pharmaceutical research, particularly in the fight against antibiotic-resistant infections. In North Africa, specifically in Morocco and Algeria, *Anacyclus pyrethrum* has long been revered as a medicinal herb. This annual plant, commonly known as "Pellitory" or "Spanish chamomile," has been extensively used in traditional medicine. The roots of *Anacyclus pyrethrum* are the most valued part, often incorporated into herbal formulations for their medicinal benefits. Phytochemical analysis has revealed the presence of various bioactive compounds, including flavonoids, alkaloids, and terpenoids, which contribute to its therapeutic efficacy. These compounds are known for their antioxidant, antimicrobial, and neuroprotective effects. Recent scientific studies have investigated the pharmacological properties of *Anacyclus pyrethrum*, confirming its potential as a therapeutic agent. Notably, both *Diospyros malabarica* and *Anacyclus pyrethrum* exhibit antidiabetic, antioxidant, and anti-inflammatory properties. These findings highlight their potential for treating diabetes, oxidative stress-related disorders, and inflammatory diseases. Additionally, *Anacyclus pyrethrum* has been studied for its possible neuroprotective and aphrodisiac effects, suggesting further applications in neurological and reproductive health. Further research, including in-depth clinical trials, is necessary to fully explore their therapeutic applications, safety profiles, and mechanisms of action. Continued exploration of these medicinal plants may pave the way for innovative, plant-based treatments in modern medicine.

Keywords: *Diospyros malabarica*, antidiabetic, antioxidant, anti-inflammatory, alkaloids

Preparation And Optimization of Herbosomal Gel by ICH Guidelines for Anti-inflammatory Activity

Samiksha Ajankar
Tulsiramji Gaikwad Patil College of Pharmacy, Mohgaon, Nagpur
sajankar@gmail.com

Abstract

Extracts of the plants have been used to treat various diseases since ancient times. However, many active constituents extracted from plants are poorly absorbed when administered orally or topically which limits their widespread application. Herbosome is a current concept in herbal drug technology that removes the limitations of the traditional drug delivery systems. Herbosome technology improves the bioactivity of plant extracts and acts as a bridge between the NDDS system and the traditional system. It is a complex of phytoconstituents and lipid substances that enhance the permeation of plant extract. The Herbosome is a cell-like structure, which is a combination of soya phosphatidylcholine with standardized extracts containing polyphenolic compounds, which improves their absorption and utilization. Manjistha is used in the treatment of various diseases and disorders; some of the major ones are inflammation and cancer. In this study, the Manjistha herbosomal was prepared by the solvent evaporation method. The optimized formulation (F3) was further characterized with microscopy, scanning electron microscopy, drug entrapment efficiency, and % drug content. The Carbopol 940 was used to convert the herbosomal formulation (F3) into herbosomal gel and evaluated for pH and ex vivo permeation to check the difference in permeation profile, and the new formulation and development of Manjistha Herbosomal Gel (A1) was developed as per the guidelines.

Keywords: Herbosomal gel, Manjistha, herbosomal, Carbopol 940, Scanning electron microscopy.

Role of Artificial Intelligence in Management of Paediatric Diabetes

Ankita Singh
Shri Ram Murti Smarak College of Engineering and Technology, Bareilly, Uttar Pradesh, India 243202
ankitasinghas175@gmail.com

Abstract

Artificial intelligence is a very active computer science field aiming to develop systems that mimic human intelligence and is helpful in many human activities, including medicine.Paediatric endocrinology, as a subspecialty of paediatrics, encompasses a wide range of endocrine abnormalities. Numerous chronic afflictions that were once postulated to be conditions of adults alone are now being seen commonly in the paediatric population. Since paediatric diabetes is the most prevalent problem, our study focuses on the solutions AI can provide in dealing with the complications of the same. An automated artificial intelligence-based dependent decision support system (AI-DSS) is as effective and safe as those guided by physicians in controlling glucose levels. A smartphone system (GoCARB), which is especially for patients with type 1 diabetes and can estimate the carbohydrate content in meals. The following study will deal with the various mechanisms of artificial intelligence involving machine learning, deep learning, natural language processing, computer vision, and reinforcement learning and their applications in paediatric diabetes.

Keywords: Artificial intelligence, metabolic disorders, machine learning, deep learning

Sodium nitroprusside: A comprehensive clinical concept review

Akash Tiwari*, Yasmin Khatoon
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India (225003)
tiwariakash2779@gmail.com

Abstract

Sodium nitroprusside has been used in clinical practice as an arterial and venous vasodilator for 40 times. This prodrug reacts with physiologic sulfhydryl groups to release nitric oxide, causing rapid-fire vasodilation, and acutely lowering blood pressure. It's used clinically in cardiac surgery, hypertensive heads, heart failure, vascular surgery, paediatric surgery, and other acute hemodynamic operations. In some practices, newer agents have replaced nitroprusside, either because they're more effective or because they've a further favourable side- effect profile. still, valid and adequately- powered efficacity studies are meagre and do not identify a superior agent for all suggestions. The cyanide anion release concurrent with nitroprusside administration is associated with implicit cyanide accumulation and severe toxin Agents to meliorate the untoward goods of cyanide are limited by colorful problems in their practicality and effectiveness. A new orally bioavailable cure is sodium sulfamate, which shows pledge in reversing this toxin. The unique effectiveness of nitroprusside as a titratable agent able of rapid-fire blood pressure control will probably maintain its application in clinical practice for the foreseeable future. fresh exploration will upgrade and maybe expand suggestions for nitroprusside, while resemblant disquisition continues to develop effective curatives for cyanide poisoning.

Keywords: Antihypertensives, cyanide, pharmacology, sodium nitroprusside, toxin.

Stem Cell Therapy and Management in Neurodegenerative Diseases

Aasif Khan[1]*, Saumya Awasthi[2]
[1]Geeta Pharmacy College near STP, Gomti Nagar Ext., Lucknow
[2]Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki Deva Road Lucknow (225003)
aasifkhan66433@gmail.com

Abstract

Neurodegenerative diseases, including Alzheimer's, Parkinson's, Huntington's disease, and amyotrophic lateral sclerosis (ALS), are characterized by the progressive loss of neuronal structure and function. Current treatments primarily focus on symptom management rather than addressing the root cause of neurodegeneration. Stem cell therapy has emerged as a promising avenue for regenerative medicine, offering the potential for neuronal repair, neuroprotection, and functional recovery. Various stem cell types, including embryonic stem cells, induced pluripotent stem cells, mesenchymal stem cells, and neural stem cells, are being explored for their therapeutic benefits. These cells can differentiate into neuronal or glial cells, modulate the inflammatory response, and secrete neurotrophic factors to support neuronal survival. Despite promising preclinical studies, several challenges hinder clinical translation, including ethical concerns, potential tumorigenicity, immune rejection, and difficulties in directing stem cell differentiation for functional integration into the central nervous system. Recent advancements in gene editing, biomaterial scaffolds, and targeted delivery systems are being investigated to enhance the safety and efficacy of stem cell-based therapies. Additionally, combinatorial approaches integrating pharmacological agents and rehabilitation strategies may further improve patient outcomes. This review explores the current state of stem cell-based interventions in neurodegenerative disease management, highlighting recent breakthroughs and ongoing clinical trials. While significant progress has been made, further research is required to optimize protocols, address safety concerns, and ensure long-term benefits. The development of personalized and precision medicine approaches may pave the way for more effective and widely accessible stem cell therapies in the future.

Keywords: Huntington's disease, amyotrophic lateral sclerosis (ALS), tumorigenicity, glial cells

Synthesis and Biological Evaluation of Some Piperazine Derivatives

Bushra Begam[*1,2], Mohammad Asif[1], Kuldeep Singh[2]
[1]Era College of Pharmacy, Era University, Lucknow
[2]Department of Pharmacy, Integral University, Lucknow
bushrabegam08@gmail.com

Abstract

Background: Piperazine and its derivatives have constituted an attractive pharmacological platform present in various potent marketed drugs. Piperazine is a six-membered ring containing two nitrogen atoms at opposite positions in the ring. The piperazines are a broad class of chemical compounds with different types of important pharmacological properties. Various piperazine derivatives possess diverse pharmacological action such as antioxidant, antimicrobial, anticonvulsant, antidepressant, anxiolytic, antiparkinsonian, antipsychotic, antidiabetic, antihistaminic, anti-inflammatory, antiarrhythmic, anticancer, anti-Alzheimer, antimalarial, antihypertensive and antiplatelet, etc. Many drugs containing piperazine moiety are on the market, while several hundred are in clinical trials nowadays.

Objectives: Some piperazine derivatives were synthesized, characterized, and pharmacologically evaluated for neurotoxicity and anticonvulsant activities.

Material and methods: Piperazine derivatives were synthesized and evaluated by IR, ^{1}H-NMR, and MS spectral analysis. The synthesized compounds were evaluated for neurotoxicity and anticonvulsant activities by using Rotarod and Maximal Electroshock Seizure (MES) induced convulsion methods respectively.

Results: The synthesized compounds at the dose of 30 mg/kg body weight i.p. showed significant anticonvulsant activity without causing neurotoxicity. All compounds at the doses of 100 and 300 mg/kg body weight have some neurotoxicity.

Conclusions: All the synthesized compounds were characterized spectroscopically and exhibited anticonvulsant activity. Two compounds in this series showed maximum anticonvulsant activity than other compounds. The dose of 30 mg/kg body weight was preferable as anticonvulsant compounds.

Keywords: Piperazine, anticonvulsant activity, neurotoxicity, spectral characterization.

The Impact of Nutraceuticals on Chronic Disease Prevention and Management: A Review

Shahnawaz Ahmad
JBS Institute of Pharmacy, Malinpur, R S Ghat, Barabanki, 225409
shahnawazahmad7897@gmail.com

Abstract

Nutraceuticals are considered bioactive food products that offer medical and health advantages, including disease prevention and management. Herbal medicine is becoming more and more necessary every day. Due to the current, competitive, and stressful environment, illnesses of all kinds are developing. Although allopathic treatments are available for the majority of diseases, they are not economical and come with a number of negative side effects. As a result, a lot of individuals are starting to utilize herbal products and modify their lifestyles. These products may processed foods, dietary supplements, genetically modified foods, etc. Nutraceuticals have gained attention for their safety profile, medicinal efficacy, and nutritional advantages. Chronic ailments, such as cardiovascular disease, diabetes, cancer, and neurological problems, have a considerable impact on world health. The prevention and management of these diseases are essential for lowering morbidity, mortality, and healthcare expenditures. Nutraceuticals, or bioactive compounds derived from food and dietary supplements, have emerged as a promising strategy for reducing the risk of chronic disease. This review attempts to give a thorough summary of the available data regarding the role of nutraceuticals in managing and preventing chronic diseases. Nutraceuticals, including probiotics, omega-3 fatty acids, antioxidants, fortified foods, and polyphenols, have been shown to have anti-inflammatory, anti-oxidant, and anti-proliferative properties. These properties may help in the prevention and treatment of chronic illnesses. Overall, this review offers a thorough assessment of the existing data on the influence of nutraceuticals on chronic illness management, enlightening healthcare professionals, policymakers, and individuals on the potential role of nutraceuticals in preventing and treating chronic diseases.

Keywords: Nutrient, Diseases, probiotics, prevention, dietary supplements

The Role of Herbal Drugs in Cancer Therapy: Current status & Future Direction

Mr. Anil Kumar*[1], Mr. Mohammad Saidurrahman[2], Mr. Kailash Bihari[3]
[1] Institute of Pharmaceutical Sciences and Research, Lucknow
[2,3] Rameshwaram Institute of Technology and Management, Lucknow
anilkumar936961@gmail.com

Abstract

For more than fifty years, the anticancer potential of herbal products, which have a remarkable chemical diversity, has been the subject of significant research. Although the community's combined efforts have produced amazing progress, including the clinical application of natural products and the discovery of novel treatment avenues, there are still obstacles to overcome. The development of tumours is significantly influenced by the tumour microenvironment (TME). Cytokines and immunoregulatory cells help cancer cells evade immune surveillance. Immune function is inhibited, and cancer cells are able to evade immune system clearance when immune checkpoint molecules like CTLA-4 and PD-1/PD-L1 are overexpressed. Therefore, reducing tumour immunosuppression may be a key cancer treatment tactic. Many immune checkpoint-targeted medications, including PD-1/PDL1 inhibitors, are currently approved for sale, and have demonstrated special benefits in the clinical treatment of cancer. Herbal medications' "strengthening resistance to eliminate pathogenic factors" notion aligns with cancer immunotherapy. Previous research indicates that the use of herbal medications in cancer treatment is primarily linked to the negative regulation of Tregs, myeloid-derived suppressor cells, cancer-associated fibroblasts, PD-1/PD-L1, transforming growth factor-ββ, and tumour necrosis factor-ββ, and the positive regulation of natural killer cells, CD8/CD4 T cells, dendritic cells, M2 macrophages, interleukin-2, tumour necrosis factor-αα, and IFN-γγ. The present research on the impact of herbal medications that target the TME is reviewed in this abstract, which also provides an overview of the ongoing studies on the effects of TCM on immunological checkpoints.

Keywords: Herbal medications, cancer treatment, tumour microenvironment (TME), PD1/PD-L1, and combination therapy.

Studies on the potential of polyherbal formulations for wound healing

Archana Yadav
R.K. Pharmacy College Azamgarh 276403
archanayadav3911@gmail.com

Abstract

Polyherbal formulations have long been recognized in traditional medicine for their synergistic therapeutic effects. This study will evaluate the pharmacological potential, antioxidant, and wound healing properties of a polyherbal formulation comprising *Neolamarckia cadamba* and *Bryophyllum pinnatum* extracts. Both plants are renowned for their medicinal benefits; *Neolamarckia cadamba* is known for its anti-inflammatory, antimicrobial, and antioxidant properties, while *Bryophyllum pinnatum* is valued for its wound healing, analgesic, and anti-ulcer activities. Past studies indicate that the phytochemical components of these plants, such as alkaloids, flavonoids, and tannins, contribute to enhanced wound healing by promoting collagen formation and fibroblast proliferation. In vivo experiments on experimental rats revealed significant wound contraction rates, a reduction in oxidative stress markers, and increased tissue regeneration, underscoring the formulation's therapeutic potential. This research may be highlighting the efficacy of this polyherbal combination, supporting its use in modern wound healing applications and encouraging further exploration in clinical settings.

Keywords: Formulations, Wound Healing, In Vivo, Pharmacological Potential, Therapeutic Effects

Artificial intelligence: A comprehensive review on recent approaches for cancer drug discovery

Akash Tiwari
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India (225003)
tiwariakash2779@gmail.com

Abstract

The discovery of artificial intelligence in therapeutics is redefining how new therapeutics are identified, developed, and brought to the market. It is no secret that the conventional drug discovery process is time-consuming and expensive; however, the introduction of artificial intelligence accelerates this timeline through optimization of many stages from the initial screening up to clinical trials. Improving diagnosis of cancer through revolution in AI technologies of clinical research. Utilization of these AI technologies, such as machine and deep learning, becomes imperative for finding novel anticancer drugs and upgrading existing/ongoing cancer therapeutics. It is challenging, however, to build a model for complicated cancers and their types because of ineffectual therapeutics that discourage the establishment of effective computational tools. In this review, recent approaches and state-of-the-art in implementing AI methods in anticancer drug discovery are exploited, and it is discussed how advances in these applications need to be considered in the current cancer therapeutics. Considering the immense potential of AI, we explore molecular docking and their interactions to recognize metabolic activities that support drug design. Lastly, we emphasize related strategies in the application of machine and deep learning methods to different types of cancers with their advantages and disadvantages.

Keywords: Artificial intelligence, machine learning, anticancer drugs, molecular docking, drug design.

Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) In the treatment of Multiple Myeloma

Yasmeen Bano*, Asiya Fatima, Noor Jameel, Alisha Bano
Faulty of Pharmacy, Integral University, Dasauli, Kursi Road, Lucknow, Uttar Pradesh 226026, India
yasmeenn2301@gmail.com

Abstract

Multiple myeloma (MM), a plasma cell malignancy, is still an incurable disease despite the progress made with proteasome inhibitors, immunomodulatory drugs, and monoclonal antibodies. The discovery of Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) technology has transformed genome editing, providing precise and programmable alterations with tremendous potential for MM therapy. By taking advantage of CRISPR's capability to target oncogenic drivers, restore tumor suppressor function, and improve immune cell function, researchers are creating new therapeutic approaches with unprecedented specificity. CRISPR-Cas9 has been especially effective in editing chimeric antigen receptor (CAR) T cells, enhancing their persistence and cytotoxicity to MM cells. Gene knockout research has also highlighted key pathways, including the BCL2 and MYC networks, that could be disrupted to make MM cells sensitive to available therapies. Obstacles like off-target effects, delivery strategies, and possible immunogenicity will need to be overcome before translating into the clinic. New technologies, such as base editing, prime editing, and CRISPR interference (CRISPR), are improving gene-editing accuracy and broadening its therapeutic potential. This review critically assesses the present state of CRISPR use in MM, highlighting both the achievements and challenges that characterize its clinical promise. As the science continues to evolve, combining CRISPR with other leading-edge modalities, including RNA-based therapies and nanotechnology-based delivery systems, might unlock more potent and sustainable MM treatments.

Keywords: Multiple Myeloma, proteasome inhibitors, genome editing, CAR-T cells, oncogenic pathways, tumor suppressors, prime editing, targeted therapy, precision medicine, MYC signaling.

Extracted Herbal Solution of Euphorbia neriifolia

Ashutosh Pandey*, Zahid Husain, Sushma Singh
Institutes of Pharmacy, Shree Ramswaroop Memorial University, Lucknow Deva Road, Uttar, Pradesh
ap404573@gmail.com

Abstract

In contemporary times, there has been a notable increase in the emphasis on plant research globally. The alternative healthcare system, which holds significant potential as a source of export revenue, is gaining traction due to the affordability of plant-based medicines, their diverse applications, and their lack of side effects commonly associated with synthetic drugs, as well as the emergence of resistance in pathogenic microbes. The solution extracted from the plant belongs to the Euphorbiaceae family, specifically the species *E. nerifolia*, which is indigenous to India. The genus "Euphorbia" was named in tribute to Euphorbus, the physician to King Juba II (25 B.C.–18 B.C.). Euphorbia neriifolia is a herb widely utilized in traditional Indian medicine; it is characterized as a small deciduous tree within the Euphorbiaceae family. This tree, with its numerous branches, has extensive applications. Traditionally, *E. neriifolia* is categorized into the vagbhata, susruta, and caraka classifications. The caraka classification highlights the properties of rasa, exhibiting tikta and katu actions, while Susruta emphasizes virya with usna action. The guna attributes include snigdha, tiksna, and laghu actions. The vipaka indicates katu action, and the karma encompasses recana, dipana, and kapha-vatahara actions. The Caraka classification identifies indications for medoroga, kusta, arsas, sotha, sula, udara, gulma, and vatavyadhi. In Ayurveda, the rasa (taste) of E. neriifolia is characterized as katu (pungent) and tikta; its guna (qualities) are described as guru and tiksha or teekshna (intense); the virya/veerya (potency) is classified as ushna (hot); the vipaka (ripe) is noted as katu (bitter); and the karma (actions) are defined as bhedana (piercing), tikshnavirecana (sharpening), and amakaphavitahara.

Keywords: Euphorbia, caraka, pathogenic microbes, vagbhata, Ayurveda

Pharmacokinetics and Pharmacodynamics in Drug Development

Shambhavi Dwivedi*[1], Shalu Yadav[1], Awinish Shrivastaw[2]
[1]Rameshwaram Institute of Technology and Management, Sitapur Rd, opposite AKTU campus, Govind Puram, Mubarakpur, Lucknow, Uttar Pradesh 227202, India
[2]Career Point University, National Highway 52, Opp Alaniya Mata Ji Mandir, Alaniya, Kota, Rajasthan 325003, India
shambhavidwi08@gmail.com

Abstract

Pharmacokinetics (PK) and Pharmacodynamics (PD) are two of the most important considerations in drug development that affect dosing regimens, efficacy, and safety profiles. PK analyzes drug absorption, distribution, metabolism, and excretion, while PD analyzes the drug's effect on the body. It is necessary to comprehend these processes to optimize drug design and minimize side effects. With the evolution in modeling and simulation techniques, drug behavior in humans is predicted more accurately, and hence more effective treatments are being developed. Research in PK and PD continues to drive forward the drug development process.

Keywords: Pharmacokinetics, pharmacodynamics, drug development, drug design, modeling.

Type 2 Diabetes: Pathophysiology, Management, And Future Therapeutic Approaches

Shalu Yadav
Mahatma Gandhi Institute of Pharmacy, Lucknow
shaluy046@gmail.com

Abstract

Type 2 diabetes mellitus (T2DM) is a chronic metabolic condition marked by insulin resistance and inadequate insulin secretion, resulting in elevated blood glucose levels. It poses a significant global health challenge, impacting millions of individuals and leading to considerable morbidity and mortality rates. This presentation delves into the intricate pathophysiology of T2DM, emphasizing the contributions of genetic factors, obesity, inflammation, and pancreatic beta-cell dysfunction. The relationship between insulin resistance in peripheral tissues and the subsequent exhaustion of pancreatic beta cells is examined, highlighting the progressive nature of the disorder. Effective management of T2DM necessitates a holistic approach encompassing lifestyle changes, pharmacological treatments, and ongoing monitoring of blood glucose levels. Current therapeutic strategies aim to enhance insulin sensitivity, boost insulin secretion, and regulate glucose absorption. Commonly prescribed medications include metformin, sulfonylureas, DPP-4 inhibitors, GLP-1 receptor agonists, and SGLT-2 inhibitors. Recent developments in insulin therapy and combination treatments are also discussed, which provide improved glycemic control and minimize adverse effects. Despite the availability of various treatments, many patients still face challenges in achieving optimal glycemic control, prompting the need for the investigation of new therapeutic targets. This presentation explores emerging trends, such as gene therapy development, strategies for beta-cell regeneration, and advanced drug delivery systems like nanomedicine. Furthermore, the potential of personalized medicine and digital health innovations, including continuous glucose monitoring and artificial intelligence-driven diabetes management tools, is considered a promising avenue for improving patient outcomes. This comprehensive review offers critical insights into the pathophysiology, current management practices, and prospective therapeutic strategies for Type II diabetes, emphasizing the necessity of an integrated and personalized approach to treatment.

Keywords: Type 2 diabetes mellitus, Insulin resistance, beta-cell dysfunction, glycemic control

Exploring the Role of Phytoconstituents from Indian Medicinal Plants in Enhancing Wound Healing

Rohit Verma*, Prem Prakash Singh
PhD. Research Scholar, Institute of Pharmacy, Bundelkhand University, Jhansi
rohit.pharma009@gmail.com

Abstract

Wound healing is a multifaceted biological process critical to restoring tissue integrity and function after injury. Phytoconstituents derived from Indian medicinal plants have emerged as promising agents in enhancing wound healing, offering a potential alternative or complement to conventional treatments. This review explores recent advancements in the use of phytochemicals extracted from Indian plants and their impact on wound healing processes. Emphasizing their advantages over traditional therapies, the review highlights the superior efficiency, safety, and cost-effectiveness of these natural compounds. The article further discusses the molecular mechanisms through which these phytochemicals contribute to wound healing, including their potential role in regenerative medicine. Despite the encouraging results, challenges such as standardization of extraction methods and identification of active compounds remain. The review also proposes future research directions, focusing on developing India-centric strategies to address these challenges and maximize the therapeutic potential of Indian medicinal plants. In conclusion, this work emphasizes the diverse healing properties of Indian medicinal plants, underlining their importance in advancing wound healing therapies and guiding future research in the field.

Keywords: Wound healing, Indian medicinal plants, phytoconstituents, herbal medicine, regenerative medicine, natural products.

Innovative Approaches in Treating Neurodegenerative Diseases: From Laboratory to Clinical Application

Deepali Singh, Alankar Shrivastav, Navneet Verma
Faculty of Pharmacy, IFTM University, Moradabad
deepali21199@gmail.com

Abstract

Globally, there is an important unmet need for effective neurodegenerative disease treatments. The complicated nature of the cellular processes behind neuronal degeneration, as well as the patient population's heterogeneity, present major challenges to the development of early diagnostic tools and effective treatments for these neurological conditions. Machine learning, a branch of artificial intelligence, is assisting medical professionals and clients tackle some of these problems. In this review, we will look at how machine learning can help with early diagnosis and interpretation of medical images, as well as the discovery and development of new therapy. A unifying a part between various applications of machine learning is the integration of multiple high-dimensional sources of data, all of which provides a different view of disease, and the automated derivation of actionable insights

Keywords: Neurological Disorder, Clinical Application, Neuronal degeneration, artificial intelligence, Machine learnings.

Phytochemical screening by HPLC analysis and FTIR spectroscopic techniques of *cassia tora* leaves extract in different solvents

Prashant Kumar Singh
Department of Pharmacy, BIU College of Pharmacy, Bareilly International University, Bareilly-243006, Uttar Pradesh, India.
prashants845@gmail.com

Abstract

The present study is aimed to analyse the chemical constituents of the chloroform, ethanol and petroleum ether extracts of leaves of Cassia tora through preliminary phytochemical investigation, HPLC and FTIR spectroscopy method. The phytochemical analysis revealed the presence of alkaloids, flavonoid, saponin, steroid, tannin, terpenoids and glycoside. A reversed-phase HPLC analysis was performed using C18-150 × 4.6 mm column with 10 µl injection volume and Methanol: Water as a mobile phase in 70:30 ratios at 30°C. The detection was recorded at 254 nm (UV-detector). The FTIR spectroscopic studies revealed different characteristic stretching frequencies, peak values with various functional compounds in the studied extracts. Preliminary phytochemical investigation of ethanol and petroleum ether leaves extract of Cassia tora confirmed the presence of emodin, anthraquinone, glycoside, tannin and alkaloids. The FTIR analysis of ethanol, chloroform, and petroleum ether leaf extracts confirmed the presence of amide, alcohols, alkanes, aldehydes, alkenes, primary amines, aromatics, ethers, alkyl halides and aliphatic amines compounds, which shows major peaks. The results of the present study generated the phytochemical investigation, HPLC spectra, FTIR spectrum profile for these medicinally important plants and these can be used in the industry.

Keywords: Cassia tora, phytochemical investigation, HPLC, FTIR

An Overview of Drug Substance Manufacturing Processes

Sarvesh Kumar*, Sushma Singh, Zahid Husain
Institute of pharmacy of Shri Ramswaroop Memorial University, Deva Road, Barabanki, Uttar Pradesh 225003
skg618898@gmail.com

Abstract

To develop a comprehensive understanding of pharmaceutical drug substance manufacturing (DSM) processes, we conducted a data mining study to examine 50 new drug applications (NDAs) approved in 2010-2016. We analyzed the prevalence of several frequently deployed inprocess control (IPC) techniques and postreaction workup procedures, as well as the operational conditions specified for reactions and workups. Our findings show that crystallization and highperformance liquid chromatography (HPLC) were the most commonly used workup steps and in-process controls, respectively, in drug substance manufacturing. On average, each NDA implemented 12.6 in-process controls and 11.3 workups. Operation time for reactions and workup procedures varied from a few minutes to multiple days, though 61% of these were between 1 and 10 h.

Keywords: drug substance; in-process control; manufacturing; workup procedure

In Silico Pharmacological Evaluation and Molecular Docking Analysis of Novel Triazole Derivatives: Unveiling Potential Therapeutic Applications

Mamta Agrahari*
Madhyanchal Professional University, Bhopal
mamtaagrahari2616@gmail.com

Abstract

The discovery and development of novel therapeutic agents are critical for addressing unmet medical needs. In this study, a series of novel triazole derivatives were designed and subjected to in silico pharmacological evaluation and molecular docking analysis to explore their potential therapeutic applications. Triazole derivatives have for their diverse pharmacological properties, including antimicrobial, anticancer, anti-inflammatory, and antifungal activities. The compounds were evaluated for drug-likeness using Lipinski's rule of five, ADMET (absorption, distribution, metabolism, excretion, and toxicity) properties, and potential bioactivity scores. Molecular docking studies were performed to investigate the binding interactions of these derivatives with target proteins implicated in various diseases, such as cancer (e.g., EGFR, Bcl-2), microbial infections (e.g., bacterial DNA gyrase, fungal CYP51), and inflammatory pathways (e.g., COX-2). The results shows that several triazole derivatives exhibited favorable drug-like properties, low toxicity profiles, and strong binding affinities to their respective targets, suggesting their potential as lead compounds for further development. Additionally, the derivatives were analyzed for their pharmacokinetic properties, including bioavailability, metabolic stability, and blood-brain barrier permeability, to assess their suitability as oral or systemic therapeutic agents. Density functional theory (DFT) calculations were employed to optimize the molecular structures and evaluate electronic properties, such as HOMO-LUMO energy gaps, which provided insights into their reactivity and stability. Furthermore, molecular dynamics simulations were conducted to assess the stability of the ligand-protein complexes over time, confirming the robustness of the binding interactions. This study highlights the therapeutic promise of these novel triazole derivatives and provides a foundation for future in vitro and in vivo investigations to validate their efficacy and safety.

Keyword: Triazole derivatives, in-silico pharmacological evaluation, molecular docking, ADMET, DNA gyrase.

Apoptosis and cancer

Nishi Shukla[1], Shazia Usmani[1]*, Sahabjada Siddiqui[2]
[1]* Herbal Bioactive Research Laboratory, Faculty of Pharmacy, Integral University, Dasauli, Kursi Road, Lucknow, Uttar Pradesh, India
[1] Faculty of Pharmacy, Integral University, Dasauli, Kursi Road, Lucknow, Uttar Pradesh, India
[2] Department of Biotechnology, Era University, Lucknow

Abstract

Since there are unmanaged regulatory mechanisms operating inside the rapidly proliferating cells, normal cells are turned into cancerous cells. Cell growth and differentiation are controlled by their specific environment. A number of proteins found in the extracellular matrix (ECM), including elastins, fibronectins, collagens and laminins, control the development or spread of cancer. Although dysregulation of cell death also includes autophagy, necrosis, but apoptosis is the most common form of cell death—may be linked to the pathophysiology of cancer. This programmed cell death is a prominently regulated mode of natural cell death that is a part of development as well. Characteristics of cell death, such as morphological changes and metabolic alterations, are a part of apoptosis. It involves strictly controlled irreversible processes, such as DNA fragmentation and phosphatidylserine externalization, mostly through the intrinsic and extrinsic pathways. The various techniques combine cancer treatment modalities that target apoptosis, like chemotherapy, surgery, and radiotherapy. Effective chemotherapy is based on modifying traditional medications utilization and exploiting a variety of molecular therapeutic targets, which include distinct inhibitors such that all function differently in preventing specific events that are enhanced in cancer cells. On the basis of signalling pathway research, cancer treatments may show impressive outcomes with either a single signalling pathway targeting strategy or multiple targeting. By activating the natural suicidal mechanism (apoptosis), a two way targeted route effectively aid in preventing proliferation as well as metastasis. Cell death during apoptosis happens without significantly harming or inflaming nearby cells. Anti-apoptotic and pro-apoptotic proteins function as possible modulators of cell growth and division in both intrinsic and extrinsic apoptotic pathways. The deregulatory or inactivated apoptotic mechanisms include the cell cycle dysfunction, deregulatory restoration structure, tumor suppressor (p53) regulation, reduction of pro-apoptotic members, overexpression of anti-apoptotic members, and the functioning of certain inhibitory proteins.

Keywords: Cancer, therapeutic targets, target apoptosis, signalling pathways, tumor suppressor regulation, pro-apoptic proteins

Repositioning of Olmesartan by Exploring Its Protective Potential Against STZ Induced Diabetic Neuropathy in Rodents

Laiba Rind[1,2]*, Tarique Mahmood[1]
[1]Department of Pharmacology, Faculty of Pharmacy, Integral University, Lucknow, India 226026
[2]Department of Pharmacology, Era College of Pharmacy, Era University, Lucknow, India 226003

Abstract

Olmesartan (OLM), an angiotensin II receptor blocker (ARB) initially recognized for its blood pressure-lowering properties, exhibits significant potential in addressing disorders associated with inflammation. This suggests promising prospects for its use in conditions such as neuropathy, and nephropathy. This study aimed to evaluate the impact of OLM (5 mg/kg/day) on streptozotocin (STZ) induced diabetic neuropathy in Sprague Dawley (SD) rats. The animals were divided into four groups, each consisting of six rats (n = 6). Group I, the nondiabetic/normal control (NCG), received normal saline. Group II served as the diabetic control (DCG). Group III, the treatment group (TG), received OLM at a dosage of 5 mg/kg/day and STZ. Group IV, the perse group (PSG), received OLM at the same dosage. Parameters measured included blood glucose levels, and various behavioural assessments such as motor coordination, thermal hyperalgesia and heat allodynia. Functional biomarkers, including Slow nerve conduction velocity (SNCV), Motor nerve conduction velocity (MNCV) & Na+K+ATPase activity was also assessed. OLM results in neuroprotective efficacy, characterized by enhanced myelination, reduced axonal swelling of nerve fibers, improvements in SNCV and MNCV. This study substantiates the beneficial impact of OLM and underscores its significance in diabetic neuropathy treatment. Further clinical trials hold the potential to unveil innovative pharmacological treatments for diabetes and its associated complications.

Keywords: Olmesartan, Diabetic Neuropathy, Myelination, Slow nerve conduction velocity, Sciatic nerve.

Synthesis and characterization of ester producing of Flufenamic acid using anti-oxidants for reduction in ulcerogenicity

Alka Verma
RGS College of Pharmacy, Near Itaunja Toll Plaza, Village- Karaundi, Post, Itaunza, Uttar Pradesh 226203
alkav1050@gmail.com

Abstract

Flufenamic acid is a NSAID and it showed difficulties in the formulation processes owing to the poor solubility, dissolution rate, sticky nature etc., Flufenamic acid has many therapeutic actions like analgesic, anti-inflammatory and anti-pyretic etc. by acting on cyclooxygenase and prostaglandins**.** Flufenamic acid showed certain unwanted effects like all NSAIDs and that can be reduced by many drug development processes. The research studies also reported that the of the ester prodrugs are for enhancing the anti-inflammatory activity and for reduction of ulcerogenic effects of NSAIDs. The ulcer index of prodrugs is approx. 7.00 but of drug is 29.66 it shows that the considerable reduction in ulcerogenicity. also, the studies attempted to evaluate the pharmacokinetics of the prodrugs by in-vitro methods which showed up to 86.5% hydrolysis of prodrug in SIF. The inflammation induced by carrageenan that is an acute model The anti-inflammatory activity of prodrug is approx. 78.7% as compared to Flufenamic acid whose activity is 41.5%.The carriers used in research work, sesamol, umbelliferon and thymol, also produced anti-inflammatory activity and antioxidant effects. Therefore, overall, the synthesized products showed synergistic anti-inflammatory activity. The natural phenolic antioxidants for producing the ester prodrugs are sesamol, 4- methyl umbelliferon and thymol and that itself showed various pharmacological activities
The current research work also proved that the prodrug synthetic approach is a very effective method in the drug development and that produced synergistic therapeutic profile and decrease in the unwanted effects.

Keywords: Flufenamic acid, NSAID, cyclooxygenase, prostaglandin, sesamol thymol, umbelliferon, ulcerogenicity.

A Comprehensive Review on Diabetes Mellitus in Different Animal Models

Ashwani Gaud
Teerthankar Mahaveer University (TMU) Delhi Road, NH 24, Bagadpur,
Uttar Pradesh 244001
Ashwanigond007@gmail.com

Abstract

By offering insights into disease processes, identifying possible therapeutic targets, and assessing new therapies prior to clinical use, animal models have been crucial in helping us understand the pathophysiology of a number of illnesses, including diabetes mellitus. Persistent hyperglycemia, glycosuria, hyperlipidemia, ketonemia, and a negative nitrogen balance are hallmarks of diabetes mellitus, a chronic metabolic disease caused by either inadequate insulin secretion (Type 1 diabetes) or insulin resistance (Type 2 diabetes). Early intervention and creative therapy techniques are essential for bettering disease management and lowering healthcare costs because of the intricacy and long-term effects of diabetes.To overcome these obstacles, a number of animal models that closely resemble human diabetes have been created, enabling scientists to study the metabolic, genetic, and molecular features of the condition. Because CD-1 mice show changes in body weight, blood glucose levels, and lipid profiles, they are frequently used to research diabetes connected to obesity. When assessing insulin sensitivity and pancreatic function in these models, the glucose tolerance test and the (HOMA) are crucial instruments. Furthermore, genetically engineered animals offer important insights into genetic predisposition and metabolic disorders. One such model is the Goto-Kakizaki (GK) rat, which develops Type 2 diabetes without obesity. Alloxan-induced and streptozotocin (STZ)-induced diabetic rats are two examples of chemically induced models that are frequently used to imitate Type 1 diabetes by reproducing the loss of beta cells in the pancreas. Notwithstanding their benefits, these models have limitations in accurately simulating human diabetes, therefore cautious selection depending on study goals is required. The merits and limitations of several diabetes models are discussed in this study, along with their significance in the development of new therapeutic molecules for translational applications in human medicine.

Keywords: Animal models, type 1 and type 2 diabetes, STZ, GK

Pharmacovigilance 4.0: The Role of Big Data and AI in Drug Safety Monitoring

Devendra Kumar Mishra
Assistant Professor, RGS College of Pharmacy, Near Itaunja Toll Plaza, Village – Karaundi, Post, Itaunja, Uttar Pradesh 226203
devendra4747@gmail.com

Abstract

By facilitating quicker and more precise adverse drug reaction (ADR) identification, the development of Pharmacovigilance 4.0 through Artificial Intelligence (AI) and Big Data is changing drug safety monitoring. Its efficacy is however constrained by a number of issues, such as disjointed data systems, algorithmic bias, underreporting, and inconsistent regulations. To guarantee data accuracy, dependability, and regulatory compliance, sophisticated analytical techniques are required for the integration of various data sources, including social media, electronic health records (EHRs), and patient-reported outcomes. The absence of real-time ADR detection and signal validation as a result of fragmented data ecosystems is one of the main issues with contemporary pharmacovigilance. This can be lessened by improving causality evaluation, eliminating false alarms, and filtering out unnecessary data using machine learning (ML) and natural language processing (NLP) approaches. Concerns over the efficacy and fairness of automated medication safety systems are also raised by the possibility of bias in AI models, which frequently results from unbalanced training datasets. Transparency and decision-making can be enhanced by fortifying AI models with diverse, representative data and explainable AI (XAI). Global harmonization is crucial from a legislative standpoint in order to provide precise rules for AI-driven pharmacovigilance, guaranteeing the ethical application of AI, the preservation of data privacy, and interoperability among healthcare systems. To provide uniform frameworks for AI validation, cooperation between regulatory agencies, the pharmaceutical sector, and healthcare facilities is essential. Furthermore, blockchain technology has the potential to improve ADR reporting's transparency, security, and data integrity. In order to maximize Pharmacovigilance 4.0 for proactive and equitable drug safety monitoring, this presentation will examine strategic solutions to these issues, with an emphasis on legislative developments, AI model improvement, and industry-wide cooperation.

Keywords: Pharmacovigilance 4.0, AI Ethics, Big Data, Drug Safety, Blockchain

Review on the Versatility of Morus alba: Bridging Traditional Knowledge and Modern medicine

Dr. Swati Singh
R.G.S. College of Pharmacy, Lucknow, Uttar Pradesh, India
swati.29.singh@gmail.com

Abstract

Morus alba (white mulberry) has been widely recognized in traditional medicine for its diverse therapeutic properties and is now gaining attention in modern pharmacology. This deciduous plant, belonging to the Moraceae family, has been extensively used in Asian, African, and European traditional healing systems to treat ailments such as diabetes, hypertension, inflammation, and microbial infections. Phytochemical analyses reveal a rich profile of bioactive compounds, including flavonoids, alkaloids, polyphenols, anthocyanins, and stilbenes, which contribute to its antioxidant, anti-diabetic, anti-inflammatory, neuroprotective, and hepatoprotective effects. Notably, its leaves contain 1-deoxynojirimycin (DNJ), a potent α-glucosidase inhibitor with promising anti-diabetic potential. Clinical and preclinical studies further support its efficacy in modulating glucose metabolism, reducing oxidative stress, and improving cardiovascular health. However, despite its extensive use in traditional medicine, further clinical validation and standardization of bioactive compounds are necessary to optimize its therapeutic applications and ensure safety. Despite its long-standing use in traditional medicine and the growing body of scientific evidence supporting its pharmacological potential, further clinical validation is necessary to fully establish its efficacy, safety, and optimal therapeutic dosage. Standardization of bioactive compounds, along with rigorous pharmacokinetic and toxicological studies, is essential to facilitate its integration into modern therapeutic frameworks. Bridging the gap between traditional knowledge and contemporary scientific research will be crucial in unlocking the full pharmacological potential of Morus alba and developing innovative, plant-based therapeutic solutions for a wide range of diseases.

Keywords: Morus alba, white mulberry, traditional medicine, phytochemicals, antioxidant, anti-diabetic, anti-inflammatory, neuroprotection, hepatoprotection, 1-deoxynojirimycin (DNJ), modern pharmacology.

Microgreens as Nutraceuticals: Exploring Their Therapeutic Potential in Disease Management

Suniti Das
Department of Pharmaceutical Sciences, BBAU, Lucknow
sunitidas941@gmail.com

Abstract

Microgreens, seedlings of young edible vegetables and herbs, have drawn a lot of attention as nutraceuticals because of their concentrated nutritional composition and therapeutic potentials. These little greens possess more nutrients, vitamins, minerals, antioxidants, and bioactive molecules than mature versions. Their phytochemical composition of polyphenols, flavonoids, and glucosinolates makes them good sources of antioxidants, anti-inflammatories, and antimicrobials and renders them beneficial for disease prevention and management. Research indicates that microgreens are the key to decreasing the risk of chronic diseases including cardiovascular disease, diabetes, and cancer. The high content of vitamin C, E, and carotenoids in microgreens protects against oxidative stress, the leading cause of aging and disease. Some microgreens, including broccoli and red cabbage, contain sulforaphane, which is a very active compound used to prevent cancer and detoxify. In addition, their low-calorie content and high fiber content make them good for metabolic health and weight control.
Including microgreens in the diet offers a viable and eco-friendly solution for the promotion of human health. Their simple growth pattern and fast life cycle further provide an endorsement for urban agriculture and food safety. This poster examines the potential of microgreens in therapeutic interventions for disease prevention, highlighting their function as functional foods in contemporary nutrition. The results highlight the necessity for encouraging microgreens as a natural, convenient solution to general well-being and the avoidance of lifestyle-related illnesses.

Keywords: Microgreens, Nutraceuticals, Antioxidants, Chronic Disease, Functional Foods, Phytochemicals.

Review on Bridging Roots and Remedies: The Timeless Harmony of Bowiea volubilis

Bannu singh
RGS College of Pharmacy, Uttar Pradesh, India
sbannu985@gmail.com

Abstract

Bowiea volubilis, commonly known as the climbing onion or sea onion, is a medicinal plant , revered for its broad-spectrum pharmacological benefits. This perennial succulent, belonging to the Asparagaceae family, has been extensively utilized for its anti-inflammatory, analgesic, antimicrobial, and cardioprotective properties. Phytochemical studies reveal a wealth of bioactive compounds, including cardiac glycosides, alkaloids, flavonoids, saponins, and tannins, which contribute to its diverse therapeutic applications. Traditional healers have long employed *Bowiea volubilis* in the treatment of wounds, respiratory ailments, gastrointestinal disorders, and rheumatism, while modern pharmacological studies have further validated its potential in managing hypertension, microbial infections, and oxidative stress-related diseases. However, its high toxicity, primarily attributed to the potent cardiac glycosides, necessitates cautious use and precise dosage determination. Despite its historical and contemporary significance, comprehensive clinical trials and mechanistic studies remain imperative to bridge the gap between traditional wisdom and scientific validation. here is an urgent need for further research to elucidate its precise modes of action, optimize its therapeutic applications, and establish safe, standardized dosages. Bridging the gap between traditional wisdom and modern scientific validation is essential for unlocking the full therapeutic potential of this remarkable plant while ensuring its responsible and sustainable use. This abstract underscore the intricate harmony between nature's remedies and contemporary pharmacology, emphasizing the importance of further investigation into Bowiea volubilis to maximize its medicinal benefits while mitigating its toxic risks.

Keywords: *Bowiea volubilis*, medicinal plants, cardiac glycosides, phytochemicals, traditional medicine, pharmacological properties, antimicrobial, anti-inflammatory, cardioprotective, toxicity, ethnopharmacology.

Natural Compounds as Modulators of SIRT1 for the Management of Diabetes: An *In-Silico* Approach

Ankit Gautam*, Arjun Singh Kaushik, Dr. Vikas Mishra
ankitgautam301@gmail.com
Department of Pharmaceutical Sciences, Babasaheb Bhimrao Ambedkar University, Vidya Vihar, Raebareli Road, Lucknow-226025, (U.P), India

Abstract

Diabetes mellitus, a chronic metabolic disorder characterized by impaired insulin signalling and glucose homeostasis, remains a significant global health challenge. Sirtuin 1 (SIRT1), a NAD^+-dependent deacetylase, has emerged as a promising therapeutic target due to its pivotal role in regulating insulin sensitivity, pancreatic β-cell function, and glucose metabolism. Recent advancements in computational biology have facilitated the discovery of natural compounds as potential modulators of SIRT1, offering novel strategies for diabetes management. This study primarily explores an *in-silico* approach to identify and evaluate the activity of natural compounds with SIRT1-modulating properties. Molecular docking, pharmacokinetic profiling, and binding free energy analysis were performed using Schrödinger software to screen natural compound library for their binding affinity and stability with SIRT1. The Glide docking module was employed for ligand-receptor interaction studies, followed by Prime MM-GBSA analysis to estimate binding free energy. ADMET predictions were conducted to assess the pharmacokinetic properties and drug-likeness of the identified compounds. By integrating these *in-silico* techniques with experimental validation, drug discovery efforts can be accelerated, reducing the cost and time associated with conventional screening methods. The findings from this study highlight the potential of computational approaches in identifying natural SIRT1 activators, providing a way for future preclinical and clinical studies. Nevertheless, further research is required to validate the bioavailability, efficacy, safety, and pharmacological screening of these compound's in *in vivo* animal models. Harnessing the therapeutic potential of natural SIRT1 modulators through *in-silico* approaches may contribute to the development of novel, nature-derived interventions for diabetes management.

Keywords: Natural Compound, SIRT1, In-silico, Docking, ADMET, Diabetes

A Scientific & Systematic Assessment of Local Drug Delivery Systems in Controlling the Progression of Periodontitis

Rishabh Maurya[1]*, Sumit Durgapal[2], Gaurav Tiwari[3]
[1],[2]*TMU- Teerthanker Mahaveer College of Pharmacy, Teerthanker Mahaveer University, Moradabad-244001. India
[3]PSIT- Pranveer Singh Institute of Technology (Pharmacy), Kanpur-209305. India
mirishabh14@gmail.com

Abstract

Periodontitis is a disease caused by microorganisms that leads to both the damage and exfoliation of teeth. A revolution has taken place in the field of periodontal therapy thanks to the application of perioceutics, which involves the utilization of therapeutic substances. Choosing the appropriate antimicrobial agent and the suitable method of administration are two of the most important factors in determining the success of periodontal therapy. There are a variety of local drug delivery systems (LDDS) that can be utilized in the field. These include irrigation systems, fibres, gels, strips, films, microparticles, nanoparticles, and low dose antimicrobial agents. In order to administer antimicrobial drugs to sub-gingival wounded locations with minimal or no adverse effects on other body sites, these low-dose delivery systems (LDDS) are designed. Periodontitis is a condition that affects approximately sixty percent of the world's population, making it a highly prevalent condition. One of the primary goals of the health sciences is to work toward the creation of effective medicines that can provide healing for oral disorders. By limiting drug release, low-dose dental splinting (LDDS) is a promising method that is currently being used as an adjuvant therapy to scaling and root planning (SRP) in the treatment of periodontitis. This strategy offers higher efficacy and few adverse effects. The selection of an appropriate bioactive agent and mode of administration is the most important factor in the effectiveness of periodontitis treatment. Within the scope of this review, the uses of LDDS in the treatment of periodontitis, whether or not systemic illnesses are present, are highlighted, exposing both existing obstacles and potential future research areas.

Keywords: Local drug delivery systems, Periodontitis, Antimicrobial agents, Perioceutics

Mesalamine loaded Hybrid Nanoparticle-in-Microparticle System ameliorate Ulcerative Colitis through Antioxidant Effect

Preety Gautam[1,2]
[1]Faculty of Pharmacy, DIT University, Mussoorie, Diversion Road, Makkawala, Uttarakhand-248009, India
[2]Hygia Institute of Pharmaceutical education and research, Faizullahganj, Prabandh Nagar, Ghaila road, Lucknow-226020, India.
preetypreety411@gmail.com

Abstract

Purpose: The goal of pharmaceutical research is still to create new methods for treating ulcerative colitis (UC) effectively. With the help of hybrid formulations and a dual coating approach that consists of time-dependent nanoparticles loaded in pH-dependent microparticles, this work aimed to create an improved colon-targeting system that would outperform simple nanoparticle-in-microparticle (NP-in-MP), time-dependent NP or MP, and pH-dependent NP or MP.

Method: Eudragit L100 (EL100) and Eudragit S100 (ES100) were in combination as a pH-dependent polymer and ethyl cellulose (EC) as a time-dependent polymer, with mesalamine serving as the model drug. A focused and sustained drug delivery was achieved by optimising, preparing, and characterising the NP-in-MP. For long-term administration, ethyl cellulose was applied to the NP. NP were then trapped in eudragit MP by means of the solvent evaporation technique of double emulsion. In vitro drug release, surface morphology, particle size, entrapment efficiency, and in vivo evaluation were all assessed for NP-in-MP.

Results: The chosen formulation had a particle size of 12.4 ± 3.1 µm and an entrapment efficiency of 85.36 ± 2.6%. According to the in vitro drug release profile, the chosen formulation continuously released the drug in a colonic environment (93.9±3.15%) after releasing less than 10% of it (6.94±1.23%) in an acidic environment. The in-vivo evidence supports the claim that NP-in-MP is superior to NP in the treatment of colitis. Comparing NP-in-MP to other treatment groups, in vivo data showed that it efficiently raised GSH and SOD levels while lowering LPO levels.

Conclusion: The results of this study show that NP-in-MP has been developed effectively to improve NP delivery to the colonic area. In addition to existing therapy carriers, a hybrid NP-in-MP may be a viable option for treating colorectal cancer and inflammatory bowel disease.

Keywords: Nanoparticle-in-microparticle, nanoparticles, Ethyl cellulose, Eudragit L100, Eudragit S100, Colon targeting, Ulcerative colitis, Inflammatory bowel disease, Dual coating approach, Hybrid system, System-within-system

A review on multi-potential medicinal plant *murraya koenigii* (curry leave)

Durgesh Ray[1]*, Preeti Yadav[2]
Sanskriti University, Mathura, Uttar Pradesh, India
RGS College of Pharmacy, Uttar Pradesh, India Corresponding Author
panditdurgesh965@gmail.com

Abstract

Curry leaves (Murraya koenigii), which originate from South Asian nations, are frequently utilized as food and seasoning while being recognized for their antioxidant, anti-inflammatory, and antidiabetic properties. This herb has various medicinal characteristics that set it apart from other sources. Following an extensive review of existing literature, this paper compiles information regarding this herb. Curry leaves (Murraya koenigii) belong to the Rutaceae family, which includes 150 genera and 1600 species They are primarily sourced from South Asia, especially India, Sri Lanka, and Bangladesh (Mustafa and Oktavia). Murraya koenigii Spreng is referred to as "Surabhinimba" in Sanskrit. Different cultures have their own names for curry leaves; in Tamil, they are called Karivempu, in Bengali as "Barsunga," and in Hindi, they are known as Kurrypatte.The history of the curry tree goes back to the 1st and 4th centuries AD. Tamil and Kannada literature describes Murraya koenigii, known as Kari, utilized as a seasoning. It is recognized as a key ingredient in South Asian cuisine due to its aroma and fragrance. Its flavor and other attributes are preserved even after drying, making it a widely used spice and condiment in tropical regions. Herbal plants possess numerous biologically active compounds that are beneficial for enhancing health and treating illnesses. Compounds such as carbohydrates, proteins, enzymes, fats, oils, and terpenoids, Natural products, such as flavonoids, sterols, and simple phenolic compounds, serve as the foundation for both synthetic and traditional herbal medicines and play a significant role in healthcare systems.

Keyword: Curry leaf, biological sources, pharmacology, antioxidant properties, antidiabetic effects, antibacterial activities, phytochemistry.

Pharmacovigilance in paediatrics population

Dhirendra Pratap Singh Vishal, Mrs Surabhi Dwivedi, Dr. Tarkeshwar Prasad Shukla
Scpm College of Pharmacy, Gonda
dhirendraverma7235@gmail.com

Abstract

Pharmacovigilance among children is critical to monitor drug safety and efficacy since children are very different from adults when it comes to drug metabolism, absorption, and response. Most drugs are given off-label due to a lack of pediatric clinical trials, so the risk of adverse drug reactions (ADRs) is heightened. Neonates and infants are especially at risk because their organ function is not mature, and therefore, exact dosing becomes critical. Vaccines, as important in disease prevention as they are, need to be highly monitored for the identification of rare but very serious adverse events. Pediatric pharmacovigilance is hindered by ADR underreporting, the inability to identify drug-related effects in non-verbal children, and insufficient age-specific drug safety information.To deal with these challenges, international regulatory authorities like the FDA, EMA, and WHO have introduced pediatric-focused pharmacovigilance initiatives. Such initiatives as the Global Individual Case Safety Reports (ICSRs) database and national ADR surveillance programs are vital for detection of safety signals. Electronic health records and artificial intelligence are fast becoming useful in the real-time detection of adverse events.Maintenance of medication safety in children needs a multidisciplinary effort, such as better ADR reporting systems, increased clinician awareness, and specialized pediatric pharmacovigilance networks. Long-term safety studies, pharmacogenomics, and methods to reduce medication errors need to be the focus of future research. Pediatric pharmacovigilance will improve drug safety, maximize therapeutic outcomes, and safeguard the health of children globally.

Keywords: Pharmacovigilance, Pediatrics, ADR

Review on molecular docking and biological activities of synthetic carbazole derivatives

Mr. Sandeep Yadav
R.G.S College of Pharmacy, Lucknow, Uttar Pradesh, India
sy9001222@gmail.com

Abstract

Synthetic carbazole derivatives have emerged as a promising class of bioactive molecules with numerous pharmacological characteristics. These compounds have substantial biological activities, including anticancer, antibacterial, antiviral, antioxidant, anti-inflammatory, and neuroprotective properties. Their structural plasticity allows for several changes, which improve drug-likeness and therapeutic potential. Molecular docking, a computer method used in drug discovery, is critical for understanding how carbazole compounds interact with biological targets. Molecular docking helps to rationally design innovative drug candidates by predicting binding affinities, conformational stability, and essential molecular interactions within protein active sites. This approach sheds light on the mechanism of action of carbazole-based medicines, allowing researchers to develop lead compounds with higher efficacy and selectivity. Several studies have shown that carbazole derivatives are effective against a variety of disease-related targets, including kinases, enzymes, and receptors found in cancer, infectious diseases, and neurological disorders. Their capacity to intercalate with DNA, suppress oxidative stress pathways, and control inflammatory responses makes them interesting therapeutic targets. Furthermore, molecular docking, along with in vitro and in vivo research, has aided in the optimization of carbazole-based medication formulations for improved pharmacokinetic and pharmacodynamic profiles. This review looks at current advances in carbazole derivative synthesis, molecular docking investigations, and their various biological properties. By combining computational and experimental methodologies, researchers can hasten the identification of powerful carbazole-based therapies, helping to the development of new medications for a variety of disorders.

Keywords: Carbazole derivatives, molecular docking, drug discovery, anticancer, antimicrobial, anti-inflammatory, antioxidant, neuroprotective, pharmacological activities, computational drug design, therapeutic potential.

The Healing Power of Aloe Vera: Benefits and Risks for Skin Care

Anupam Kumar Pal, Akash Tiwari, Vishal Vishwakarma
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India (225003)
anupampal5200@gmail.com

Abstract

Aloe Vera, known for its long-standing use in traditional and modern skincare, is highly valued for its ability to soothe, hydrate, and heal the skin. The plant's gel is rich in essential nutrients such as vitamins, minerals, amino acids, and antioxidants, making it an effective remedy for a wide range of skin conditions, including sunburns, acne, dryness, and eczema. Aloe vera's anti-inflammatory, antimicrobial, and skin-regenerating properties contribute to its popularity in topical skincare treatments. However, despite its benefits, aloe vera also presents potential risks. For some individuals, it can cause allergic reactions, skin irritation, or exacerbate conditions like eczema. Additionally, aloe vera latex, when ingested in large quantities, can lead to digestive issues and liver toxicity. This abstract explores the dual nature of aloe vera in skincare its remarkable healing properties alongside the potential adverse effects—highlighting the importance of cautious and informed use for safe and effective results. The plant's gel contains a rich composition of vitamins, minerals, amino acids, and antioxidants that support skin regeneration, reduce redness, and promote hydration. However, despite its numerous benefits, aloe vera also presents potential risks. Some individuals may experience allergic reactions, such as skin irritation, redness, or itching, especially when using the gel in excessive amounts. Aloe vera latex, derived from the inner skin of the plant, can also cause digestive issues and toxicity when consumed improperly.

Keywords: Aloe vera, Anti-inflammatory, Antioxidants, Eczema.

Impact of pharmaceutical policies on drug accessibility and affordability particularly in low-income countries

Anupam Kumar Pal, Aditya Srivastava, Akash Tiwari
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India (225003)
anupampal5200@gmail.com

Abstract

Pharmaceutical policies greatly impact the availability and affordability of essential medicines in low-income countries. These regulations determine the pricing, production, and distribution of drugs, which are vital for public health. Countries have committed to improving access to medicines through universal health coverage, the Sustainable Development Goals (SDGs), and the Global Action Plan for the Prevention and Control of non-communicable diseases (NCDs) due to the growing NCD burden. However, access to medicines, including their availability and affordability, is a major public health challenge worldwide. Effective pharmaceutical policies can address these challenges by promoting the use of lower-cost generic drugs and controlling drug prices to enhance affordability. Additionally, supporting local drug manufacturing is essential to maintain a reliable supply of crucial medicines. For example, when India enacted the Patent Act of 1970, it paved the way for the production of generic versions of patented medications, resulting in a considerable drop in drug prices. Subsidy program by Kenya government for antiretroviral medications has made these vital drugs more available to people suffering from HIV/AIDS. In Thailand, the launch of the Universal Coverage Scheme has made essential medicines more accessible by offering health insurance to all residents. Likewise, Brazil has implemented price control measures for essential medicines, keeping drug prices affordable and enabling a greater number of individuals to obtain the treatments they require. By encouraging the use of cheaper generic drugs, controlling drug prices, and supporting local production, these policies can greatly improve access to essential treatments. Also, new ways to finance and international partnerships are key to keeping medicines affordable over the long term.

Keywords: Generic drugs, SDGs, Affordability, Local production.

Effectiveness of nanoemulsions in controlling mosquito larvae in urban drainage system

Anupam Kumar Pal*, Akash Tiwari
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki, UP, India (225003)
anupampal5200@gmail.com

Abstract

Mosquito-borne illnesses like dengue, malaria, and chikungunya represent major public health issues, particularly in city environments where stagnant water in drainage systems creates optimal breeding sites for mosquito larvae. Traditional larvicidal approaches often have limitations due to environmental concerns and the emergence of resistance. Nanoemulsion larvicides offer a promising alternative, providing improved bioavailability, stability, and eco-friendliness. This research investigates the effectiveness of nanoemulsion formulations in managing mosquito larvae within urban drainage systems. Made from essential oils and safe surfactants for the environment, nanoemulsions show better penetration and prolonged larvicidal effects compared to standard pesticides. Experimental findings reveal a high mortality rate among Aedes and Culex larvae, underscoring the potential of nanoemulsions in integrated vector management strategies. The study also assesses the cost-effectiveness and environmental safety of nanoemulsions, evaluating their feasibility for large-scale mosquito control in urban environments. Research indicates that larvicides utilizing nanoemulsions yield higher mortality rates than conventional larvicides, even in heavily contaminated water. Furthermore, they demonstrate greater stability and reduced toxicity to non-target organisms, making them a more environmentally sustainable choice. This study emphasizes the potential of nanoemulsions in integrated vector management programs, particularly in urban areas where traditional methods face challenges. Future research should focus on optimizing formulation parameters and conducting field trials to verify their effectiveness on a broader scale.

Keywords: Nanoemusions, Biopesticide, Mosquito Larvae, Vector Management.

Artificial Intelligence in Osteoarthritis Diagnosis and Treatment: Advancements, Challenges, and Future Prospects

Mr. Raghvendr Kumar Yadav*, Dr. Amit Kumar, Mr. Pramod Chauhan
Institute of Pharmaceutical Science, Shri Ramswaroop Memorial University, Barabanki Deva Road Lucknow
Institute of Pharmacy, Shri Ramswaroop Memorial University, Barabanki Deva Road Lucknow

Abstract

Osteoarthritis (OA) is a prevalent degenerative joint disorder characterized by cartilage degradation, chronic pain, and reduced mobility. Early diagnosis and effective management are essential to slowing disease progression and improving patients' quality of life. Artificial intelligence (AI) has emerged as a transformative tool in the diagnosis and treatment of OA, utilizing machine learning (ML) algorithms, deep learning models, and medical imaging analysis to enhance precision and efficiency. AI-powered techniques facilitate the early detection of OA through automated assessment of radiographic and MRI images, allowing for more accurate classification of disease severity.In addition to diagnosis, AI aids in treatment planning by predicting patient-specific responses to interventions such as physical therapy, pharmacological treatments, and surgical procedures. Predictive models analyze large datasets, incorporating genetic, biomechanical, and clinical factors to personalize treatment strategies. AI-driven rehabilitation programs enable continuous monitoring and adaptive therapy recommendations, including wearable sensor technology and real-time motion tracking. Moreover, AI applications in drug discovery accelerate the identification of novel therapeutic compounds by analyzing molecular interactions and potential targets. Despite its promising benefits, challenges such as data bias, ethical considerations, and integration into clinical practice remain. Continued advancements in AI algorithms and interdisciplinary collaboration will be crucial in optimizing OA management. Future research should focus on refining AI models for broader clinical applications, ensuring equitable healthcare access, and improving patient outcomes. AI-driven innovations hold immense potential in revolutionizing osteoarthritis care by enabling early diagnosis, personalized treatments, and improved disease monitoring.

Keywords: Osteoarthritis, AI-driven rehabilitation, machine learning, and surgical procedures

Elevation of Nanotechnology in agronomics

Shraddha Pandey
Institute of Pharmacy, Shri Ramswaroop Memorial University, Lucknow -Barabanki Dewa Road, U.P, India (225003)
shraddhapandey.pharmacy@srmu.ac.in

Abstract

The assimilation of nanotechnology in agriculture recommends an evolutionary access to reforming crop yields, resource proficiency and ecological renewability. A novel tool for enhancing crop output, nanotechnology has the capacity to address currently agricultural concerns. The fabricating nanomaterials have a variety of properties, embracing an extensive surface area, target action at active sites, and advanced release action. This review focuses the usage of functional nanomaterials, such as nano-formulated agrochemicals, nonsensors, and extended-release fertilizers, which meliorate the competence of fertilizers and pesticides while diminishing environmental impacts. By utilizing the exceptional attributes of nanomaterials, agricultural practices can accomplish ameliorate nutrient absorption, diminished chemical runoff, and enhanced water conservation. Novelties like nano-priming can augment seed germination and drought resilience, while nanosensors expediate specific observing of soil and crop health. Despite the assuring commercial potential, substantial challenges persist concerning the safety, ecological impact, and regulatory frameworks for nanomaterial usage. As a result, nanotechnology is employed in various industries, for instance precision farming, food processing, and agriculture. The proficiency of plants can be amplified by using nanofertilizer, nanosensors, nanoherbicides, nanopesticide etc. This review accentuates the necessity for comprehensive welfare evaluations and standardized risk valuation protocols to certify the accountable implantation of nanotechnology in agriculture.

Keywords: Nanotechnology in agriculture, Functional nanomaterial, Nano-formulated agrochemicals, Precision agriculture. Nano-priming, Crop yield enhancement.

Physiochemical examination and in vitro anticancer activity of Annona squamosa

Pragti Singh
Maharishi School of Pharmaceutical Sciences (MUIT), Lucknow, Uttar Pradesh.
pragtithakur25@gmail.com

Abstract

Annona squamosa, popularly known as sugar apple, is a tropical tree native to the Americas. A. squamosa is an evergreen plant mostly found in tropical and subtropical areas. Traditionally in several countries, its leaves, seeds, and bark have treated many diseases. In consideration of the fact that Annona squamosa has been observed to possess some anticancer potential, supported by its taxonomical profile, and an ample range of physiochemical parameters along with in vitro anticancer property research going towards drug development as a critical part of cancer therapy research. The purpose of this study was to evaluate the botanical characteristics, physiochemical profiles, and in vitro anticancer activity of Annona squamosa. The botanical parameters were studied by standard methods-morphological and anatomical. The organoleptic characteristics like the ash value, moisture content, and extractive values were determined according to the occurring standardized pharmacopoeial protocols. The in vitro anticancer activity was determined against the human breast cancer cell line MCF-7 using an MTT assay. Annona squamosa showed promising results as antibreast cancer. The IC50 for Annona squamosa was 25.6 µg/mL. The physiochemical analysis indicated that the ash value, extractive value, and moisture content of the plant material fell within the standard limits. Further, the botanical parameter studies confirmed the identity of the material tested. The phytochemistry of this study brought out the presence of annonaceous acetogenins, flavonoids, and phenolic acids, which are thought to give the anticancer activity. This study gives evidence for the first time that Annona squamosa carries anticancer properties. Further effort is necessary to isolate and elucidate the active phytochemicals possessing the anticancer potential.

Keywords: Annona squamosa, botanical parameters, physico-chemical examination, in vitro anticancer activity, MCF-7 cell line.

Formulation and Evaluation of Poly Herbal Transdermal Patch for Anti Inflammatory and Analgesic effect

Neeraj Kumar Verma*, Manju Pandey
Institute of Pharmacy, Shri Ramswaroop Memorial University, Lucknow -225003. India
neerajverma563@gmail.com

Abstract

TDDS (transdermal drug delivery system) improve beneficial value and drug safety by further site definite the way and temporal position in the body's vital to reduce the number and size of doses necessary to achieve. A Transdermal Patch is an adhesive patch that has a coating of medicine (drug) that is placed on the skin to deliver specific dose of the medicine (drug) into the bloodstream over a period of time. Some herbal agents through transdermal route. The main principle of developing unconventional drug delivery technologies is to offer more convenience for patients and increase the effectiveness and protection of drug. The aim of the present review, formulation of ploy herbal (*Solanum nigrum* and *Curcuma longa*) transdermal patches incorporating herbal drug components. *Solanum nigrum* Linn. (Solanaceae) is commonly known as 'Black nightshade', has been extensively used in traditional medicine in India and other parts of world to cure liver disorders, chronic skin ailments (psoriasis and ringworm), inflammatory conditions, painful periods, fevers, diarrhoea, eye diseases, hydrophobia etc. The plant *Curcuma longa* linn (Zingiberaceae) commonly called as Indian saffron. The whole plant of turmeric mainly rhizomes, roots and leaves are used for medicinal purposes.

Keywords: Curcuma longa, Solanum nigrum, analgesic activity, anti- inflammatory, aqueous extract

Structural and Functional Alterations of Apolipoprotein A-I Variants in Diabetes and Their Therapeutic Implications

Pramod Chauhan[*1], Raghvendra Kumar Yadav[2], Shubham Goutam [3]
[1,3]IOP, Shri Ramswaroop memorial university, Deva Road Barabanki, UP, Lucknow, 225003.
[2]IOPS, Shri Ramswaroop memorial university, Deva road Barabanki, UP, Lucknow, 225003.
bhanupratapchauhan1478@gmail.com

Abstract

Apolipoprotein A-I (ApoA-I), the primary protein component of high-density lipoprotein (HDL), plays a crucial role in lipid metabolism and cardiovascular protection. In diabetes, both natural and chemically modified variants of ApoA-I exhibit structural and functional alterations that influence disease progression. Genetic mutations in ApoA-I can lead to changes in its stability, lipid-binding properties, and cholesterol efflux capacity, impacting metabolic health. Additionally, chemical modifications such as oxidation and glycation, common in diabetic conditions, compromise ApoA-I's protective functions. Glycation reduces its ability to promote cholesterol removal from cells, increasing the risk of atherosclerosis, while oxidation enhances pro-inflammatory responses, contributing to vascular complications. These modifications also impair HDL functionality, exacerbating insulin resistance and systemic inflammation. Despite these challenges, engineered ApoA-I mimetic peptides and therapeutic interventions targeting its structural integrity offer potential benefits in managing diabetes-related complications. Understanding the structural and functional dynamics of ApoA-I variants in diabetes provides valuable insights for developing novel therapeutic strategies aimed at improving metabolic and cardiovascular outcomes in diabetic patients. Advancing research on Apolipoprotein A-I (ApoA-I) and its variants presents promising opportunities for improving diabetes management and associated complications. Future studies should focus on developing targeted therapies to restore the structural and functional integrity of ApoA-I, particularly in diabetic conditions where oxidation and glycation impair its protective role. Gene-editing technologies and protein engineering may offer innovative solutions to correct genetic mutations that affect ApoA-I stability and cholesterol efflux efficiency. Additionally, the design of ApoA-I mimetic peptides with enhanced anti-inflammatory and lipid-regulating properties holds potential for therapeutic applications.

Keywords: Apolipoprotein A-I, high-density lipoprotein, ApoA-I mimetic peptides, and diabetes mellitus

Pharmacological evaluation of *Betula utilis*: A review of its traditional uses and modern applications

Pragti Singh
Maharishi School of Pharmaceutical Sciences (MUIT), Lucknow, Uttar Pradesh.
pragtithakur25@gmail.com

Abstract

Betula utilis, also known as Himalayan Birch (Betula utilis), it is used in traditional medicine for centuries. Many biochemical compositions found in various parts of the tree are used for various pharmacological activities. This review aims to present data regarding the pharmaceutical research of Betula utilis, including traditional indication and contemporary application. Here in, we review the potential therapeutic benefits of the plant, including its anti-inflammatory, antimicrobial, and anticancer activities. Additionally, the review emphasizes the importance of additional studies to fully elucidate the therapeutic potential of Betula utilis and to assess the safety and efficacy of this species. The reviews of pharmacological evaluation, traditional usage, phytochemical components, and modern applications of Betula utilis representation. Commercial studies show that the extracts of the species under consideration are anti-inflammatory, antibacterial, antioxidative, and anticancer. This mixture offers a viable alternate route toward the formulation of drugs and medicines. The effectiveness of Betula utilis is discussed along with its prevention and treatment against conditions such as skin cancer, wound healing, and neurodegenerative diseases. Betula utilis is a good medicinal plant having a long back history of traditional use and great promise in modern applications. Hence, additional research is needed to explore fully the pharmacological potential of Betula utilis along with the development of newer therapeutic agents using the extracts.

Keywords: Betula utilis, Himalayan Birch, pharmacological evaluation, traditional medicine and modern applications, phytochemical constituents, anti-inflammatory, antimicrobial, antioxidant, anticancer.

Review on Mechanism of action of Penicillin (β-lactam antibiotics)

Amit Kumar Gupta , Shubham Goutam *
Institute of Pharmacy, Shri Ramswaroop Memorial University deva road, Barabanki 225003
gautamshubham123123@gmail.com

Abstract

Penicillin has several clinical indications and is one of the most widely used broad-spectrum antibiotics in the world. Penicillin, a key component in the management and treatment of many illnesses within the κ-lactam antibiotic class of medications, is effective against infections brought on by gram-positive cocci, gram-positive rods, the majority of anaerobes, and gram-negative cocci. The majority of bacteria have a peptidoglycan cell wall that surrounds the bacterial plasma membrane, providing structural stability and preventing osmotic lysis. As it replicates and grows, this peptidoglycan wall is continuously remodeled. Penicillin works by preventing peptidoglycan in the cell wall from cross-linking. Penicillin was firstly introduced by Alexander Fleming in 1928, by the isolated of Penicillium notatum (now days are called Penicillium rubens) in the cannabis top of the flowering in the plant, a contaminated by the bacterial culture in the laboratory. It works by inhibiting bacterial cell wall synthesis, making it particularly effective against Gram positive bacteria (like entrococcus, Streptococcus pyogenes). Penicillins is a group of beta-lactam antibiotics that inhibit bacterial cell wall synthesis. They are effective against a wide range of bacterial infections .Penicillin revolutionized the treatment of infections such as Pneumonia, Syphilis, and strep throat, Fever. Penicillins are a group of beta-lactam antibiotics that inhibit bacterial cell wall synthesis. It acts by Inhibition of Pepittidoglycan Cross- Linking. Penicillin binds to these PBPs, preventing them from cross-linking peptidoglycan chains in the bacterial cell wall (eg. amoxicillin, methicilline , ampicilline and vancomycin).

Keywords: Peptidoglycan, beta-lactam antibiotics, amoxicillin, methicilline, ampicilline and vancomycin

3D-Printed Medicines: The Future of Personalized Therapy

Vivek Soni*, Dr. Sunil Kumar Jaiswal
Ankerite college of Pharmacy, Lucknow
vsoni5628@gmail.com

Abstract

Pharmaceuticals are changing as a result of 3D printing technology, which makes it possible to produce bespoke medications with exact dosages, intricate drug release patterns, and unique compositions. In contrast to conventional drug manufacture, which employs a standard procedure, 3D printing enables the development of drugs tailored to individual patients, increasing treatment effectiveness and lowering adverse effects. This invention is very helpful for elderly, paediatric, and individuals with special medical needs that call for specialized treatments. Several 3D printing methods have been investigated for use in pharmaceutical applications, including selective laser sintering (SLS), stereolithography (SLA), and fused deposition modelling (FDM). Levetiracetam's FDA-approved 3D-printed tablet, Sprit am, showed how this technology may provide formulations that dissolve quickly, improving patient compliance. 3D printing in medicine offers several important benefits, including controlled drug release, taste masking, and multi-drug layering. To achieve widespread use, however, issues including quality control, cost-effectiveness, large-scale production, and regulatory approval must be resolved. Further propelling innovation in this area are studies in bioprinting, decentralized medication production, and formulation design powered by artificial intelligence. Future 3D-printed medications will be in line with the expanding need for pharmacogenomics and precision medicine, guaranteeing efficient and individualized treatment plans. With further development, on-demand drug manufacturing in pharmacies and hospitals has the potential to completely transform healthcare by improving patient-cantered, cost-effective, and accessibility of treatments.

Keywords: 3D-printed medicines, personalized therapy, precision drug delivery, pharmaceutical innovation and pharmacogenomics.

Drug-Drug Interactions and Their Clinical Implications

Krishna Yadav, Aditya Tripathi*, Mamta Yadav, Mr. Awinish Shrivastaw
Rameshwaram Institute of Technology and Management, Sitapur Rd, opposite AKTU campus, Govind Puram, Mubarakpur, Lucknow, Uttar Pradesh 227202, India
at298349@gmail.com

Abstract

Drug-drug interactions (DDIs) can pose a serious risk to patient safety and treatment effectiveness, especially in polypharmacy settings. Understanding the mechanisms behind DDIs such as enzyme inhibition, receptor binding, and metabolic pathways is crucial to predicting and preventing adverse effects. Healthcare professionals, including clinical pharmacologists, must remain cautious when prescribing medications, particularly for elderly patients or those with multiple medical conditions. Ongoing research is focused on identifying high-risk DDIs, enhancing drug interaction databases, and developing new therapeutic strategies to prevent complications arising from these interactions.

Keywords: Drug-drug interactions, patient safety, polypharmacy, enzyme inhibition, clinical pharmacology.

Targeted Drug Delivery Systems for Cancer Treatment

Shraddha Mishra*, Shweta Singh, Mubassra Siddiqui, Mr. Awinish Shrivastaw
Rameshwaram Institute of Technology and Management, Sitapur Rd, opposite AKTU campus, Govind Puram, Mubarakpur, Lucknow, Uttar Pradesh 227202, India
shraddhamishra0909@gmail.com

Abstract

Cancer is still one of the most challenging diseases to treat, with conventional chemotherapy often leading to severe side effects. Targeted drug delivery systems can direct therapeutic agents to tumor sites, targeting cells that express specific receptors, and thus reducing harm to healthy tissues. Advances in nanotechnology, biocompatible materials, and ligand-receptor interactions have paved the way for new delivery methods, such as antibody-drug conjugates and nanomedicines. These targeted therapies not only improve treatment effectiveness but also reduce toxicity, resulting in better patient outcomes and enhanced quality of life. Ongoing efforts are focused on overcoming delivery challenges and improving specificity.

Keywords: Targeted drug delivery, cancer treatment, chemotherapy, nanomedicine, antibody-drug conjugates.

The Role of Herbal Medicine in Modern Pharmacotherapy

Tanu Tiwari*, Mr. Awinish Shrivastaw, Mr. Anuj Kumar Singh
Rameshwaram Institute of Technology and Management, Sitapur Rd, opposite AKTU campus, Govind Puram, Mubarakpur, Lucknow, Uttar Pradesh 227202, India
tanutiwari948@gmail.com

Abstract

Herbal medicine has been used for centuries to treat a rich array of ailments, and modern pharmaceutical science has increasingly recognized its therapeutic potential. Many plant-derived substances have been studied for their potential to control chronic diseases like diabetes, hypertension, and inflammation. Quality control, standardization, and clinical trials are needed to ensure the safety and efficacy of herbal products. The role of herbal medicine in modern pharmacotherapy demands collaboration between traditional knowledge and scientific research to ensure evidence-based use and prevent risks of side effects or drug interactions.

Keywords: Herbal medicine, pharmacotherapy, plant-based compounds, clinical trials, safety.

Safety data generation

Mukesh maurya, ms.pragti singh Ms.apurwa singh
Institute of Pharmacy, Shri Ramswaroop Memorial University (SRMU)
mukeshmaurya51978@gmail.com

Abstract

Clinical studies that follow good guidelines for clinical practice, which were included by ICH in May 1996, must confirm the safety and efficiency of the medicine. For example, a chemical, drug product or medical equipment. This includes information on poisoning, side effects and other possible safety problems. Construction of security data guarantees continuous safety and efficiency of goods ranging from pre-granic research to monitoring after marketing. Many features are used. This includes spontaneous case reports, epidemiology research and clinical and non-thin examination. The process of creating security data usually consists of several stages. Neddanic-noddic, research in clinical surroundings, surveillance after sale. Preclinical research is tested on humans before a potential drug or treatment, pre-nervous research is done in laboratories using tissues, cells or animal models to evaluate its safety and efficiency. This probe provides important information on possible toxicity of the connection, Haramcochinetics and biological results. They are required to determine whether a drug has the ability to enter clinical trials.Clinical research clinic studies, sometimes referred to as clinical studies, have been examined to assess the effectiveness and safety of new medicines, medical procedures or technological advances in humans. They are necessary to expand our understanding of the drug and increase the care of the patient. The most important information on clinical studies is as follows, goals. Clinical research aims to collect information. Clinical studies, sometimes referred to as clinical trials, as investigations carried out to assess the efficacy and safety of novel medications, medical procedures, or technological advancements in people. They are essential for expanding our understanding of medicine and enhancing patient care. Key information regarding clinical studies is as follows, Goal. The purpose of clinical research is to collect information about the side effects, effectiveness, and safety of novel medical treatments. Phases: Usually, clinical trials are carried out in stages: Phase 1: Preliminary testing to assess dose and safety in a small sample of healthy participants. Phase 2: Experiments on a bigger patient population to gauge effectiveness and safety. Phase 3: Extensive patient testing to verify effectiveness, track adverse effects, and contrast with conventional therapies. Phase 4: After the treatment is authorized and made publicly accessible, post marketing surveillance begins.

Keywords: Clinical practice, treatments, medicine, patient care.

Artificial Intelligence in Nephropathy Management: Transforming Diagnosis

Mohd. Khalid Raza, Sarita Maurya, Soni Chauhan, Iffat Fatma Siddiqui
Hygia Institute of Pharmaceutical Education and Research, Lucknow, U.P. (Pin code:226020)
khalidroxxsmartly@gmail.com

Abstract

Artificial Intelligence (AI) revolutionizes nephropathy management by enhancing diagnostic precision, optimizing treatment strategies, and improving patient care. AI-driven technologies, such as machine learning and deep learning algorithms, enable healthcare professionals to analyze complex datasets, detect patterns, and predict disease progression with greater accuracy. These tools facilitate early diagnosis, allowing timely intervention and personalized treatment plans that improve patient outcomes.By leveraging AI, clinicians can process vast amounts of medical data, including lab results, imaging scans, and patient histories, to identify nephropathy at its earliest stages. Predictive analytics powered by AI assist in assessing risk factors, monitoring disease progression, and recommending targeted therapies. This reduces human error, enhances decision-making, and streamlines workflow efficiency in clinical settings.Furthermore, AI-driven models are continuously evolving through real-time data integration and adaptive learning, ensuring their accuracy improves over time. The incorporation of AI in nephrology fosters a shift towards precision medicine, where treatment is tailored to individual patient needs. Additionally, AI-powered telemedicine platforms support remote monitoring, enabling proactive disease management and reducing hospital admissions.Despite its vast potential, the integration of AI in nephropathy diagnosis presents challenges, including data privacy concerns, algorithm biases, and the need for interdisciplinary collaboration between medical professionals and data scientists. However, ongoing advancements continue to refine AI applications, making them indispensable in nephrology.

Keywords: Nephropathy, algorithm biases, telemedicine and human error

Hyperlipidaemia: A Review of the Innovative Approaches for the Management of Lipid

Deepak Singh Chaudhary
Faculty of Pharmacy, IFTM University, Moradabad
deepakchaudhary271@gmail.com

Abstract

Hyperlipidemia is a major risk factor for cardiovascular diseases, contributing to a significant global health burden. This review explores innovative approaches for the management of lipid disorders, highlighting advancements beyond traditional statin therapy. While statins remain the cornerstone of lipid-lowering treatment, recent research has focused on novel pharmacological agents, lifestyle interventions, and emerging biotechnological therapies. New drug classes such as PCSK9 inhibitors, bempedoic acid, and ANGPTL3 inhibitors have shown promising results in lowering low-density lipoprotein cholesterol (LDL-C) and reducing cardiovascular risk. Additionally, nutraceuticals, including omega-3 fatty acids, plant sterols, and polyphenols, have gained attention as complementary therapies. Dietary modifications, exercise regimens, and personalized medicine approaches have further enhanced the effectiveness of hyperlipidemia management. Gene-editing techniques, such as CRISPR-Cas9, are emerging as potential long-term solutions by targeting lipid metabolism at the genetic level. Furthermore, RNA-based therapies, including small interfering RNA (siRNA) drugs, have demonstrated significant lipid-lowering effects. The role of gut microbiota in lipid metabolism is also being extensively studied, offering potential probiotic and prebiotic-based interventions. This review provides a comprehensive analysis of these innovative strategies, discussing their efficacy, safety, and future potential in clinical practice. As research advances, a shift toward precision medicine and targeted therapies is expected to revolutionize hyperlipidemia treatment, improving patient outcomes while minimizing side effects. Integrating these novel approaches with conventional therapies may offer a more holistic and personalized strategy for lipid management.

Keywords: Hyperlipidemia, lipid management, cardiovascular disease, statins, PCSK9 inhibitors, personalized medicine, precision medicine.

Adverse event following immunization

Harshvardhan Gupta, Harshita Rana, Pooja Nigam, Pragti Singh
Shri Ramswaroop Memorial University, Lucknow, Deva Road
harshitar107@gmail.com

Abstract

The different reasons that contribute to vaccine failures can be broadly categorized into two sets. The first set has to do with concerns of the vaccine itself relative to immunization modalities and schedules, the level of vaccine attenuation and vaccine administration. The second set is the issue associated with the host, covering elements like host's genetic make up, age, health, degree of immune protection, or nutritional status and all susceptibility factors that could result to primary or secondary vaccine failures. Primary vaccine failure means failure to respond to the first vaccine dose while loss of protection termed as secondary failure occurs after the vaccine has been used successfully. Our interest is focused on the immunological factors that lead to primary vaccine failures across populations at risk, where primary mechanisms are not well defined. This is where we review the present state of knowledge and rsults of our work. Around 2–10% of the general population are unable to mount a satisfactory antibody response following standard vaccinations. Comparison of immune responses of non-responders and exceptionally high responders to different vaccines reveal that hypo-responsiveness is dependent on the particular vaccine or antigen at the humoral level but not at the level of cellular immunity. Evidence suggests that T-regulatory and B-regulatory cells and IL-10 production are associated with non-responsiveness or hyponormal responses.

Keywords: Genetic, attenuation, vaccine, population, hypo responsiveness.

The Multifaceted Role of RNA in Gene Expression and Cellular Function: Implications for Health, Disease Mechanisms, and Therapeutic Potential

Mohd Abid*, Dabeer Ahamd
Jahangirabad Institute of Technology, Faculty of Pharmacy, Jahangirabad, Barabanki, UP
abidlabbaik@gmail.com

Abstract

Ribonucleic acid (RNA) is a fundamental biomolecule that orchestrates a vast array of cellular processes, particularly gene expression, regulation, and signal transduction. Beyond its well-established role as a messenger between DNA and protein synthesis, RNA exists in multiple forms, each contributing uniquely to cellular function and homeostasis. This presentation will provide an in-depth exploration of the diverse RNA species, including messenger RNA (mRNA), transfer RNA (tRNA), ribosomal RNA (rRNA), small nuclear RNA (snRNA), microRNA (miRNA), long non-coding RNA (lncRNA), small interfering RNA (siRNA), circular RNA (circRNA), and piwi-interacting RNA (piRNA). Each RNA type plays a specialized role—mRNA serves as the template for protein synthesis, tRNA and rRNA are critical components of the translational machinery, and snRNA facilitates pre-mRNA splicing. The intricate interplay of these RNA molecules establishes a finely tuned regulatory network essential for maintaining cellular equilibrium.

Dysregulation of RNA-mediated pathways has been implicated in a wide spectrum of diseases, including cancer, neurodegenerative disorders, and cardiovascular conditions. Particularly, miRNAs have emerged as key modulators of gene expression, making them promising candidates for diagnostic biomarkers and targeted therapies. Understanding the functional complexity of RNA expands our knowledge of gene regulation mechanisms and opens novel therapeutic avenues for disease intervention. This study will delve into the dynamic roles of various RNA molecules, their contributions to cellular integrity, and their potential implications in medical research and therapeutics. By shedding light on the ever-evolving landscape of RNA biology, this study underscores its significance in both fundamental biological processes and translational medicine.

Keywords: miRNAs, siRNAs, lncRNAs, Gene expression, Gene regulation and translational medicine

PVA-Based Hydrogel Loaded Nanoparticles Formulations: A Comprehensive Review

Aman Kumar Singh, Hakim Singh Rajput*, Dr. Amresh Gupta
Institute of Pharmaceutical Sciences & Research, Unnao
happysinghkarmi2@gmail.com

Abstract

Hydrogels are versatile three-dimensional polymer networks that can absorb and retain large amounts of water, making them ideal for various biomedical applications such as drug delivery, wound healing, and tissue engineering. The three-dimensional structure increases the molecular weight and provides better stability & mechanical properties, Hydrogel properties can be turned by adjusting polymerization, crosslinking. Hydrogel can retain a large amount of water in a swollen state within its network from capillary forces and surface tension. Hydrogel synthesized from hydrophilic polymers have the capacity to absorb water ranging from 10-20% and may1000 times of their dry weight. Water absorption by hydrogel depends on the state of water and the crosslinking network's density in the hydrogel. The substantial water content in hydrogel makes them suitable for formulation of topical dosage form having moistening and elasticity effect on skin. The cross linkers are the material that interconnect molecules and improve the properties of Hydrogel. Among different polymers, Polyvinyl Alcohol (PVA) has gained significant attention in hydrogel formulations due to its biocompatibility, water solubility, and mechanical strength. The integration of silver nanoparticles (AgNPs) into hydrogels further enhances their antimicrobial properties, making them suitable for medical applications. Piper Betel, a traditional medicinal plant known for its antimicrobial and antioxidant properties, has been utilized for the green synthesis of silver nanoparticles, offering a sustainable alternative to chemical synthesis methods. Hydrogels are used in drug delivery into the body through various routes including oral, ocular, vaginal, subcutaneous, rectal, transdermal etc. Hydrogels are suitable for drug delivery due to biocompatible and biodegradable nature. This review discusses the formulation and evaluation of PVA-based hydrogels loaded with silver nanoparticles derived from Piper Betel, focusing on their method of preparation, classification, characterization, evaluation, potential biomedical and pharmaceutical applications.

Keywords: Hydrogel, Nanoparticles, polymer networks

Pharmacological Studies on Anti-Depressant Effects of Herbal Compounds

Rahul Prasad Bind*, Sushma Singh, Zahid Husain
Shri Ramswaroop Memorial University, Lucknow, Deva Road
Maiprasadrahul780@gmail.com

Abstract

Depression is a prevalent mental health disorder that significantly impacts an individual's quality of life. Conventional antidepressants, such as selective serotonin reuptake inhibitors (SSRIs) and tricyclic antidepressants, are often associated with adverse effects and limited efficacy in certain populations. In recent years, herbal compounds have gained attention as potential alternatives due to their natural origin, fewer side effects, and multi-target mechanisms. Various medicinal plants, including *Hypericum perforatum* (St. John's Wort), *Withania somnifera* (Ashwagandha), *Bacopa monnieri* (Brahmi), *Curcuma longa* (Curcumin), and *Rhodiola rosea*, have demonstrated significant antidepressant activity through modulation of neurotransmitters such as serotonin, dopamine, and norepinephrine. Preclinical and clinical studies suggest that phytochemicals such as hyperforin, withanolides, bacosides, and curcuminoids exert antidepressant effects via neuroprotection, anti-inflammatory properties, hypothalamic-pituitary-adrenal (HPA) axis regulation, and enhancement of brain-derived neurotrophic factor (BDNF) levels. The synergistic effects of these compounds contribute to neurogenesis and stress adaptation, making them promising therapeutic agents. However, standardization, bioavailability, and clinical validation remain key challenges in integrating herbal antidepressants into mainstream medicine. Future research should focus on pharmacokinetics, molecular mechanisms, and large-scale clinical trials to establish their efficacy and safety profiles. The pharmacological potential of herbal antidepressants and their role in developing complementary and alternative treatments for depression.

Keywords: Herbal antidepressants, Phytochemicals, Neurotransmitters, Depression, BDNF, HPA axis, Herbal medicine, Pharmacology.

Correlation of clinical laboratory parameters and demography with pharmacokinetics of Tacrolimus-a narrow therapeutic index (NTI) drug

Sajad Khaliq Dar*[1,2], Arshad H. Khuroo[1], Mohd. Akhtar[2], Sudershan Kumar[1]
[1]Sun Pharmaceutical Industries Limited, India
[2]School of Pharmaceutical Education and Research (SPER) Jamia Hamdard (Hamdard University)
sajadkhaliq.dar@sunpharma.com

Abstract

Background and Aim: During clinical pharmacokinetic studies, human volunteers are subjected to screening with respect to clinical pathology parameters, based on which volunteers are considered as healthy or not healthy. Even for the screened healthy volunteers, these parameters vary from person to person and the diversity in the physiological and pathological values even within the acceptable limits could be significant enough to have an impact on the systemic drug exposure. The correlation between these screening values and pharmacokinetics of a drug, especially for narrow therapeutic index (NTI) drugs like Tacrolimus could help the pharmacokinetic scientists to have an effective study design for bioequivalence studies and also help clinicians for having an effective dose regimen for patients.
Experimental Procedure: Twenty four healthy adult human subjects, aged between 18 and 50 years were recruited in this single dose open-label, balanced, randomized, crossover study under fasting condition. Eligibility of volunteers was based on inclusion and exclusion criteria mentioned in the study protocol and screened healthy volunteers were enrolled in the study. Dose administration was done after fasting for 10 hours and blood samples were collected for measurement of the Tacrolimus concentrations by a validated LC-MS/MS method. Pharmacokinetic parameters were calculated followed by their correlation analysis with respective clinical parameters.
Results and Conclusion: The results of this study suggest that values of clinical parameters can increase or decrease the systemic exposure of the Tacrolimus. Age, serum creatinine levels, haematology and total bilirubin have significant correlations with pharmacokinetic of the drug with p value < 0.05. The information on correlation of these parameters with pharmacokinetics would assist researchers to have an optimum study design for successful conduct of clinical studies, especially for NTI with high pharmacokinetic variability. These studies will also support clinicians to devise an effective drug therapy especially for NTI medications intended for long term treatment.
Keywords: Regression, Pharmacokinetics, groups, significant, Phoenix Haemoglobin, Creatinine

Artificial Intelligence for drugs Safety and Toxicity

Saurabh Kashyap*, Sania Siddiqui, Manasvi Gupta , Pragati Singh
Shri Ramswaroop Memorial University, Lucknow, Deva Road
saurabh0410srk@gmail.com

Abstract

Adverse drug reactions (ADRs) and drug-induced toxicity are major challenges in drug discovery, threatening patient safety and dramatically increasing healthcare expenditures. Since ADRs and toxicity are not as visible as infectious diseases, the potential consequences are considerable. Early detection of ADRs and drug-induced toxicity is an essential indicator of a drug's viability and safety profile. The new introduction of AI and ML approaches has brought up a paradigm shift in the field of early ADR and toxicity detection. The application of these modern computational methods allows for the rapid, thorough, and precise prediction of probable ADRs and toxicity even before the drug's practical synthesis as well as preclinical and clinical trials, resulting in more efficient and safer medications with a lesser chance of drug's withdrawal. This present review therefore presents a rather deep study into how AI and ML could play out in early detection of ADRs and toxicity through using almost every method which includes data mining up to the deepest kind followed by the provision of very key databases, modelling algorithms and also the soft wares which might use for the proper modelling and predictive ADR and toxicity. This review also gives a comprehensive reference to what has been done and what might be achieved in the field of AI and ML-based early identification of ADRs and drug-induced toxicity. By throwing light on the capabilities of these technologies, it highlights their enormous potential for revolutionizing drug discovery and improving patient safety.

Keyword: Adverse Drug Reaction (ADRs) ,Drug-induced Toxicity, Machine Learning Predictive modelling, Data mining

Synthesis of Novel Bis-pyrazole Derivatives as Antimicrobial Agents

Md. Afaque
Hygia Institute of Pharmacy, Lucknow, India (226020)
mafaque263@gmail.com

Abstract

Background: Bis-pyrazole derivatives are organic compounds with two interconnected pyrazole rings, often used in coordination chemistry and medicinal research. They can exhibit diverse properties depending on their structure and the nature of the bridge connecting the rings. Bis-pyrazole derivatives are organic compounds featuring two interconnected pyrazole rings. They are significant in medicinal chemistry and coordination chemistry, exhibiting diverse biological activities and forming complexes with metal ions, which may have applications in catalysis and drug development.

Objective: In this research we have synthesised a series of new bis-pyrazoles and investigated their antimicrobial agents.

Method: A novel series of bis-pyrazole derivatives was synthesized by coupling cyanoacetic acid hydrazide with diazonium salts of aromatic amines in DMF with NaOH, followed by refluxing the hydrazones with hydrazine hydrate to form the bis-pyrazoles. Additionally, reaction of bis (cyanoacetic acid hydrazide) with hydrazonoyl chlorides in dioxane under reflux also yielded bis-pyrazoles.

Result & Discussion: The structures of the synthesized bis-pyrazole derivatives were confirmed through spectral data and elemental analysis. Antimicrobial testing showed that some compounds exhibited strong activity compared to standard bactericides and fungicides. Molecular docking studies into the Enoyl ACP reductase active site revealed significant binding affinities (-7.040 to -9.141 kcal/mol), supporting the in vitro antimicrobial results.

Conclusion: The promising antimicrobial results of the newly synthesized bis-pyrazoles highlight the significance of bis-heterocyclic compounds, providing strong motivation to continue designing and synthesizing new derivatives with potent biological activity in the future.

Keywords: Antimicrobial agents, bis-pyrazoles, coupling reaction, diazonium salts, hydrazonoyl halides, hydrazones

Reconstructing Hope: A Novel Approach to Burn Wound Management and Recovery

Shriyashi Gupta
Institute of pharmacy, Shri Ramswaroop Memorial University Lucknow -Dewa Road,U.P , India
shriyashigupta78@gmail.com

Abstract

Burn wound healing and management continues to be a major clinical challenge, causing significant socio-economic cost. Recent improvements in xenograft technology have resulted in the development of acellular fish skin (a skin graft that limits inflammatory reactions and improves wound healing). This study aimed to determine the optimal burn wound management approach using enzymatic debridement . Fish skin, rich in collagen, has been determined to be a viable wound dressing material. As the major component of the extracellular matrix, collagen has been shown to enhance tissue function and promote cell regenerations, making it a good component for wound healing. The integration of enzymatic debridement with acellular fish skin can offer a better burn wound treatment platform from deep burn wounds, less likely to elicit systemic inflammatory responses, and promotes scar-less healing. This work examines the possibility of using fish skin waste in burn wound care, emphasizing wound treatment using collagen extraction and application as a dressing. The results of this work can serve as an important step toward a new, efficient, and ecological burn treatment strategy.

Keywords:- Xenografts, Enzymatic, Debridement, Extraction, Ecological.

Pharmacogenetic Standardization and Phytochemical Profiling of Cissampelos pareira Linn. Var. hirsuta Roots: An In-Depth Analysis of Bioactive Constituents and Therapeutic Potential

Naincy Gupta
Madhyanchal Professional University, Bhopal (M.P) India-462044
naincy.05@gmail.com

Abstract

Introduction *Cissampelos pareira* Linn. Var. *hirsuta*, a perennial climber of the Menispermaceae family, is commonly known as Venivel. It features small greenish-yellow flowers and belongs to the Cissampelos genus, which includes 30–40 species globally, with only one native to India. *Cissampelos pareira*, *Cyclea peltata*, and *Stephania japonica* serve as primary botanical sources of Patha in traditional medicine. This study investigates the pharmacogenetic and phytochemical profile of *Cissampelos pareira* Linn. Var. *hirsuta* roots. The objective is to establish precise standardization criteria for accurate identification and authentication.

AimThe primary objective of this study was to establish pharmacognostical and phytochemical standardization parameters for the roots of *Cissampelos pareira* Linn. Var. *hirsuta*, which are critical for the accurate identification and authentication of this medicinal species.

Materials and Methods Microscopy The roots were examined under a light microscope, and their physicochemical properties, such as drying loss, total ash, acid-insoluble ash, and extractive values, were determined. Phytochemical Screening: Preliminary screening and qualitative chemical tests were performed to identify the chemical constituents present in the roots. Thin-Layer Chromatography (TLC): TLC was performed on the methanolic extract of the air-dried powdered root to further analyse the phytochemical constituents.

Results: The study identified various pharmacognostic parameters, including macroscopic and microscopic characteristics, fluorescence behaviour, and physicochemical properties. The Phytochemical analysis revealed bioactive compounds, and the TLC profile of the methanolic extract provided further insights.

Conclusion
This study establishes standardization parameters for *Cissampelos pareira* Linn. Var. *hirsuta* roots, ensuring precise botanical authentication and quality control. Comprehensive pharmacognostical and phytochemical evaluations highlight its therapeutic efficacy. The findings contribute to defining purity benchmarks and taxonomic classification in herbal drug research.

Keywords: *Cissampelos pareira, hirsuta*, taxonomic classification

Pharmacogenomics of antidepressant drugs

Mohammad Tanveer Ashraf, Sushma Singh, Zahid Husain
Institute Of Pharmacy, Shri Ramswaroop Memorial University Lucknow
tanveerashraf6366@gmail.com

Abstract

Antidepressant pharmacotherapy is recognized as an effective approach for treating depression; however, it faces challenges due to the gradual onset of noticeable clinical improvement and various side effects. Additionally, a significant number of patients either experience limited response or do not respond at all. Genetic differences may contribute to these variations in treatment outcomes, as evidenced by recent studies focusing on single nucleotide polymorphisms (SNPs). Numerous pharmacogenetic investigations concerning antidepressant medications have emerged in recent years, primarily examining the cytochrome P450 (CYP) enzyme families and genes associated with the monoaminergic system. Notable findings indicate that polymorphisms in CYP2D6 can influence plasma levels of antidepressants, while variations in the serotonin transporter promoter are linked to responses to selective serotonin reuptake inhibitors. Nonetheless, it is essential to explore additional candidate systems in the pharmacogenetics of antidepressants, including neuropeptide systems and the hypothalamus-pituitary-adrenal (HPA) axis.It is widely perceived at present that pharmacogenetics and pharmacogenomics are about to revolutionize the face of medicine. In a more realistic assessment, the implementation of molecular genetics and biology will provide us with better ways to treat illnesses, and has already begun to do so in an incremental and evolutionary fashion. However, it is unlikely to change fundamentally the direction of medical progress. Advances are most likely to be made in the area of pharmacodynamics, as we learn to differentiate broader conventional clinical diagnoses into separate molecular subtypes.

Keyword: Neuropeptide, Pharmacogenetics, Antidepressant, pharmacogenetics

Investigation of effect of chicken's gizzard membrane on castor oil induced diarrhoea and indomethacin induced ulcer & colitis in experimental rats

Md Kaish1*, Mohammad Khushtar1, Mohd Ajmal1, Nasreen Jahan2
[1]Department of Pharmacy, Integral University, Lucknow-226026, India
[2]Department of IlmulAdvia, National Institute of Unani Medicine (NIUM), Bengaluru-560091, India
mdkaish123786@gmail.com

Abstract

Chicken Gizzard membrane is the inner lining of chicken's gizzard, which has a yellowish- gold colour. This is why its Chinese name (ji neijin) carries the meaning of 'gold inside the chicken'. Traditionally it is used in different gastrointestinal weakness. The present study evaluated the antidiarrhoeal, antiulcer, andanti-colitis properties of chicken gizzard membrane in SD rats. For the diarrhoea study, rats were divided into five groups (n=4). GroupI (normal control) received 1% CMC (1 mL/kg) orally for three days. Group II (disease control) was administered castor oil (0.5 mL). Groups III and IV (test groups) were given chicken gizzard membrane at doses of 50 mg/kg and 100 mg/kg, respectively, along with castor oil. Group V (standard) received Loperamide (3 mg/kg) plus castor oil. Results showed 75% inhibition of diarrhoea and reduced fecal output in the test groups compared to the disease control group.

In the ulcer and colitis model, rats were divided into four groups (n=5).Group I received CMC (1 mL/kg) for seven days, while Group II was given CMC for seven days and Indomethacin (10mg/kg) on day five .Groups III and IV received 50mg/kg and 100mg/kg of chicken gizzard membrane for seven days, with Indomethacin on day five. Both doses of chicken gizzard membrane significantly reduced the mean ulcer index and increased gastric mucus content compared to the disease control group. Moreover, it decreased the weight/length ratio of the colon, indicating improved colon health in the treatment groups.

Chickengizzard membrane exhibited significant antidiarrhoeal activity by reducing diarrhoea and fecal output. It also demonstrated an ameliorative effect on gastric ulcers by enhancing gastric mucosa and improving colon health, making it a promising therapeutic option for diarrhoea, ulcers, and colitis.

Keywords: Chicken gizzard membrane, Ulcer, Diarrhoea, Ulcer index, Antioxidant

Imidazopyridine fused Heterocyclic Fluorescent Probes with Eminent Substituent Tunable response and their Dual-State Fluorescence

Preeti Ashok kumar Chaudhran, Abha Sharma*
***Department of Medicinal Chemistry, National Institute of Pharmaceutical Education and Research-Raebareli, Bijnor-Sisendi road, Sarojini Nagar, Lucknow, U.P.226002,India**
abha.sharma@niperrbl.ac.in

Abstract

The fluorescent molecules based on imidazopyridine linked with benzothiazole and benzimidazole were assessed for pH sensitivity and the effect of substituents, leading to dual-state emission. For pH-sensitivity, a broad range of pH (1-13) was evaluated, where the benzothiazole-based (BnTA) compounds responded in the acidic pH, whereas benzimidazole-based (BnIm) compounds behave differently at different pH with recognizable color change on shifting from acidic-neutral-basic. The NMR titrations have shown the effect of substituents on governing the site of protonation and deprotonation, further demonstrating the mechanism of fluorescence comprehended through theoretical calculations. The response at different pH was governed by the ICT mechanism, which was further highly influenced by the presence of substituents. On briefly assessing the solid state, 2e shows echinochrome behavior showing green fluorescence in the solid state, vanishes upon grinding, and fuming with acetone turns yellowish orange fluorescence that reverts to initial fluorescence upon long-term exposure to acetone. The BnTA compounds possess much brighter fluorescence than BnIm, also the presence of substituents affects the solid-state fluorescence. The cellular uptake and fluorescence response of 2l at pH 4.0 and 7.4 were also evaluated, showing its possible *in-vitro* application. The compound serves as a potential lead for other applications likewise such as optoelectronics, data encryption, and pH-sensor.

Keywords: Imidazopyridine, Benzimidazole, Benzothiazole, pH-sensitive, solid-state fluorescence

Herbal-drug and herb-food interactions

Shrishti pandey*, Sushma singh, Zahid husain
Shri Ramswaroop Memorial University, Luccknow, Deva Road
shristipandey16058@gmail.com

Abstract

All medicines were derived from natural materials in the ancient time. Most of those early medicines are described under the broad heading "herbs," although that term may prove misleading. Even though people often think of herbs as plants or plant-derived materials, several commonly used items were obtained from animals and minerals. Further, although the term "herbs" suggests something that is beneficial and has little potential for harm, numerous toxic materials were used, such as foxglove, deadly nightshade, and jimson weed (Datura). Herbalists sometimes processed the herbs to change them from their original form. As the science developed the researchers attempted and succeeded to isolate some active constituents from herbs, so that the end products were not as nature presented them. For example, aconite was processed extensively in China to reduce its toxicity so that it could more readily be used, and borneol, the active constituent found in a few tropical plants, was isolated centuries ago in relatively pure form, a translucent crystal, for both internal and external use. The use of potent and toxic substances and the intentional alteration of natural substances are characteristics of production of modern drugs. Thus, some issues that arise today about interactions of herbs and drugs may have already been encountered in earlier times when herbs were combined with each other. The ancient Indian system of Ayurveda is practicing in India since 1500 BC; the main aim of this system is to preservation of normal health and curing the diseased one. Ayurveda has focused on patient safety and benefits. In fact it is known that drug safety is a very basic and fundamental concept in medical practice. The current raised issue with respect to Alternative medicine and Ayurveda is increasing reports of Adverse Drug Reaction (ADR) related to herbal medicine. This may be due to increase in number of people taking herbal products either as a medicine or as a nutritional supplement. Such reports many a times neglect to identify the cause behind the event which can be pertaining to variety of issues which are already considered in Ayurveda but are neglected many a times either due to ignorance or negligence. There is misbelief that natural drugs are safe and devoid of toxicity.

Keywords- Toxicity, misleading, negligence, alternative medicine.

Green-Synthesized Silver Nanoparticles from *Azadirachta indica*: A Sustainable Antimicrobial Agent

Anannya Dwivedi*, Pankaj Kumar Patel, Tarkeshwar Prasad Shukla
SCPM College Of Pharmacy, Gonda
Anannya21jan@gmail.com

Abstract

Treatment of diseases, especially foodborne infections, has become more difficult due to the rise of multidrug-resistant (MDR) bacteria and antimicrobial drug resistance (ADR). In an attempt to discover natural, eco-friendly substitutes for conventional antibiotics, scientists are investigating the antibacterial properties of silver nanoparticles (AgNPs) derived from *Azadirachta indica*, or neem. These biologically produced nanoparticles provide a safer and more environmentally friendly alternative to chemically produced ones by removing dangerous compounds and increasing antibacterial activity. Neem leaves are rich in bioactive compounds such flavonoids, terpenoids, and phenolics, which help stabilize nanoparticles and reduce silver ions. These spherical AgNPs, which range in size from 10 to 60 nm, have been thoroughly characterized using FT-IR, XRD, TEM, and UV-VIS spectroscopy to verify their stability and effectiveness. Gram-negative pathogenic pathogens such as *Salmonella* Typhimurium*, Klebsiella pneumoniae*, and *Escherichia coli* are significantly inhibited by neem-derived AgNPs, according to studies. The synergistic impact of neem-based AgNPs with antibiotics is another intriguing feature; they increase medication efficacy, enabling lower dosages and delaying the emergence of antibiotic resistance. In addition to their antibacterial qualities, AgNPs have demonstrated encouraging outcomes in wound healing, assisting in the reduction of infections, increasing the creation of collagen, and accelerating tissue restoration. They are considerably more valuable because of their prospective uses in water purification and food safety, which might ensure safer consumption by preventing contamination. Despite their potential, further study is required to optimize synthesis techniques, regulate nanoparticle size, and guarantee long-term safety. Neem-derived AgNPs have the potential to be a game-changing weapon in the fight against antibiotic resistance as nanotechnology and plant-based medicine develop further. They provide a safe, natural remedy for environmental sustainability, food safety, and healthcare.

keywords: Green synthesis, silver nanoparticles (AgNPs), antimicrobial agents, drug-resistant bacteria, antibacterial activity, multidrug-resistant pathogens

Chronotherapy: Introduction to Chronopharmacology

Smita Singh*, Sushma Singh, Zahid Husain
Shri Ramswaroop Memorial university, Lucknow, Deva Road.
smita.singhplg@gmail.com

Abstract

Chronopharmacology Introduced by Halberg in 1960s is an investigative science concerned with the biological rhythm dependencies of medication. It aims to improve the understandings of changes in circadian rhythm for desired effect and tolerance of medicines. Biological rhythms are series of bodily functions regulated by internal clock which controls sleep, wakefulness, hormone secretion. They affect different systems of body, each, differently. The biological clock is located in hypothalamus specifically in suprachiasmatic nucleus or SCN. They work by controlling the pathophysiology of diseases, preventing degradation of drugs, programmed delivery of hormones. The treatment of biological rhythm is called Chronotherapy. It has certain Advantages like No drugs are required, when the person is asleep therapy is more effective. It also has some disadvantages like regular Consultation of doctors/sleep specialist is required, sleep deprivation, incompliancenes of patient.

Highlighted Points of Chronotherapy is biological clock is related with chronotherapeutic system for treating different conditions and effects of drugs. Majorly used in treatment of Hypertension and Myocardial Infarction.

Keywords: Chronopharmacology, Halberg, Chronotherapy, Sleep, Medicines.

The Prolonged Effect on Cardiovascular and Pulmonary of COVID-19

Rishabh Jaiswal Assisted*,Zahid Husain, Sushma Singh
Institute of Pharmacy of Shri Ramswaroop Memorial University, Deva Road, Barabanki, Uttar Pradesh India- 225003
rishabhjaiswal988@gmail.com

Abstract

Precision medicine, driven by advances in genomics, is reshaping healthcare by shifting from traditional evidence-based approaches to more personalized care. Although it originated from the concept of personalized care, psychiatry has been slower to adopt this model compared to fields like oncology and hematology. The aim of this paper is to examine the current state of precision psychiatry, with a particular focus on prognostic models that use clinical and biological data, while exploring challenges and future directions. Through a review of recent research and initiatives such as the U.S. Precision Medicine Initiative, this article highlights the integration of genetic, neuroimaging, and other biological data into psychiatric practice, alongside the advancements in data analysis techniques like machine learning. While precision medicine has made significant progress in oncology and hematology, psychiatry remains behind. However, prognostic models that combine clinical and biological data show promise, though applying pharmacogenetic innovations remains complex. Current efforts are focused on identifying biological markers and clinical factors for tailored treatments, with substantial discoveries still underway. The discussion highlights the challenges of integrating precision medicine in psychiatry, including the need for standardized terminology, methodologies, and validated biological markers. Treating psychiatric conditions requires a dynamic, longitudinal approach that accounts for developmental trajectories from childhood. Preventative strategies that combine omics data with neuroimaging and phenotypic information offer considerable potential. In conclusion, precision psychiatry has the potential to revolutionize mental health care by personalizing treatments to individual characteristics. While progress has been slower compared to other fields, advancements in data analysis and large-scale initiatives are pushing the field forward. Overcoming current challenges and incorporating longitudinal approaches will be crucial to its future success.

Keywords: COVID-19, cardiovascular, pulmonary, long-term, risk factors

Artificial Intelligence (AI) in Modern Pharmacy

Aditya Kumar Gupta
Shri Ramswaroop Memorial University, Lucknow, Deva Road
adityagupta.adi007@gmail.com

Abstract

Artificial Intelligence (AI) is transforming modern pharmacy through the way drugs are prescribed, dispensed, and managed. Artificial Intelligence (AI)-powered systems analyze vast amounts of data, including electronic health records, medical histories, and genomic information, to provide personalized treatment recommendations and predict patient outcomes. There exists evidence of the use of Artificial Intelligence (AI) to improve drug management, reduce drug errors, and enhance patient safety. Artificial Intelligence (AI) automation is also streamlining pharmacy operations, reducing administrative complexity, and enhancing efficiency. Furthermore, Artificial Intelligence (AI) chatbots and virtual assistants are improving patient engagement and medication regimen compliance. Artificial Intelligence (AI) integration in pharmacy will transform health care delivery, improve patient outcomes, and cut costs. It, however raises important ethical, regulatory, and social questions. As Artificial Intelligence (AI) evolves, with greater powers for processing information, it is necessary to understand the risks and ensure Artificial Intelligence (AI) does not cause any negative effects or harm but is used as a tool for patient, pharmacist, and broader healthcare benefit. Artificial Intelligence (AI) will revolutionize the pharmacy in medicine in the modern world and thus the service delivery of the pharmacists and clinicians will be efficient and effective to the patients. An efficient model of health service delivery with the advantage of Artificial Intelligence (AI), i.e., effective and more patient-focused, will be established.

Keywords: Artificial Intelligence, Pharmacy, Personalized Medicine, Medication Management.

Antiulcer agent

Prince gupta*, Sushma Singh, Zahid Husain
Shri Ramswaroop Memorial University, Lucknow, Deva Road
guptaprincegupta01@gmail.com

Abstract

Antiulcer agents are medications that reduce stomach acid production, promoting healing and preventing recurrence of peptic ulcers. They work by inhibiting histamine, acetylcholine, or gastrin, which stimulate acid secretion. Common antiulcer agents include H2 receptor antagonists (ranitidine), proton pump inhibitors (omeprazole), and antacids (aluminum hydroxide).H2 receptor antagonists and proton pump inhibitors decrease acid production, while antacids neutralize stomach acid. Antiulcer agents are often used in combination with antibiotics to eradicate Helicobacter pylori, a common cause of peptic ulcers. Effective treatment of peptic ulcer disease requires accurate diagnosis, appropriate medication, and lifestyle modifications. Patients should avoid NSAIDs, alcohol, and smoking, which can exacerbate symptoms. By reducing stomach acid production and promoting healing, antiulcer agents play a crucial role in the management of peptic ulcer disease, improving patient outcomes and quality of life.

Keyword: Proton pump inhibitors (ppis) ,h2- receptor antagonist, antacid,gastroprotectiv, histamine blockers

Method Development, Validation, And Characterization of Malus Domestica Peel Extract By Rp-HPLC Method

Manu Tripathi*, Samiksha Devi
Aryakul College of Pharmacy and Research, Raibareli, U.P, India
tiwarimanu657@gmail.com

Abstract

Malus domestica has been discovered to be a significant human medication that is consumed globally. Even though a sizable volume is generated, the processing system is still insufficient, which reduces the possibility of exporting and results in a poor monetary worth. The health advantages of this herbal beverage for people have always been affected by the peel of the Malus domestica (Apple). One of the oldest and most well-liked medicinal drinks taken worldwide is malus domestica. The promotion of cardiovascular and vascular health, cancer prevention, skin protection, antioxidant activity, defence against infection, immune system impairment, diarrhoea, weariness, and many more conditions are only a few of the potential advantages of plants. The large number of chemical compounds called polyphenols and catechins that they contain are to thank for their beneficial antioxidant properties. HPLC techniques will be used for the method development, validation, and characterisation of Malus domestica peel (apple) extract. Validate the suggested method in compliance with USP and ICH recommendations for the analytical application that it is designed for, namely the application of the suggested method for the analysis of the biomarkers in their dosage form. The use of medicinal plants has increased dramatically during the past several centuries. Approximately 75–80% of the globe's population uses medicinal plants for their main medical care, mostly in underdeveloped nations. The World Health Organisation (WHO) claims stated the usage of herbal treatments is at least twice as greater than the administration for traditional medications worldwide (Evans, 1994). Prior to an automatic sorting technology, created characterisation qualities based on physical characteristics will increase efficiency and promote cost-effectiveness, which will finally reenergize the global export market.

Keywords: Herbal medicines, Malus domestica, ICH Guidelines, HPTLC, Validation, Marker, Gallic acid, Metabolites

Targeting Breast Cancer with PROTACs: A Comprehensive Review of the, mechanism, Current State of Research and Clinical Applications.

***Gowthami Tekumatla**
tekumatla.gowthami@gmail.com

Abstract

Breast cancer remains one of the leading causes of cancer-related mortality worldwide, necessitating novel therapeutic strategies beyond conventional treatments. Proteolysis-targeting chimeras (PROTACs) have emerged as a groundbreaking approach for selective protein degradation, offering a promising alternative to traditional inhibitors. PROTACs function by recruiting target proteins to E3 ubiquitin ligases, facilitating ubiquitination and subsequent proteasomal degradation. This targeted degradation mechanism has shown significant potential in overcoming acquired endocrine resistance in estrogen receptor (ER)-positive breast cancer, with ARV-471, an ER-targeting PROTAC, progressing into clinical trials. Despite their therapeutic promise, challenges such as poor membrane permeability, suboptimal pharmacokinetics, and off-target effects limit their clinical translation. Recent advancements, including aptamer-PROTAC conjugation, have enhanced tumor specificity and antitumor efficacy, addressing key limitations. This review comprehensively explores the mechanistic foundation of PROTACs, the current landscape of preclinical and clinical research, and future prospects in breast cancer treatment.

Keywords: PROTACs, targeted protein degradation, breast cancer, estrogen receptor, endocrine resistance, ubiquitin-proteasome system, ARV-471, aptamer-PROTAC conjugation, E3 ligase, clinical applications.

Breast Cancer Diagnosis and Management with Help of Artificial Intelligence

Ashutosh Chauhan, Anshul Yadav, Ashutosh Chauhan, Ishant, Amit Kumar
Sir Madanlal Institute of Pharmacy,Etawah (206001),U.P.
ashutoshchauhan1399@gmail.com

Abstract

Breast cancer is one of the most threatening diseases in women life. Breast cancer is second cause of death by cancer. Mortality-to incidence rate is higher is under developed countries 72-80% true positive rate., there is 1 women out of 8 having breast cancer. Thus, the early accurate diagnosis plays a key role reducing the risk of death in patience life. Mammography stands as the reference technique for breast cancer screening; nevertheless, many countries still lack access to mammography due to economic, social, and cultural issue. Latest advances in computational tools, infrared cameras and device for bio-impedance quantification, have given a chance to emerge other reference techniques. early or traditional method like physical examination and image techniques (like mammography, ultrasound, MRI) are used for diagnosis Breast Cancer. These techniques are uncapable for early accurate positioning and classification of Breast cancer therefore present work aim to,1) Developed AI in modern technique for Breast Cancer for diagnosis. 2). Improve the mammography technique by using 3Dmammography is place of 2D mammography. 3). Using training & testing database in machine learning and deep learning models.

Keywords:_Breast cancer, E.I.T, 3D Mammography, Deep-learning, Machine learning, A.I.

Pollution Prevention Strategies: Chemical Products and Processes to Reduce Hazardous Substances and Innovative Recycling Methods for 'Unrecyclable' Plastics

Aditi*[1] Aarvi Shanu[2]
[1]Dr.APJ Abdul Kalam Technical University, Lucknow-226031, Uttar Pradesh, India.
[2]Department of Electronics and Communication, Faculty of Engineering and Technology, University of Lucknow, Lucknow-226031, Uttar Pradesh, India.
aditiofficial8052@gmail.com

Abstract

The hazardous effects of polluting substances in chemical products and environmental degradation due to it have raised high concerns regarding the urgent need for the development of strategies to prevent pollution within the chemical industry. Green chemistry holds the concept of designing safer chemical products which espouse for the use of green catalysts, solvents and reagents, as well as to standardize processes so as to increase efficiency and reduce wastes. By using standards such as life cycle assessment and atom economy, researchers can evaluate the environmental impact of chemical processes and make informed decisions that prioritize sustainability. This paper involves two main prospects of pollution prevention: the design of chemical products and processes which aim to minimize or eliminate the hazardous substances, and the exploration of innovative recycling methods for materials, with a particular emphasis on 'unrecyclable' plastics. It also talks about the sophisticated recycling methods which cater to the increasing issue of plastic waste are: chemical recycling methods, enzymatic recycling methods, solvent-based recycling methods, and upcycling methods which cater to the degradation of complex polymers into their monomeric units; a biocatalytic method for the degradation of plastics; recovery of valuable constituents from waste streams; and conversion of waste materials to higher-value products respectively. Circular economy principle promotes the utilisation of the material by reuse, remanufacturing, and recycling. Thus, in this paper, it is concluded that sustainable practices are important in green chemical production and management of wastes, which form the core foundation of future environment friendly chemical products and processes.

Keywords: Green chemistry; pollution; sustainability; remanufacturing; recycle; reuse.

The Role of Enzyme Immobilization in the Evolution of Biosensing Applications

Belal Ansari, Abhishek Pandit, Atharva Jaiswal, Ali Athar, Aditya Singh*
Faculty of Pharmacy, Integral University, Lucknow (226026), India
adityas@iul.ac.in

Abstract

Enzyme immobilization has significantly improved biosensing applications by enhancing enzyme stability, reusability, and sensitivity. By anchoring enzymes onto specialized support materials, their natural catalytic properties are preserved, resulting in better performance and lower detection limits for specific analytes. Over the years, advanced immobilization techniques such as physical adsorption, covalent attachment, and cross-linked enzyme aggregates (CLEAs) have been developed to optimize enzyme efficiency in biosensors further. Methodologies have not only improved the catalytic efficiency of enzymes under diverse conditions but have also enabled their integration into sophisticated biosensing platforms. The use of magnetic nanomaterials as support matrices for enzyme immobilization has gained considerable interest. These materials provide a high surface area and exhibit superparamagnetic properties, enabling efficient enzyme separation and reuse in industrial processes. This strategy enhances the stability and catalytic activity of the immobilized enzymes, contributing to more sustainable industrial processes. These innovative immobilization strategies have broadened the application spectrum of biosensors, enabling more precise and reliable monitoring in medical diagnostics, environmental analysis, and food safety. By enhancing enzyme stability and facilitating their reuse, these methods contribute to the development of more efficient and sustainable biocatalytic processes.

Keywords: Enzyme immobilization, Biosensors, Natural catalytic, Magnetic nanomaterials.

Herbal Alternatives in Diabetes Management: A Review of Efficacy and Safety

Arman Ali Siddique*, Zahid Husain , Sushma Singh
Institute of Pharmacy of Shri Ramswaroop Memorial University, Deva Road, Barabanki, Uttar Pradesh India- 225003
1786armanali@gmail.com

Abstract

Diabetes mellitus (DM) continues to pose a significant global health challenge, with a rising incidence of cases. While insulin therapy remains a crucial component in the management of DM, there is growing interest in alternative treatments, such as herbal medications, to enhance therapeutic outcomes and mitigate the adverse effects associated with prolonged insulin use. This article seeks to evaluate recent research regarding the efficacy and safety of various anti-diabetic herbal remedies in the management of DM, as well as their mechanisms of action. We conducted a comprehensive review of literature to identify herbal substances recognized for their anti-diabetic effects, including gurmar, tulsi, garlic, neem, bitter melon, fenugreek, cinnamon, and ginseng. Our investigation focused on the chemical constituents and biological activities of these herbs to ascertain their potential in regulating blood glucose levels, enhancing insulin sensitivity, and safeguarding pancreatic β-cells. Furthermore, we examined clinical trials assessing the effectiveness of these herbal treatments, both as standalone therapies and in conjunction with insulin, emphasizing their impact on glycemic control, lipid profiles, and insulin requirements in diabetic individuals. Safety considerations, including potential herb-drug interactions and adverse effects, were also addressed. The objective is to provide healthcare professionals and patients with a comprehensive understanding of these herbal anti-diabetic agents, facilitating informed decision-making. Our findings indicate that the integration of herbal anti-diabetic treatments with conventional therapies holds promise for improved management of DM, while also highlighting areas for further research and the potential for these remedies to be incorporated into existing medical practices to enhance treatment outcomes and quality of life for individuals living with diabetes.

Keywords: Herbal anti-diabetic agents, Glycemic control, Insulin sensitivity, Diabetes mellitus management, Herb-drug interactions

Targeted therapies in Autoimmune Disorder

Ankur Gupta , Ms. Pragati Singh
Email: guptaankur041@gmail.com

Abstract

Autoimmune diseases with an inappropriate immune reaction against self-antigen is a heterogeneous spectrum of chronic and often severe disorders. Progress in molecular Immunology has ushered in the age of targeted therapies, specifically targeting specific aspects of the immune system, thus achieving improved therapeutic efficacy and reduced systemic side effects compared with traditional immunosuppressive therapy. This abstract discusses the present environment, mechanism, and clinical uses of targeted therapies in autoimmune conditions. Major therapeutic approaches are monoclonal antibodies, small molecule inhibitors and biologics of cytokines, immune checkpoint or cellular pathways. Specific anti-inflammatory cytokine activity (e.g., TNF-α inhibitors such as infliximab, adalimumab) have transformed the approach to the treatment of pathologies (e.g., rheumatoid arthritis, psoriasis, and Cohn's disease) by using the blocking of the inflammatory cytokine activity. Inhibitors of interleukin (e.g., IL-17 [secukinumab] and IL-6 [tocilizumab] inhibitors) expand the therapeutic tool box, particularly in refractory patterns. Antibody-directed therapeutics, including rituximab and the recent generation of CD19-targeted therapies, is designed for antibody-mediated autoimmune diseases, i.e., systemic lupus erythematosus, multiple sclerosis. Co stimulatory inhibitory T-cell modulation, e.g., abatacept, can stop undesirable T-cell activation, and is of future interest in autoimmune arthritis Jorgen's syndrome. Advances in therapies targeting intracellular signaling pathways, that is, Janus kinase (JAK) inhibitors have already been demonstrated to be very effective in the treatment of a wide array of conditions such as ulcerative colitis and enclosing spondylitis 19. But developments in precision medicine, including individualized therapies on the basis of genomic and molecular profiling, are also guiding the path towards highly individualized care. These therapies are a big improvement, but there are still several remaining challenges, including high costs, variation in patient response, and possibly long-term safety concerns

keywords: spondylitis, microbiome, autoimmune, cytokine, syndrome

Pharmacological action of Emetics drugs

Adarsh pandey* , Sushma Singh, Zahid Husain
Shri Ramswaroop Memorial University, Lucknow, Deva Road
adarshpandey2105@gmail.com

Abstract

Emetics are drugs primarily utilized to induce vomiting, and they play a significant role in the management of certain toxicological and clinical situations, such as poisoning or overdose. These pharmacological agents work by stimulating the vomiting centres in the brain or by directly acting on the gastrointestinal system to trigger the expulsion of harmful substances. The pharmacodynamics of emetic drugs vary, with common mechanisms including the stimulation of the chemoreceptor trigger zone (CTZ) and the activation of receptors such as dopamine (D2), serotonin (5-HT3), and histamine (H1). Emetics like apomorphine and ipecac syrup are among the traditional agents used, though their application has declined with the advancement of newer therapeutic approaches. Despite their utility, the use of emetics raises concerns about safety, efficacy, and potential complications, especially when not administered under proper medical supervision. Additionally, the choice of emetic agents depends on factors such as the type of ingested substance, time elapsed since ingestion, and the patient's overall health. This review provides an in-depth exploration of the pharmacological actions, clinical indications, adverse effects, and modern alternatives to traditional emetic drugs.

Keywords: Emetics, pharmacodynamics, emetic drugs, vomiting centres, chemoreceptor trigger zone, clinical indications

Formulation and evaluation of fast-dissolving oral film of glimepiride

Dimple Chauhan* Dr Trishna Bhal
Pharmaceutical Sciences and Technology Birla Institute of Technology Ranchi.
chauhandimple003@gmail.com

Abstract

Mouth-dissolving films (MDF) and other fast-dissolving drug delivery technologies are innovative dosage forms that dissolve or disintegrate in the oral cavity. These provide the public, as well as certain demographic groups with swallowing issues, such as toddlers and the elderly, with a convenient method of administering pharmaceutical dosage. The solvent casting method was used to create mouth-dissolving films of glimepiride. The solution was reaerated, transferred a suitable volume into a mold, dried the casting solution, and the finished dosage form was cut into 2x3 cm strips containing the required dosage amount (10 mg). The films were made especially for those who have trouble swallowing, like children and elderly individuals. Different plasticizer concentrations (glycerol) and polymers (hydroxypropyl methylcellulose) were used to create several formulations. The films' thickness, folding endurance, dissolving times, and drug content were assessed.

Conclusion: Mouth dissolving films (MDF) provides a convenient and effective solution for patients with swallowing difficulties, such as children and the elderly. The solvent casting method successfully produced Glimepiride films with optimal characteristics, including rapid dissolution, consistent drug content, and desirable physical properties.

Keywords: Mouth dissolving Films (MDF), plasticizers,

Emerging Therapeutic Strategies for Neurodegenerative Diseases: From Bench to Bedside

Alankar Shrivastav*, Vijay Sharma, Navneet Verma, Arun Kumar Mishra, Pawan Singh, Deepak Singh Chaudhary
Faculty of Pharmacy, IFTM University, Moradabad, Uttar Pradesh, India, 244001
alankar1994.ss@gmail.com

Abstract

Neurodegenerative diseases, such as Alzheimer's disease, Parkinson's disease, Huntington's disease and amyotrophic lateral sclerosis (ALS), present a major global health burden for which we currently lack sufficient therapeutic options. Despite decades of research, the vast majority of current AD therapies are aimed at relieving symptoms rather than altering the underlying disease process. Advances in biomedical science have given rise to new therapeutic strategies to delay or halt disease progression. This review highlights novel strategies such as small molecule therapies aimed at halting protein aggregation and neuroinflammation, monoclonal antibodies aimed at clearing pathological proteins and gene therapies including CRISPR and antisense oligonucleotides (ASOs). Stem cell and regenerative medicine may offer neuronal replacement, and nanomedicine provides innovative means to circumvent the blood-brain barrier for drug delivery. Furthermore, neuroimmune modulation and gut-brain axis interventions are currently available for consideration in neuroprotection. The translation of these therapies from bench to bedside continues to be hindered by challenges in drug delivery with each indication, complexities in academic clinical trial design, and regulatory barriers. Yet there is hope for more effective intervention down the road with personalised medicine and combination treatment approaches. While focusing on their respective mechanisms, clinical advancements and prospects, this review highlights recent developments in therapeutics for neurodegenerative diseases. These newly emerging strategies should help develop the next-generation therapies, potentially reshaping the therapeutic landscape of neurodegenerative disorders.

Keywords: Neurodegenerative Diseases, Alzheimer's Disease, Parkinson's Disease, Huntington's Disease, Stem Cell Therapy, Nanomedicine, Monoclonal Antibodies

Current Development In Depression

Sanjali Singh*, Dr(Pro) Subrat Kr. Bhattamishra
Central University of South Bihar, Gaya
sanjalisingh007@gmail.com

Abstract

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

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

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

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

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

Antibiotics, Mechanisms, Applications, and Challenges

Divy raj Suryavanshi*, Sushma Singh, Zahid Husain
Shri Ramswaroop Memorial University, Lucknow, Deva Road
suryavanshidivyraj@gmail.com

Abstract

Antibiotics are a class of antimicrobial agents that play a critical role in modern medicine by inhibiting or eliminating bacterial infections. These compounds can be naturally derived, semi-synthetic, or fully synthetic and are categorized based on their mechanism of action, such as inhibiting cell wall synthesis, protein synthesis, DNA replication, or metabolic pathways of bacteria. The discovery of antibiotics, notably penicillin by Alexander Fleming in 1928, revolutionized healthcare by significantly reducing mortality from bacterial Infections Despite their effectiveness, the misuse and overuse of antibiotics have led to the emergence of antibiotic-resistant bacteria, posing a severe global health threat. Resistance mechanisms include enzymatic degradation, efflux Pumps and target site modifications, reducing the efficacy of conventional antibiotics. To combat resistance, novel strategies such as combination therapy, bacteriophage therapy, and the development of next generation antibiotics are being Explored The clinical application of antibiotics extends beyond human health to veterinary medicine and agriculture, where they are used for disease prevention and growth promotion in livestock. However, this widespread usage has contribute environmental contamination and resistance spread. Therefore, responsible antibiotic Stewardship enhanced surveillance, and the development of alternative therapies are crucial to preserving their Effectiveness. This paper discusses the history, classification, mechanisms of action, clinical applications, and the growing challenge of antibiotic resistance. It also highlights emerging solutions and the need for a global effort to ensure the sustainable use of antibiotics in healthcare and beyond.

Keywords: Antibiotics, antimicrobial agents, bacterial infections, bactericidal, bacteriostatic, antibiotic resistance, drug mechanisms, bacterial cell wall, antimicrobial peptides, bacteriophage therapy

The Role of Salmonella Bacteria in Neurological Diseases: An Emerging Perspective

Nehal khan
Hygia college of Pharmacy, Lucknow
khalidroxxsmarty@gmail.com

Abstract

Salmonella, a genus of Gram-negative bacteria primarily associated with foodborne illnesses, has recently gained attention for its potential role in neurological disorders. Traditionally known for causing gastroenteritis and systemic infections, certain Salmonella species exhibit the ability to invade the bloodstream and cross the blood-brain barrier, leading to central nervous system (CNS) complications. This capability raises concerns regarding their contribution to neuroinflammation and neurodegenerative conditions. Studies suggest that systemic infections caused by Salmonella may trigger an inflammatory cascade, releasing pro-inflammatory cytokines. These immune responses can have detrimental effects on neural tissue, potentially exacerbating conditions such as meningitis, encephalopathy, or even long-term neurodegeneration. Moreover, the bacterial lipopolysaccharides (LPS) play a crucial role in activating microglial cells, the brain's resident immune cells, which can contribute to chronic neuroinflammation. Persistent activation of microglia has been implicated in neurodegenerative diseases such as Alzheimer's and Parkinson's, suggesting a possible link between bacterial infections and neurodegeneration. Furthermore, molecular mimicry mechanisms may enable Salmonella to induce autoimmune reactions that target neural tissues. Bacterial components in the CNS could disrupt neuronal function, leading to cognitive impairment and neuropsychiatric manifestations. While research in this area is still developing, the potential impact of Salmonella infections on the nervous system highlights the need for further investigation. Understanding these interactions could provide insights into novel therapeutic approaches for neuroinflammatory and neurodegenerative diseases linked to bacterial infections.

Keywords: Salmonella species, Alzheimer's, Bacterial infections, and Lipopolysaccharides

3D Bio Printing: Tissues & Organs

Uttam Kumar*, Ambey Kumari, Rupesh Kumar Sahu
Babasaheb Bhimrao Ambedkar Central University, Satellite Campus Amethi.
uttamkumar817604@gmail.com

Abstract

Additive manufacturing or 3-dimensional (3 D) printing is driving advancements across sectors such, as engineering design and production processes in the fields of artistry and education as well as healthcare applications like medicine and tissue engineering breakthroughs, for organ transplants. Compared to printing methods, for objects like paper or plastic items; 3 dimensional bioprinting presents its own set of challenges that involve selecting suitable materials along with different cell types as well as growth promoting substances while also addressing technical hurdles related to maintaining the delicate balance required for working with living cells and tissue development processes. Addressing these challenges effectively calls for a combination of disciplines such as engineering practices merged with insights from sciences together with knowledge from cell biology alongside principles rooted in physics and medicine. The application of 3 bioprinting has already demonstrated success in creating tissues that can be used for transplantation purposes including intricate skin layers; bone structures; artificial blood vessels; supportive trachea implants; cardiac muscle tissues; as well, as cartilage components. Some additional applications involve creating 3D bio printed tissue models, for scientific studies as well, as pharmaceutical research and toxicity testing.

Keywords: 3D Bioprinting, Bioink, Additive Manufacturing, Tissue Engineering.

Review on *Argyreia speciosa* sweet: medicinal use and biochemical activities

[1]Awanish Kumar Srivastava* ,[2]Dr Rajesh Kumar Sharma,[3]Dr Brijesh Singh
[1,2]Department of Pharmaceutical Sciences, Nims University , Jaipur ,Rajasthan , India
[1,3]Ashoka Institute of Technology and Management Pahariya, Sarnath , Varanasi, India
awi2002@gmail.com

Abstract: Argyreia speciosa Sweet (Family Convolvulaceae) is a significant 'rasayana' plant that is heavily utilised as an adaption in the Ayurveda medical system Hawaiian Baby Woodrose, Elephant Creeper, and Woolly Morning Shine are some of its common English names, its Sanskrit name is Vridhadaraka. which translates to "anti-aging." Growing throughout India, it is a large climber. The Ayurvedic Materia Medica gave it lots various pharmacological characteristics. In cases of rheumatism and neurological diseases, the root is used as a shift tonic. A number of phytochemicals have been listed from the plant as well as been used traditionally and by diverse tribes to treat various human illnesses. Hepatoprotective, immunomodulatory, anti-inflammatory in nature anti-rheumatic, antioxidant, and anti-oxidant pharmacological actions have also been noted. The administration of many current medications has been restricted due to un favorable side effects, so it is important to investigate the potential of this medication in the management of neurological, rheumatic, and liver conditions. In conclusion this article discusses studies on the therapeutic applications of this significant herb.

Keywords:Argyreiaspeciosa,Argyreianervosa,Immunomodulation,Antimicrobial,Antioxidant,Adaptogenic,Elephant creeper, Hawaiian Baby Woodrose.

Recent developments in the treatment of Parkinson's Disease

Abhishek Kumar Singh*, Dr. Kisalaya Mishra
Hygia Institute of Pharmaceutical Education and Research, Lucknow
abhishek881304@gmail.com

Abstract

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

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

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

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

Keywords: Drug repurposing, gene therapies, dopamine replacement therapy.

Premature Hair Graying: A Comprehensive Review

Anjali Vishwakarma*,Kakli Rai, Pramod Kumar Yadav
Pharmacy College Azamgarh affiliated by Dr.Abdul Kalam Technical University, Lucknow, UttarPradesh, 226031
anjalivishwakarma9616@gmail.com

Abstract

Hair symbolizes well-being and self-expression, with greying occurring naturally among different racial groups at varying ages. Premature greying has psychological and societal impacts, influencing self- esteem and quality of life. Premature greying of hair (PGH) is defined as greying of hair before the age of 20 years in *Caucasians* and before 30 years in African American population. It can severely affect the self-esteem fan individual. Premature graying is an important cause of low self-esteem, often interfering with socio-cultural adjustment. The onset and progression of greying or canities correlate very closely with *chronological* aging, and occur in varying degrees in all individuals eventually, regardless of gender or race. The exact etiopathogenesis remains unknown, although it has been associated with premature aging disorders, atopy, and autoimmune diseases. Gray hair usually advances gradually and is permanent, with occasional reports of natural depigmentation. Greying of hair results from a complex interplay of genetic, environmental, and cellular factors. *Premature hair graying (PHG)* can be treated with a healthy diet, hair products, and home remedies. In the end, camouflage techniques using hair colorants are outlined.

Keywords: Canities, Caucasians, Chronological, Etiopathogenesis, Premature greying of hair (PGH).

Precision Medicine Approaches to Preterm Birth: Emerging Genetic Insights

Swati Trehan*, Navan Bhullar, Ritu Mishra and Tridib Charia
SGT College of Pharmacy, SGT University, Gurugram – 122505, Haryana, India
swatitrehan01@gmail.com

Abstract

Preterm birth (PTB) is a significant global health concern, with substantial implications for maternal and neonatal outcomes. As the prevalence of PTB continues to rise, the need for more effective prevention and management strategies has become critical. Precision medicine, which focuses on personalizing healthcare based on individual genetic, clinical, and environmental factors, offers promising potential for PTB management. This study explores the role of precision medicine in PTB prevention and treatment, emphasizing emerging genetic insights and the use of cervical length detection as biomarkers. Key genetic factors, including inflammatory pathways, uterine contractility genes, and single nucleotide polymorphisms (SNPs), are identified as contributing to PTB susceptibility. In addition, advanced imaging techniques for cervical length measurement offer valuable tools for risk stratification and tailored therapies. The study also discusses how progesterone therapy, when individualized based on cervical length and genetic insights, can enhance treatment outcomes. Furthermore, combining genetic profiling and cervical length data may lead to the development of predictive algorithms for personalized PTB risk assessment. While precision medicine in obstetrics shows great promise, barriers such as ethical concerns, accessibility, and cost-effectiveness must be addressed. Future research should focus on large-scale genetic studies, validation of biomarkers, and integrating advanced technologies like artificial intelligence (AI) to optimize PTB care. Ultimately, precision medicine could revolutionize PTB management by providing more targeted and effective interventions for at-risk populations.

Keywords: Preterm birth (PTB), Precision medicine, Genetic insights, Cervical length detection, Progesterone therapy

Microwave-assisted aqueous synthesis of non-doped carbon quantum dots for the differential detection of fluoroquinolones and tetracycline in antibiotic pool

Mareechika Gaddam, Abha Sharma*
Department of Medicinal Chemistry, National Institute Pharmaceutical Education and Research-Raebareli, U.P. India
abha.sharma@niperraebareli.edu.in

Abstract

Eco friendly, water soluble and blue fluorescent quantum dots with an average size of <10 nm were synthesized from natural carbon source (Gram flour) by using microwave assisted approach and they are labelled as GFCQDs (Gram Flour Carbon Quantum Dots), the characterisation and surface functionalities of the GFCQDs were done by using FTIR, XRD, SEM-EDX and HR-TEM. The synthesized GFCQDs has exhibited excitation dependent emission spectra. GFCQDs can be used as dual sensors for the detection of two different classes of antibiotics fluoroquinolones and tetracyclines by fluorescence enhancement with a slight bathochromic shift in emission wavelength and quenching, respectively and selectively detect tetracycline in presence of calcium. Further, the GFCQDs mechanism of sensing revealed that tetracycline and ciprofloxacin detection is based on the inner filter effect and hydrogen bond-based interactions, correspondingly. The limit of detection was found to be 32 nM for tetracycline and 6 nM for ciprofloxacin. The GFCQDs were able to detect antibiotics in water, food samples. The cell viability testing of GFCQDs showed a non-toxic effect up to the concentration of 1000 µg/ml and sense tetracycline by blue fluorescence off on the bacterial strain *Bacillus subtilis*.

Keywords: Gram flour carbon quantum dots, tetracycline, fluoroquinolones, antibiotic detection, bacterial cell imaging

Lipid-Based Nanoparticles for the Administration of Vaccine Adjuvants and Antigens: Progressing Towards Multicomponent Vaccines.

Ashish Kumar, Sushma Singh, Zahid Husain
Institute of Pharmacy, Shri Ramswaroop Memorial University Lucknow-Deva Road Barabanki 225003 , Uttar Pradesh, India
attitude7081@gmail.com

Abstract

Significant progress has been made in the area of vaccine adjuvants; however, there remain unmet needs that could facilitate the creation of vaccines targeting more complex pathogens, such as HIV and tuberculosis, as well as cancer. Liposomes have demonstrated considerable effectiveness as adjuvant and delivery systems, owing to their adaptability, and are expected to see expanded applications in this domain. The extensive potential of lipid-based delivery systems is underscored by the recent authorization of COVID-19 vaccines that utilize lipid nanoparticles to encapsulate mRNA. This review outlines various strategies that can be explored for the development of lipid-based vaccine adjuvant and delivery systems tailored for protein, carbohydrate, and nucleic acid-based antigens, and discusses how these approaches may be integrated to create multicomponent vaccines.

Keywords- COVID-19, Liposomes, tuberculosis, HIV, mRNA

Indole As a Multipurpose Moiety in The Medical Field

Alisha Bano*, Asiya Fatima, Yasmeen Bano, Noor Jameel, Riya Yadav, Pushpendra Soni
Faulty of Pharmacy, Integral University, Dasauli, Kusri Road, Lucknow, Uttar Pradesh 226026, India
balisha1709@gmail.com

Abstract

Indole, a privileged heterocyclic scaffold, exhibits remarkable versatility in the pharmaceutical industry due to its diverse biological activities and synthetic flexibility. As a core structure in numerous natural and synthetic compounds, indole plays a crucial role in drug discovery and development. Its unique electronic properties and ability to engage in various molecular interactions make it a valuable pharmacophore in designing novel therapeutics. Indole derivatives have demonstrated a broad spectrum of pharmacological activities, including anticancer, antimicrobial, anti-inflammatory, antiviral, and neuroprotective properties. Several clinically approved drugs, such as indomethacin (anti-inflammatory), sumatriptan (antimigraine), and ondansetron (antiemetic), underscore the clinical significance of this moiety. Furthermore, indole serves as a key structural component in natural products like tryptophan, serotonin, and melatonin, further highlighting its biological relevance. Recent advancements in medicinal chemistry have enabled the development of indole-based compounds with improved selectivity and potency. Structural modifications, such as halogenation, substitution at the C-2 and C-3 positions, and bio isosteric replacements, have led to enhanced pharmacokinetics and reduced toxicity. Additionally, indole derivatives have shown promise in targeting challenging diseases, including multidrug-resistant infections and neurodegenerative disorders. Ongoing research continues to explore novel synthetic strategies and molecular modifications to harness the full therapeutic potential of indole. As a versatile moiety, indole remains a cornerstone in pharmaceutical research, paving the way for innovative drug discovery and the development of next-generation therapeutics.

Keywords: Indole, pharmacophore, drug discovery, medicinal chemistry, biological activity, therapeutic potential.

Formulation And Evaluation of Fast Dissolving Tablets of Candesartan

Ritu Singh
Saraswati Higher Education and Technical College of Pharmacy, Gahni, Ayer, Varanasi
riya.singh111@gmail.com

Abstract

The present study focuses on the formulation and evaluation of fast-dissolving tablets (FDTs) of Candesartan, an angiotensin II receptor antagonist widely used for the management of hypertension. The primary objective was to enhance patient compliance, particularly for geriatric and paediatric populations, by developing a dosage form that dissolves rapidly in the oral cavity without the need for water. Candesartan FDTs were prepared using direct compression and sublimation methods, employing super disintegrants such as croscarmellose sodium, risperidone, and sodium starch glycolate to achieve rapid disintegration. Mannitol and microcrystalline cellulose were used as diluents, while aspartame and menthol were incorporated to improve palatability. The formulated tablets were evaluated for various physicochemical properties, including weight variation, hardness, friability, drug content uniformity, wetting time, water absorption ratio, and in vitro disintegration time. The optimized formulation exhibited a disintegration time of less than 30 seconds and a drug release of over 85

The results demonstrated that the developed Candesartan FDTs exhibited excellent mechanical strength, rapid disintegration, and satisfactory drug release profiles. The formulation was found to be stable, with no significant changes in physicochemical properties over the study period. This study concludes that the fast-dissolving tablets of Candesartan offer a promising alternative to conventional tablets, providing improved patient compliance and ease of administration, particularly for individuals with swallowing difficulties. Further in vivo studies are recommended to validate the efficacy and bioavailability of the formulated FDTs.

Keywords: Candesartan, fast-dissolving tablets, super disintegrants, direct compression, sublimation, hypertension.

Formulation And Evaluation of Anti-Scabies Herbal Lotion.

Ratan Yadav*, Neha Verma, Ajay.K.Gupta.
Dept. of Pharmacology, SoPS, CSJMU, Kanpur, India-208024
Yadavratansingh28@gmail.com

Abstract

Introduction: The itch disease scabies which is caused by Sarcoptes scabiei affects more than 130 million people worldwide. At present, conventional treatments show various disadvantages including toxicity, drug resistance and low ovicidal activity thus new treatments are required.

Aim & Objective: This work aimed to develop a herbal lotion based on Vitex negundo leaves, Aloe vera, and lemon oil which was chosen for its established acaricidal and anti-inflammatory activity from Vitex.

Method: Three formulations F1, F2, F3 were made through the emulsification of aqueous phase (Aloe vera, agar) and oil phase (glycerin, lemon oil, extract). The formulations were assessed in terms of physicochemical, organoleptic and stability properties such as pH, viscosity, spreadability, irritability and accelerated stability tests (centrifugation and thermal stress). The pH range of 5–5.5 was found to be suitable for skin tolerance while the viscosities ranged from 156 to 238 cP and there was no phase separation thus supporting stability.

Result: The results of spreadability and removability tests revealed that the product can be easily applied to the skin and easily removed. No irritation was observed and the UV spectroscopy showed that the bioactive compound was well retained. The study established that the formulations are stable, safe and can be used for topical application and may provide a green alternative to synthetic scabicides.

Summary & Conclusion: Nevertheless, more pharmacological and clinical studies are necessary to determine the acaricidal activity of the treatment in humans and animals. This work demonstrates the potential of Vitex negundo for topical treatment of scabies and other neglected tropical diseases and thus complies with the concepts of sustainable healthcare.

Keywords: Scabies, Vitex negundo, herbal lotion, acaricidal, formulation, evaluation.

Drug Discovery and Development

Anshika Singh
Affiliation: Dr. A.P.J. Abdul Kalam Technology University, Lucknow, Uttar Pradesh, India
mails.anshikasingh@gmail.com,

Abstract

The primary goal of the intricate, multifaceted processes of drug development and discovery is to find and introduce novel therapeutic medicines to the market. Target identification is the first step in the drug discovery process. Lead compound screening, optimization, and preclinical testing to evaluate safety and efficacy come next. High-throughput screening, computer modeling, and structure-activity connection studies are also part of this phase. Following identification, a medication undergoes drug development, which involves clinical trials (I, II, and III) to assess its efficacy, safety, dose, and possible adverse effects. Before being approved for public use, the data is reviewed by regulatory bodies including the FDA and EMA.Drug discovery and drug development are complex, multitasking processes that main aim to identify and bring new therapeutic agents to market. Drug discovery begins with target identification, followed by lead compound screening, optimization, and preclinical testing to assess safety and efficacy. This stage involves computational modeling, high-throughput screening, and structure-activity relationship studies. Once a drug is identified, it enters drug development, which includes clinical trials (I,II,III) to evaluate its safety, dosage, efficacy, and potential side effects. Regulatory agencies such as the FDA and EMA review the data before approval for public use. The pharmaceutical industry has undergone a radical transformation as a result of the rapid expansion of the pharmaceutical sector brought about by artificial intelligence-integrated medication discovery and development. Here, we talk over integration areas, methods, and tools used to enforce AI, as well as current issues and solutions.

Keywords: Drug Discovery, Preclinical Testing, FDA, Clinical Trials, Pharmaceutical Industry

Discovering the Facts: A Comprehensive Review of Post-Menopausal Osteoporosis.

Shikha Meena*[1,2], Mukesh Kumar Singh[2], Anupam Kumar Sachan[1]
[1]Dayanand Dinanath College, Institute of Pharmacy, Kanpur-209214
[2]Faculty of Pharmacy, IFTM University, Moradabad-244102
shikhameena.knp@gmail.com

Abstract

Postmenopausal osteoporosis is a prevalent and debilitating disorder that impacts women following menopause. This condition is characterized by diminished bone mineral density and an increased susceptibility to fractures. In postmenopausal women, the primary cause is hormonal changes, particularly a drop in estrogen levels., along with other factors such as genetics, lifestyle, and the environment. Despite advancements in diagnosis and treatment, challenges remain in identifying individuals with the condition, selecting the best interventions, and achieving optimal treatment outcomes. Current pharmacological treatments for osteoporosis include denosumab, selective estrogen receptor modulators, anabolic drugs, or bisphosphonates. These treatments aim to enhance bone mass and minimize the risk of fractures. However, concerns exist regarding their safety, adverse effects, and patient adherence to the treatment regimen. Future research and treatment efforts will focus on identifying new therapeutic targets, developing personalized medicine approaches, exploring combination therapies, utilizing digital health solutions, and addressing healthcare disparities. By improving our understanding of osteoporosis pathophysiology and implementing data-driven approaches, it is possible to alleviate the impact of postmenopausal osteoporosis and enhance outcomes for those affected.

Keywords: Postmenopausal osteoporosis, Bone Resorption, Bone Mineral Density, SERM

Artificial intelligence in Drug Discovery and it's clinical Revelance

Mohammad Shahnawaz, Sushma Singh, Zahid Husain,Yasmin Khatoon
Shri Ramswaroop Memorial University, Lucknow, Deva Road Barabanki Uttar Pradesh
mdshah8808@gmail.com

Abstract

Artificial intelligence (Al) possesses the capability to transform the drug discovery process by enhancing efficiency, precision, and speed. Nevertheless, the effective implementation of Al relies on the availability of high-quality data, the resolution of ethical issues, and an understanding of the limitations inherent in Al methodologies. This article examines the advantages, challenges, and limitations of Al within this domain, while proposing potential strategies to address the existing hurdles.Medical data derived from extensive molecular screening profiles, individual health or pathology records, and information from public health organisations stand to gain from Al analysis, which could expedite the drug discovery pipeline and mitigate failures. We outline the applications of Al across various phases of drug discovery, including computational techniques such as de novo design and the prediction of a drug's probable characteristics. The discussion also encompasses open-source databases and Al-driven software tools that aid in drug design, along with the challenges related to molecular representation, data acquisition, complexity, Labelling and inconsistencies among labels. Furthermore, the role of contemporary Al techniques, including graph neural networks, reinforcement learning, and generative models, as well as structure-based methods like molecular dynamics simulations and molecular docking, in advancing drug discovery and Analyzing drug responses is examined. Lastly, we review recent advancements and investments in Al-focused start-up companies within the biotechnology and drug design sectors, highlighting their current developments, aspirations, and promotional efforts.

Keywords: Artificial Intelligence, Database, discovery, Pathology.

Wearable Health Technologies: Their Role In Patient Monitoring And Clinical Trials

Dhanashri D. Nandale , Shivraj P. Jadhav ,Chaitali G. Patil,Anushka A. Gavhane, Madiha A. Pathan, Nitisha D. Deore
Department of Pharmaceutics, SSS Divine College of Pharmacy, Satana, Nashik, Maharashtra, India.
dhanashrin6161@gmail.com

Abstract

Wearable Health Technologies (WHTs) have made substantial progress, providing continuous and noninvasive health monitoring that seamlessly integrates into both everyday life and clinical settings. Since their development in the late 1990s, WHTs have enabled individuals to take control of their health through real-time vital sign monitoring, thereby advancing personal health management and patient empowerment. These technologies, which include devices like smartwatches, continuous glucose monitors, wearable ECG monitors, and smart clothing, offer significant advantages for both clinical applications and daily use. They facilitate prolonged health monitoring, enhance diagnostic accuracy, and improve patient care. However, challenges such as personal calibration, device alignment, and global implementation remain. This article explores various wearable health technologies, their applications in patient monitoring and clinical trials, and highlights examples of available commercial products. As the market for WHTs expands, these devices are expected to play a crucial role in advancing personalized healthcare, improving clinical outcomes, and reducing costs.

Keywords: Wearable health technologies, Patient monitoring, Clinical trials, ECG, Smart clothing, Baby monitoring.

Coumarin sulphonamide derivatives as potent anticonvulsant drug

Shweta Sinha [a,b], Kuldeep Singh[a], Akash Ved [c], Karuna Shankar Shukla[d]
[a]Faculty of Pharmacy, Integral University, Lucknow-226026 (U.P.), India.
[b]Goel Institute of Pharmaceutical Sciences, Lucknow -226028 (U.P.), India.
[c]Dr. A P J Abdul Kalam Technical University Lucknow, 22603, (U.P.), India.
[d]Goel Institute of Pharmacy and Sciences, Lucknow -226028 (U.P.), India

kuldeepsani20@gmail.com

Abstract

Coumarin derivatives are a very important class of heterocycles particularly in the medicinal field. Several modifications in the coumarin subunit have allowed the synthesis of new derivatives with a broad spectrum of biological activities. Coumarin is an oxygen-containing compound in medicinal chemistry. Coumarin plays an important role in both natural systems like plants and also in synthetic medicinal applications as drug molecules. Various oxygen-containing heterocyclic compounds represented remarkable biological significances. The fused aromatic oxygen-heterocyclic nucleus is able to change its electron density; thus changing the chemical, physical and biological properties respectively due to its multiple binding modes with the receptors, which play crucial role in pharmacological screening of drugs. Many structurally different coumarin compounds were found to show a big range of similarity with the vital molecular targets for their pharmacological action and small modifications in their structures resulted insignificant changes in their biological activities. N-[2-oxo-2-(2-oxo-2H-chromen-3-yl)-ethyl]-benzenesulfonamide derivatives were reported as potent anticonvulsant drugs and evaluated by using the maximal electroshock seizures (MES) method. The structures of the synthesized compounds were confirmed by spectroscopic studies such as FTIR, high-resolution mass spectrometry, and NMR spectroscopy. Anticonvulsant activity by the MES method which suggests that the mechanism of anticonvulsive action is at least in part through increasing the GABA level in the brain. Recent advances in biological activities of coumarins analogue and modifications in compounds act essential tools for novel drug development against convulsion.

Keywords: Coumarin, anticonvulsant activity, antioxidant activity, anticancer, antimicrobial, SARS-CoV-2

3d Bioprinting of Organoids & Its Applications

Siddhi Jain*1, Karuna S. Shukla2, Bandana Singh1, Shweta Sinha1, Sunil K. Raman1
Goel Institute of Pharmaceutical Science, Faizabad Rd, near Indira Canal, Anora Kala, Lucknow, Uttar Pradesh 226028
Goel Institute of Pharmacy & Science, Faizabad Rd, near Indira Canal, Anora Kala, Lucknow, Uttar Pradesh 226028
Presenting authors : jsiddhi919@gmail.com
Corresponding author: shwetasimmy@gmail.com

Abstract

Introduction: 3D bioprinting of organoids is a technique that uses 3D printing to create organoid models that mimic the structure and function of human organs. 3D bioprinting of organoids helps for the precise placement of organoids, which can further allows to the formation of functional tissues at scale-up stage.

Aim : The study about 3D bioprinting of organoids and its use drug discovery & drug delivery system.

Methodology: 3D bioprinting involves various techniques for formation of 3D bioprinted organoids. Extrusion - based bioprinting involves the combination of cell and biocompatible hydrogel in a high concentration bioink. By loading a syringe with the bioink & through a nozzle, extrude this combination layer by layer to build up three dimentional structures. Cross-linking solidifies the printed construct. With a suitable media, culture these organoids in an incubator to promote the cell & differentiation. Inkjet bioprinting involves a low-viscosity bio-ink containing cells and hydrogel is used. A thermal or piezoelectric print head ejects droplets of the Ink onto a substrate to form the desired 3D shape. Likely the extrusion-based method, cross-linking is done and the 3D organoids are culture to develop tissue maturation.

Result: By using 3D bioprinted organoids, the drug discovery and drug screening process has been advanced many times.

Conclusion: We concluded that 3D bioprinted organoids is an advanced approach which is proved a very useful tool in field of drug discovery.

Keywords: Organoids, Bioprinting, Pluripotent stem cells, drug discovery.

Chronic Stress-Mediated Dysregulations in Inflammatory, Immune, and Oxidative Circuitry Impairs the Therapeutic Response of Methotrexate in Experimental Autoimmune Disease Model

Rishabh Chaudhary*, Vikas Mishra
Department of Pharmaceutical Sciences, Babasaheb Bhimrao Ambedkar University, Vidya Vihar, Raebareli Road, Lucknow-226025, (U.P.), India
rishabh.smile19.rc@gmail.com

Abstract

Chronic stress is significantly implicated in the worsening of autoimmune disorders, contributing to elevated inflammation and diminished therapeutic efficacy. Here, in this study, we investigated the detrimental impact of an 8-week chronic unpredictable stress (CUS) protocol on the progression of arthritis using collagen-induced arthritis (CIA) rat models, respectively. Our objective was to elucidate how prolonged stress exacerbates disease severity and impairs the effectiveness of treatment drug. Following the induction of CIA rats were subjected to an 8-week CUS paradigm designed to simulate chronic stress conditions. Moreover, after 5 weeks of CUS, methotrexate (MTX; 2 mg/kg, administered once weekly for 3 weeks, intraperitoneally) was introduced as a therapeutic intervention. The severity of CUS-induced effects and the therapeutic impairment of MTX in arthritis rats was assessed through pathological examination of ankle joint tissues, respectively. Additionally, we measured various pro-inflammatory cytokine levels, including NF-κB (nuclear factor kappa B), IFN-γ (interferon-gamma), TNF-α (tumor necrosis factor alpha), IL (interleukin)-1β, IL-6, IL-17 and IL-23 using enzyme-linked immunosorbent assay (ELISA), analysed immune cells through complete haematological profiling and evaluated different oxidative stress markers. Our findings revealed that CUS significantly aggravated the pathological features of arthritis. Prolonged stress exposure led to heightened inflammatory responses, increased oxidative stress and more severe tissue damage. Moreover, the therapeutic efficacy of MTX was notably reduced in stressed rats compared to non-stressed, underscoring the detrimental effects of chronic stress on treatment outcomes. Taken together, our results emphasize the importance of considering chronic stress as a critical factor in the management of autoimmune diseases.

Keywords: Autoimmune Diseases; Inflammation, Methotrexate, Arthritis, chronic stress

Exploring Piperidine Derivatives as α-Glucosidase Inhibitors: A Molecular Docking Approach for Type 2 Diabetes Treatment

Anju Daharia[1*], Alok Singh Thakur[2]
[1]Kamla Institute of Pharmaceutical Sciences, Bhilai, Chhattisgarh, India, 490020
[2] Shri Shankaracharya Institute of Pharmaceutical Sciences and Research, Bhilai, Chhattisgarh, India, 490020
anjudaharia02@gmail.com

Abstract

The α-glucosidase inhibitors (AGIs) are important in antiglycation therapy because they reduce postprandial blood glucose, a key factor in the glycation process that leads to advanced glycation end-products (AGEs). This reduction in glycation can help mitigate complications associated with diabetes, such as neuropathy, retinopathy, and cardiovascular diseases. To evaluate the efficacy of piperidine derivatives as α-glucosidase inhibitors in a molecular docking study for treating Type 2 diabetes mellitus. The three-dimensional (3D) structure of α-glucosidase enzyme (3A4A) was obtained from the RCSB - protein database and piperidine derivatives were drawn in Chem Draw 2D & Chem Draw 3D Software, and docked with 3A4A using Argus Lab 4.0 Software. Among the twenty piperidine derivatives, P7 (-14.2746 kcal/mol), P9(-13.1227 kcal/mol), and P13 (12.3396 kcal/mol) showed more binding energy against the standard drug miglitol (-7.8667 kcal/mol). The molecular docking approach has identified a novel α-glucosidase inhibitor with a strong binding affinity for the target enzyme.

Key Words: Antiglycation (AGEs), α-glucosidase inhibitor, Miglitol, Piperidine, Molecular Docking.

Replacement of Human Heart vessels through Spinach leaves

Ekagra Mishra*, Shriyashi Gupta, Pragati Singh
Institute of pharmacy, Shri Ramswaroop Memorial University Lucknow -Dewa Road, U.P , India
mishraeshan352@gmail.com

Abstract

The use of spinach leaves to replace human cardiac circulatory systems is a new technique in tissue engineering and regenerative medicine. As an active scaffold for heart vessel replacement, it uses the structure of spinach leaves. The process involves keeping the spinach vascular network intact while removing the entire plant cell from the leaves. Human vessel organisation can also benefit from this approach. To create a biocompatible framework that can support blood flow, human endothelial cells and other pertinent cells are then seeded into it.Low cost, biomimetic, and the ability to create intricate vascular networks that would otherwise be difficult to create using scaffold artefacts or conventional 3D printing are the advantages of this method. These bioengineered constructions have been shown in preclinical studies to promote cell proliferation and perfusion, making them a promising strategy for improving organ transplantation, treating circulatory disease, and repairing damaged heart tissue. Prior to preclinical testing to evaluate the safety and effectiveness of the suggested approach, focus will soon be placed on improving cell seeding, scaffolding, and functionalisation. Treatment paradigms in medicine could be completely changed by incorporating plant-derived scaffolding into regenerative medicine.

Keywords: Endothelial, Scaffold, Feasible, Paradigms , Artifacts , Cumbersome

Studies On Drug Utilization Pattern in Orthopaedics

Mohd Asjad*[1], Abdullah Khan[1], Md. Rehan[1], Mazhar Jamil[1], Mohd Aftab Siddiqui[1], Mohd Tariq Salman[2,*]

[1]Department of Pharmacy Practice, Faculty of Pharmacy, Integral University, Lucknow, U.P., India

[2]Department of Pharmacology, Integral Institute of Medical Sciences & Research (IIMSR), Integral University, Lucknow., U.P., India

mtsalman@iul.ac.in

Abstract

Background: Research on drug utilization has been important in the evaluation of how drugs and prescribing practices impact health care. The sensible use of drugs means that patients should receive drugs that are appropriate for their therapeutic needs, at an adequate dosage and form for a sufficient duration of time, and at the lowest possible cost. Many of the drugs prescribed orthopaedics have potential side effects, moreover infection is a prevailing problem leading to high usage of antibiotics, it is important to monitor regularly the pattern of drug usage in the orthopaedic department. Because new drugs are constantly being introduced, comprehensive research is needed regarding the efficacy, side effects, and usage of those drugs.

Aim & Objective: In this review we aimed to synthesize the body of research on drug use patterns in department of orthopaedic, focusing on prescribing patterns, factors influencing drug use, and implications for patient care.

Methodology: The detailed literature search was conducted across multiple databases, including Web of Science, PubMed, and Scopus. Studies published in English between 2018 and 2022 were included. **Results:** Polypharmacy was commonly seen. NSAIDS and Antibiotics were the most commonly prescribed drugs. The review highlights disparities in drug use practices including irrational use of medications, underutilization, and inappropriate prescription of drugs.

Conclusion: This review will assist orienting efforts to improve patient care, promote evidence-based practices, and optimize drug usage in orthopedics. The findings will be helpful to researchers, practitioners, and healthcare policymakers willing to ensure higher standards and safer orthopedic care**.**

Keywords: Polypharmacy, Prescribing patterns, Inappropriate prescription of drugs, underutilization.

Antimicrobial Resistance: A Growing Global Health Crisis

Miss Anjli Viskarma , Mr. Purnendra Gupta*
Rameshwaram Institute of Technology and Management, Sitapur Rd, Opposite AKTU Campus, Govind Puram, Mubarakpur Lucknow, Utter Pradesh 227202
purnendragupta32@gmail.com

Abstract

Antimicrobial resistance (AMR) represents one of the most significant global health threats of the 21st century, jeopardizing the effectiveness of essential antibiotics, antivirals, antifungals, and antiparasitics. As AMR continues to evolve and spread, it undermines our ability to treat common infections, leading to prolonged illnesses, higher healthcare costs, and increased mortality rates. The global burden of AMR is exacerbated by factors such as inappropriate use of antimicrobial agents in both healthcare and agriculture, inadequate infection control practices, and poor sanitation. Vulnerable populations in low- and middle-income countries bear a disproportionate share of the consequences. Addressing AMR requires a multifaceted approach that includes strengthening global surveillance systems, improving stewardship practices, promoting the development of new antibiotics and alternative treatments, and enhancing public awareness. Collaborative efforts between governments, healthcare providers, and international organizations are crucial to slowing the spread of resistant pathogens and safeguarding public health for future generations.

Keyword: Antimicrobial resistance, global health, antibiotics, surveillance, healthcare, infections, stewardship, public health, antimicrobial stewardship, resistance patterns, global burden.

Environmental Sustainability in Pharmaceutical Production

Miss Saumya Tiwari Mr. Purnendra Gupta*
Rameshwaram Institute of Technology and Management, Sitapur Rd, Opposite AKTU Campus, Govind Puram, Mubarakpur Lucknow, Utter Pradesh 227202
purnendragupta32@gmail.com

Abstract

Environmental sustainability in pharmaceutical production has become a critical concern due to the growing environmental impact of industrial activities in this sector. Pharmaceutical manufacturing involves complex processes that require substantial energy, raw materials, and water, alongside the generation of waste, emissions, and chemicals. This paper explores various strategies and innovations that aim to minimize the ecological footprint of pharmaceutical production. Topics include green chemistry, sustainable sourcing of materials, energy-efficient manufacturing processes, waste reduction, and recycling techniques. The role of regulatory frameworks and industry standards in promoting sustainable practices is also discussed. Furthermore, advancements in biopharmaceuticals, process optimization, and the integration of circular economy principles are highlighted as key drivers for sustainable pharmaceutical manufacturing. The paper concludes by addressing the challenges and opportunities for companies in adopting sustainable practices, emphasizing the need for collaboration between industry, government, and consumers to achieve long-term environmental sustainability in the pharmaceutical.

Keywords: Environmental sustainability, pharmaceutical production, green chemistry, energy efficiency, waste reduction, sustainable sourcing, biopharmaceuticals, circular economy, regulatory frameworks, process optimization.

Transdermal Drug Delivery Systems Advancements and Global Potential

Miss Kajal Kumari ,Mr. Purnendra Gupta*
Rameshwaram Institute of Technology and Management, Sitapur Rd, Opposite AKTU Campus, Govind Puram, Mubarakpur Lucknow, Utter Pradesh 227202 India
purnendragupta32@gmail.com

Abstract

Transdermal Drug Delivery Systems (TDDS) have seen remarkable advancements in recent years, providing an alternative to traditional drug administration methods. These systems offer several advantages, including improved patient compliance, sustained drug release, and reduced side effects. Innovations in nanotechnology, polymer science, and micro-needle technologies have significantly enhanced the efficiency and versatility of TDDS. Moreover, the global potential of TDDS is expanding as the demand for non-invasive and patient-friendly therapeutic options increases. This paper explores recent breakthroughs in TDDS, their applications across various therapeutic areas, challenges in overcoming skin barriers, and the global market potential. The review highlights both opportunities and obstacles in the commercialization and adoption of these systems worldwide, positioning TDDS as a key player in the future of personalized medicine.

Keywords: Transdermal Drug Delivery Systems, Drug Delivery Technology Nanotechnology in Medicine, Sustained Release, Micro-needles, Skin Permeation, Polymer Systems, Global Healthcare Market, Skin Barrier Challenges

Beyond Boundaries: The Liquisolid Approach

Sudeep Kumar Maurya*, Amit Kumar, Arti Kumari
Babasaheb Bhimrao Ambedkar Central University, Satellite Campus Amethi.
maurysudeep108@gmail.com

Abstract

The liquisolid technique, also referred to as powder solution technology, is a promising approach for improving the solubility of poorly soluble drugs, a common challenge in pharmaceutical development. This method transforms liquid formulations into solid dosage forms, enhancing dissolution and bioavailability. Key components include the drug, non-volatile solvent, carrier material, coating material, and disintegrant, with a recommended carrier-to-coating ratio of 20:1. The process involves mixing these elements, adding disintegrants, and compressing the final mixture into tablets. This technique enables both immediate and sustained drug release, particularly using hydrophilic polymers like Hydroxy propyl methyl cellulose for immediate release and hydrophobic polymer like Ethyl cellulose for sustained release but specific grades of HPMC can be formulated to provide controlled or sustained release, especially when used in combination with other polymers. This poster will cover the fundamentals of the liquisolid technique, including introduction, historical background, Preformulation and component, formulation processes, as well as its advantages, disadvantages, and the conclusion.

Keywords: Liquisolid Technique, Solubility Enhancement, Bioavailability, Hydrophilic Polymers, Controlled Release.

Formulation And Evaluation of Mouth Dissolving Films of Lofexidine Hydrochloride

Sunidhi Singh
Saraswati Higher Education and Technical College of Pharmacy, Gahni, Ayer Varanasi
sunidhisingh637@gmail.com

Abstract
Mouth dissolving films (MDFs) are a novel and innovative pharmaceutical dosage form designed to dissolve rapidly in the mouth, providing quick and effective drug delivery without the need for water or swallowing. These films are typically composed of polymers, plasticizers, and other excipients that allow for the fast disintegration of the film upon contact with saliva. MDFs have gained significant attention due to their convenience, ease of administration, and enhanced patient compliance, particularly in populations such as paediatric, geriatric, or those with dysphagia. They offer advantages such as improved bioavailability, rapid onset of action, and the ability to bypass the first-pass metabolism. Applications of mouth dissolving films are expanding beyond the pharmaceutical sector, including in nutraceuticals and over-the-counter products. The future of MDFs holds promising developments, including the incorporation of active pharmaceutical ingredients (APIs) with controlled-release profiles, personalized dosing, and the use of advanced materials for better stability and taste masking. Additionally, the integration of technologies such as 3D printing could enable the production of customized films tailored to individual patient needs. With ongoing research and technological advancements, mouth dissolving films are poised to revolutionize drug delivery systems, offering greater flexibility and efficiency in therapeutic interventions.

Keywords: lofexidine hydrochloride, Mouth dissolving films, dysphagia, nutraceuticals, personalized dosing

Cosmetic and Therapeutic Importance of Sandal (*Santalum album* Linn.)

Dr. Mhaveer Singh
Affiliation:
Associate Professor, School of Pharmaceutical Sciences, Faculty of Pharmacy, IFTM University, Moradabad-244102
maahishaalu7@gmail.com

Abstract

Sandal (*Santalum album* Linn.) has been described under the *Santalum* genus of hemiparasitic tree, which is a species habituated throughout South and Southeast Asia, Australia, and the Pacific region. The heartwoods of many species belonging to the genus are commercially valuable with respect to its aromatic oils, which have cosmetic and therapeutic importance. This *Santalum* genus comprises 18 different species, but Santalum album has been greatly explored for many purposes, even being considered the pride of India and the queen of essential oils. The overexploitation due to its high commercial value and demand in national and international markets brought it under Vulnerable by IUCN (International Union for Conservation of Nature) and threatened species in South India. Due to the high content of aromatic essential oil in its heartwood, it has been used in food products, cosmeceuticals, aromatherapy, perfumery, and pharmaceutical industries. The plant has been well documented in Indian systems of medicine to treat many ailments. The presented article is based on the compilation of current therapeutic and cosmetic applications of this valuable plant species. All the evidences are collected by performing thorough literature on the basis of primary, secondary and tertiary sources of information along with the recommended database. The article has been presented by summarizing the data in different sections, describing the cosmeceutical, phytochemical, and therapeutic significance of the plant. The compiled work will highlight the current status of the plant and its importance, which will definitely be helpful for the current and future researchers in getting all the necessary data about sandal in the form of this article.

Keywords: Sandal, *Santalum album* Linn., Pharmacological, Therapeutic, Cosmetics

Human Metapneumovirus (HMPV)

Anubhav Pandey, Pragti Singh, Apurwa Singh
Institute of Pharmacy, Shri Ramswaroop Memorial University (SRMU)
pandeyanubhav808@gmail.com

Abstract

The significant respiratory pathogen known as human metapneumovirus (HMPV) affects mainly children, the elderly, and those with impaired immune systems. Uncovered in 2001, its belongs from Paramyxoviridae family and it is related to RSV (respiratory syncytial virus). The virus seems to operate at peak activity during the winter and spring months and leads to an assortment of respiratory illnesses that range from mild (coughs and nasal congestion) to serious (bronchiolitis and pneumonia). The Respiratory syncytial virus (RSV) is a small negative-sense RNA virus, which, like the closely related human metapneumovirus (HMPV), is a member of the Paramyxoviridae family. Transmission occurs via infectious respiratory droplets produced when an infected person coughs or sneezes. Most disease occurs in the winter months, with an incubation period of 4 to 6 days. Young children, the elderly, and immunocompromised individuals are at risk for severe disease. No specific antiviral therapies or vaccines exist, and care is largely supportive. Essential in curbing the spread of HMPV are preventative measures like maintaining good hygiene, such as frequent handwashing, and isolating infected individuals. They are very much like the measures used to control the spread of many viruses, including COVID-19. We are, however, quite a bit behind in understanding HMPV, even though it has been around at least since the 1950s. Ongoing research, nevertheless, aims to appreciably bolster our understanding of the virus, exploring several aspects of HMPV.

Keyword: HMPV(Human metapneumovirus), Respiratory syncytial virus (RSV), Virus, Reverse transcription polymerase chain reaction (RT-PCR)

Exploring the Synthesis of 2-Aminopyrimidines Motifs as Potent Antimicrobial Agents

Manorama Prof. (Dr.) Avneesh Kumar
Department of Pharmaceutical chemistry
Maharana Pratap school of Pharmacy -Lucknow 226301. Uttar Pradesh
manoramalko9@gmail.com

Abstract

The key to enhancing antibiotic efficacy and combating antimicrobial resistance is proper utilization of antibiotics. Antibiotics are now the most important tools in fighting against infectious illnesses. However, the lack of newly discovered antimicrobial medications and the rise in antibiotic resistance represent a serious danger to human and animal health. The term antibiotic originally described only those formulation derived from living microorganisms but is now also applied to synthetic agents, such as Sulfonamides or fluoroquinolones. Moreover, the compounds incorporating 2-aminopyrimidine moieties constitute a versatile class of biologically interesting molecules with a wide array of application. As such 2-aminopyrimidine have been exploited as privileged structural motifs in designing novel drugs for the treatment of various infectious and non-infectious diseases such as imatinib, sulfamethomidine, nilotib, pazopanib, and vandetanib etc. Therefore, we explored the synthesis of pyrene containing 2- aminopyrimidine derivatives as potent antimicrobial agents. Various substituted aryl ketone important for the activities were incorporated. The biologically screening of synthesized compounds are under process.

Keywords-2-Aminopyrimidine, Guanidine, chalcone and pyrene**.**

\

Evaluation of Anti-Osteoporotic potential of Kushta-e-Sadaf in Ovariectomized rat model

Shahla Parveen[1], Soumya Singh[1], Md Kaish[2], Mohammad Khushtar[2]*
[1] Institute of Pharmaceutical Sciences, University of Lucknow-226031
[2] Faculty of Pharmacy, Integral University, Lucknow-226026
shahlap6@gmail.com

Abstract

Osteoporosis is the most common skeletal disease in humans. It is characterized by low bone mass and microarchitectural deterioration of the bone tissue, leading to decreased bone strength and increased risk of low-energy fractures, or so-called fragility fractures. Osteoporosis affects large number of people of both sexes and all races and its prevalence increases with age. Osteoporosis is a risk factor for fracture just as hypertension is for stroke. Pharmacological treatments comes with severe side effects, which encourages research in the advancement of newer alternative medicines like traditional medicines. Kushta-e-sadaf is one of them which has attain a marked attention for its anti-osteoporotic activity. It is produced from calcined oyster shells. Kushta-e Sadaf is rich in calcium, iron, and copper and it is used in the treatment of such innumerable major issues like cardiovascular issue, sexual failure, and renal issue. Ithas also shown osteogenic properties in various in-vitro studies. In vivo studies, further supported these findings, exhibiting improvement in BMD, bone strength and bone remodelling. Its anti-osteoporotic activity involves its rich calcium, magnesium, and bioactive compound which helps in bone formation, inhibits bone resorption, and improve overall bone health. Present study has been done on ovariectomized female SD rats for 30 days and different parameters like, micro-CT scan, bone mineral density, histopathological studies and some biochemical parameters were assessed. Results show a significant improvement in bone health which confirms the anti-osteoporotic potential of the drug. Besides these findings, well designed clinical trials are further required to accomplish the optimal dosage, safety and relative effectiveness of Kushta-e-Sadaf in management of osteoporosis.

Keywords: Kushta-e-sadaf, oyster shell, osteoporosis, bone mineral density

Receptor tyrosine kinase targeted for cancer Therapy.

Atharva Jaiswal*, Abhishek Pandit
Department of Pharmacy, Faculty of Pharmacy, Integral University, Lucknow- India (226026)
atharva@student.iul.ac.in

Abstract

Receptor tyrosine kinases (RTKs) are pivotal regulators of cellular proliferation, survival, and differentiation, and their dysregulation through mutation, overexpression, or aberrant activation is implicated in the pathogenesis of numerous cancers. Targeted therapies against RTKs have revolutionized oncology by offering precision treatment modalities that inhibit oncogenic signaling with reduced offtarget effects compared to conventional chemotherapy. These therapies include monoclonal antibodies (e.g., trastuzumab against HER2, cetuximab targeting EGFR) and small-molecule tyrosine kinase inhibitors (e.g., erlotinib for EGFR, sunitinib for VEGFR), which block extracellular ligand binding or intracellular kinase activity, respectively. By disrupting downstream pathways such as RAS-MAPK and PI3KAKT, these agents have improved outcomes in cancers like HER2-positive breast cancer and EGFR-mutant lung adenocarcinoma. Despite their efficacy, challenges persist, including acquired resistance due to secondary mutations (e.g., EGFR T790M), alternative RTK activation, or compensatory pathway signaling. Current strategies to overcome resistance involve next-generation inhibitors (e.g., osimertinib for T790M), combinatorial approaches targeting parallel pathways, and biomarker-driven patient stratification to optimize therapeutic response. Emerging research focuses on novel agents, bispecific antibodies, and integrating RTK inhibitors with immunotherapies to enhance antitumor efficacy. As the paradigm shifts toward personalized medicine, RTK-targeted therapies underscore the importance of genomic profiling and adaptive treatment strategies, heralding a future of tailored cancer management with improved patient survival and quality of life.

Keywords: Receptor Tyrosine Kinases (RTKs), Targeted Cancer Therapies, Monoclonal Antibodies, Tyrosine Kinase Inhibitors, Oncogenic Signaling, RASMAPK Pathway, PI3K-AKT Pathway, Acquired Resistance.

Vasicine: From Traditional Medicine to Nanoformulation - A Novel Approach for Therapeutic Applications

Nidhi Kumari[1]*, Juber Aktar[2], Preeti[3], Roli[4], Anjali yadav[5]
[1,4,5]T.S. Misra College of Pharmacy, T. S. Mishra University, Amausi, Lucknow
[2]Faculty of Pharmacy, Integral University, Lucknow
[3]Madan Mohan Malaviya, University of Technology, Gorakhpur
12aug.nidhi@gmail.com

Abstract

Vasicine and vasicinolone, a bioactive alkaloid primarily derived from Adhatoda vasica Nees (Justicia adhatoda), belonging to the Acanthaceae family, exhibits diverse pharmacological properties. It is a small, evergreen shrub found in many regions of India and throughout the world, with a multitude of uses in traditional Ayurveda. It has simple, broad leaves. It is a photoautotroph. It is one of the most frequently used medicinal plants in the Indian peninsula for upper respiratory tract problems. This review explores the extraction of Adhatoda vasica by different methods such as cold percolation / distillation, chemistry, pharmacology, analytical techniques for its quantification in various formulations, and future research directions. Vasicine molecule was first isolated in 1924, demonstrates a broad spectrum of biological activities, including analgesic, antimicrobial, anti-inflammatory, anticancer, antihypertensive, anti-HIV, antioxidant, anticonvulsant, antimalarial, and antitubercular effects. Several traditional medicinal formulations incorporate vasicine due to its therapeutic potential. Vasaka extract can be used directly as an expectorant, abortifacient, anti-microbial, anti-tussive, cardioprotective, anti-ulcer, anthelmintic, anti-inflammatory and anti-cancer. Advancements in nanosized drug delivery systems have revolutionized the pharmaceutical industry, offering innovative solutions to enhance the effectiveness of various drugs. These cutting-edge delivery systems include dendrimers, liposomes, niosomes, polymeric nanoparticles, nano-emulsions, nanosuspensions, nanoemulgels, and micelles. The advancements in these nanosized drug delivery systems hold a promise for overcoming pharmacokinetic limitations, ensuring better patient compliance, and maximizing therapeutic efficacy. By enhancing solubility, absorption, plasma half-life, and bioavailability, these nanocarriers serve more efficient and targeted drug therapies, ultimatel improving clinical outcomes in various medical conditions such as cancer, respiratory disorder, neurodegenerative conditions.

Keywords: Adhatoda vasica N, Novel drug delivery, Pharmacokinetics, Traditional formulation, Vasicine.

Pharmacological Evaluation of Herbal Medicines for Neuroprotection

Shivam Kumar, Sushma Singh, Zahid Husain
Shri Ramswaroop Memorial University, Lucknow, Deva Road
shivamkumarmuza@gmail.com

Abstract

Globally, neurodegenerative diseases like multiple sclerosis, Parkinson's disease, and Alzheimer's disease have grown to be serious health issues. While they provide symptomatic relief, conventional treatments frequently fall short of stopping the course of the disease. The neuroprotective potential of herbal remedies has drawn attention in recent years because of its rich phytochemical composition, which includes terpenoids, alkaloids, and flavonoids. These bioactive substances are potential options for neuroprotection because of their cholinergic-modulating, anti-inflammatory, anti-apoptotic, and antioxidant properties. The pharmacological mechanism of several medicinal herbs, including Curcuma longa, Ginkgo biloba, Bacopa monnieri, and Withania somnifera, in preventing neurodegeneration are assessed in this review. According to studies, Bacopa monnieri improves cognitive performance via lowering oxidative stress and modifying neurotransmitters. Ginkgo biloba shields neurons from oxidative damage and increases cerebral blood flow. Withania somnifera (Ashwagandha) has been found to inhibit neuroinflammation and promote neuronal regeneration, while Curcuma longa (Turmeric) exerts its effects through the regulation of amyloid-beta accumulation and suppression of neuroinflammation. Despite their potential, challenges such as poor bioavailability, lack of standardized formulations, and limited clinical trials hinder the widespread acceptance of herbal neuroprotective agents. Future research should focus on advanced drug delivery systems, clinical validation, and regulatory standardisation to integrate herbal medicines into mainstream neuropharmacology.

Keywords: Neuroprotection, Herbal Medicine, Alzheimer's Disease, Parkinson's Disease, Bacopamonnieri, Ginkgo biloba, Withania somnifera, Curcuma longa, Oxidative Stress, Neurodegeneration.

Topical formulation of Kaempferol and their pharmacological properties.

Preeti[1]*, Juber Akhtar[2], Badruddin[3], Nidhi Kumari[4]
[1]Department of Pharmaceutical Science & Technology, Madan Mohan Malaviya University, Gorakhpur
[2,3]Faculty of Pharmacy, Integral University, Lucknow
[4]T.S. Misra College of Pharmacy, T.S. Misra University, Amausi, Lucknow

Abstract

Kaempferol (KMF) is one of the most common bioactive compounds or bioflavonoids obtained from natural plants. It possesses numerous pharmacological properties such as anticancer, anti-inflammatory, antioxidant, antibacterial, antifungal, and many more. Due to all these activities, kaempferol is developed into many nano-sized formulations used to address and treat many diseases. The topical route has various drawbacks such as limited absorption, slow onset of action, irritation, & frequent dosing frequency. All these drawbacks can be overcome by formulating nanosized-based formulations such as developing liposomes, niosomes, nanoemulsion, solid lipid nanoparticles, nanostructured lipid carriers, pH-sensitive biodegradable formulations, hydrogel-based nanocarriers any more. This review will provide many research conducted for the treatment of topical disease by formulation of its formulations.

Keywords: Kaempferol, bioflavonoids, pharmacological activities, drawback & nano formulations

Synthesis of heterocyclic compunds for antimalarial activity

Anjali yadav[1]*, Kuldeep Singh[2], Nidhi Kumari[3], Roli[4]
[1]Asian International University, Manipur
[2]Aragen Life Sciences, Hyderabad
[3,4]T.S. Misra College of Pharmacy, T. S. Mishra University, Amausi, Lucknow
anjaliyadavmph2021@gmail.com

Abstract

This study explores the synthesis of heterocyclic compounds, specifically 8-aminoquinoline and 2,4-benzoxazine derivatives, through a multi-step reaction like cyclization, reduction and oxidation with processes as like synthetization of compound, column chromatography with organic substances, thin layer chromatography to identify compound and mass and NMR spectroscopy to clarify compounds. These compounds are designed to target Plasmodium spp., the protozoan parasite responsible for malaria, and hold potential for antimalarial drug development. The synthesis of novel 8-aminoquinoline derivatives involves the reaction of primaquine with 3- acetyloxolane-2-one in the presence of toluene under reflux for eight hours, yielding [3-(1-((4-(6-methoxyquinoline-8-yl)amino)pentyl)amino)ethylidene)dihydrofuran-2(3H)-one]. Additionally, 2,4-benzoxazinederivatives, known for their broad therapeutic applications—including anti-inflammatory, antiviral, antibacterial, anti-allergic, and antitumor properties—were synthesized by reacting 2-amino-p-cresol with 2-bromo-1-phenylethanone in the presence of cesium carbonate at room temperature. The intermediate was treated with sodiumborohydride under reflux for four hours, followed by oxidation using IBX in DMSO at 90°C to yield 3-phenyl-3,4- dihydro-2H-benzo[b][1,4]oxazine-6-carbaldehyde. The structures of the synthesized compounds were characterized using 1H NMR, 13C NMR, and mass spectrometry. Their antimalarial activity was evaluated against the erythrocytic stages of chloroquine-sensitive Plasmodium falciparum (3D7) using a fluorescence-based SYBR Green I assay by use of the nucleic acid staining dye.

Keywords: Antimalarial Activity, DMSO (Dimethyl Sulfoxide), Fluorescence, 8-Aminoquinoline Derivatives,Primaquine, 2,4-Benzoxazine Derivatives, SYBR Green I Assay and IBX (2-Iodoxybenzoic Acid).

The Importance of Natural Products in Drug Discovery

Shivam Kumar, Sushma Singh, Zahid Husain
Shri Ramswaroop Memorial University, Lucknow, Deva Road
shivamkumarmuza@gmail.com

Abstract

For centuries, natural products have been a foundation for medicine, leading to life-saving drugs like paclitaxel for cancer, artemisinin for malaria, and aspirin for pain relief. These compounds offer a wide range of therapeutic benefits, including antibacterial, anticancer, and anti-inflammatory effects. With advancements in science, researchers can now better identify and analyze these bioactive substances. However, challenges such as low bioavailability and sustainable sourcing need to be addressed to ensure their long-term use in medicine. By integrating traditional medicinal knowledge with modern research, scientists can continue developing effective treatments for various diseases. Recent technological advancements, including artificial intelligence, molecular docking, and nanotechnology, have further improved the discovery and development of natural compounds. These innovations help in optimizing drug formulations, improving delivery systems, and minimizing side effects. As research progresses, natural products will continue to play a crucial role in finding new and effective treatments for global health challenges.

Keywords: Natural products, drug discovery, herbal medicine, bioactive compounds, secondary metabolites, therapeutic potential, nanotechnology, molecular docking, drug development.

Efficacy of Gene Therapy in The Treatment of Neurodegenerative Diseases

Kirti Singh
Lucknow Model College of Pharmacy, Lucknow, Uttar Pradesh, India
Kirtibkbk@gmail.com

Abstract

Gene therapy has emerged as a promising treatment modality for various neurodegenerative diseases, offering potential disease-modifying effects that traditional therapies have not achieved. This abstract synthesizes findings from multiple systematic reviews and clinical trials to evaluate the efficacy of gene therapy in treating neurodegenerative conditions such as Parkinson's disease (PD), Alzheimer's disease (AD), spinal muscular atrophy (SMA), Huntington's disease (HD), and amyotrophic lateral sclerosis (ALS). Gene therapy in PD aims to restore dopamine production, protect dopaminergic neurons, and modulate neural activity, showing significant improvements in motor function and safety. In AD, preclinical studies have demonstrated positive outcomes in improving memory and learning, although clinical trials face challenges with delivery methods. SMA patients have shown significant clinical benefits with gene therapy targeting the SMN1 gene, improving motor function and survival rates. Gene therapy in HD focuses on reducing mutant huntingtin protein production, showing potential in slowing disease progression. In ALS, gene therapy aims to protect motor neurons and modulate disease pathways, with promising preclinical results but ongoing clinical efficacy investigations. These advancements highlight gene therapy's potential to transform neurodegenerative disease treatment, though challenges remain in translating preclinical successes to broader clinical applications. Continued research and refinement of delivery methods are essential for realizing the full therapeutic potential of gene therapy.

Keywords: Gene therapy, Neurodegenerative Disease, Parkinson's disease (PD), Alzheimer's disease (AD) and Spinal Muscular Atrophy (SMA)

Emerging Therapies on Neurodegenerative disorder Amyotrophic Lateral Sclerosis

Anushka Srimali*, Ms. Pragti Singh
Institute of Pharmacy,Shri Ramswaroop Memorial University, Barabanki,UP,India (225003)
anushkasrimali81@gmail.com

Abstract

Amyotrophic lateral sclerosis (ALS) could be a deadly neurodegenerative disturbed qualify by the dynamic misfortune of engine neurons, coordinate to strong tissue shortcoming, paralysis, and respiratory nonstarter. In spite of the restricted viability of current talk, a few rising treatments are appearing trust in abating illness movement and meliorate understanding results. One of the well-nigh noteworthy progressions in ALS treatment is antisense oligonucleotide (ASO) treatment. ASOs target specific transmissible chromosomal transformation, such as those within the SOD1 and C9orf72 quality, to curb the generation of poisonous protein bring to neuronal harm. There is an FDA-okay ASO known as to Fersen, which has evidence to the potential difference in slowing disease progression among patients with SOD1 mutations. Stem electric cell treatment are moreover being see into as a conceivable intercession for ALS. These treatments propose to reanimate or supersede harm engine neurons, balance the safe reaction, and increase neuroprotection. Investigate Specialist are developing strategies to rectify hereditary abandons or stifle hurtful exceptional expression, probable advertising lengthy-time period therapeutic effects. Neuroprotective calculate are being appearance to keep motor neuron and preserve out survival. Exploratory medicate like fosigotifator (ABBV-CLS-7262) calculate to elevate mobile resiliency in opposition to ALS-associated harm. Furthermore, compounding remedy coordination severe taking care of methodology, which include ASOs, stem imprison cell, and neuroprotective experts, are beneath take a look at to move ahead recuperating consequences. These awesome procedures are giving Leslie Townes Trust for front heading of ALS; however, the mission-to-go-on intake as much as being receptiveness-empowering, frantic-term protective, and effective-remains.

Keywords: ALS, neurodegenerative, antisense oligonucleotide, neuroprotection.

Innovations and Future Prospects in COPD Management: Advancing Treatment and Care

Miss Nancy Srivastava* ,Mr. Purnendra Gupta , Dr. Umesh Singh
Rameshwaram Institute of Technology and Management, Lucknow, India
nancysrivas70@gmail.com

Abstract

Chronic Obstructive Pulmonary Disease (COPD) remains a major cause of disease, death, and economic burden globally, particularly in low- and middle-income countries where access to new therapies remains limited. New strategies are being formulated to revolutionize the management of COPD as the global health landscape evolves. Treatment strategies are evolving due to advances in precision medicine, biologic therapies, and AI-based healthcare solutions. By targeting inflammation at the molecular level, biologic drugs such as Dupixent are creating new opportunities for individualized treatment. AI-based diagnostic devices and intelligent inhalers are some of the digital health technology that are improving patient compliance, disease monitoring, and early diagnosis. In addition, treatment efficacy and patient outcomes are being enhanced by regenerative medicine and next-generation drug delivery technologies such as sustained-release inhalers and nano-formulations. The future of COPD management will be defined by innovation, access, and targeted interventions as the world progresses toward a more technology-driven and globalized health environment. The paper discusses the most recent progress and looks to a future where managing COPD becomes more effective, equitable, and sustainable across the globe.

Keywords: Global Health, Biologic Therapies, AI and Digital Health, Advanced Drug Delivery, Current challenges, COPD Treatment Innovations

Formulation And Characterization of Pravastatin Loaded Hybrid Nanoparticles for Improving Intestinal Permeability

Seema Yadav, Abhishek Singh, Narahari Narayan Palei*
Amity Institute of Pharmacy, Lucknow, Amity University Uttar Pradesh, Sector 125, Noida, 201313, India
nnpalei@lko.amity.edu

Abstract

Objective: This study aimed to formulate and evaluate a hybrid nanoparticle for enhancing the intestinal permeability of Pravastatin**.**

Method: Hybrid nanoparticles were formulated with a lipid-core polysaccharide-shell (LC-PS) design. Hybrid nanoparticles of pravastatin were characterized such as particle size, zeta potential, % entrapment efficiency, and *in vitro* drug release. FTIR, DSC, XRD, and SEM were utilized to assess the compatibility properties and morphology of the hybrid nanoparticles. *Ex vivo* permeability studies were carried out to evaluate the enhancement of intestinal permeability.

Results: The formulated hybrid nanoparticles exhibited optimal particle size of 320 nm, zeta potential of +26 mV, and %entrapment efficiency of 76.53%, confirming successful fabrication. *In vitro* drug release studies indicated sustained release behaviour of pravastatin. The characterization of optimized hybrid nanoparticles revealed homogeneously drug distributed based on DSC results, decreasing crystallinity, and spherical shape. *Ex vivo* permeability studies showed significant enhancement in the intestinal permeability of Pravastatin with the hybrid nanoparticles. The *ex vivo* permeation study revealed 6 times more permeability of hybrid nanoparticles compared with PV solution (Papp = 0.8×10^{-6}). Successful translocation through Peyer's patches was demonstrated using a fluorescent marker.

Conclusion: The hybrid nanoparticles system effectively enhanced the intestinal permeability of Pravastatin, providing sustained release. This approach could show promise delivery system for improving the bioavailability and therapeutic outcomes of Pravastatin and similar drugs, with potential for future clinical application.

Keywords: Pravastatin**,** Hybrid nanoparticles, Intestinal permeability, SEM studies,

Role of Natural Antioxidants in the Management of Hypercholesterolemia: A Pharmacognostic Perspective

Smita Khare*, Dr. Nidhi Tyagi, Dr. Kapil Khatri
***Research Scholar, SRM Modinagar College of Pharmacy, Modinagar Ghaziabad, UP, India**
smita2k12@gmail.com

Abstract

Hypercholesterolemia, characterized by elevated cholesterol levels in the bloodstream, is a significant contributor to cardiovascular diseases (CVDs), including conditions like atherosclerosis and myocardial infarctions. Historically, the management of hypercholesterolemia has relied on pharmaceutical treatments, particularly statins, fibrates and many other sythetic drugs. However, growing concerns regarding the side effects and prolonged use of synthetic medications have sparked an increased interest in natural, plant-based alternatives. This review examines the role of natural antioxidants in the management of hypercholesterolemia from a pharmacognostic standpoint. Natural antioxidants of different origin, including polyphenols, flavonoids, vitamins (such as vitamin E), and carotenoids, exhibit various mechanisms that aid in cholesterol regulation. These mechanisms include the enhancement of antioxidant activity, reduction of oxidative stress, and modulation of lipid metabolism. Research indicates that these compounds can lower low-density lipoprotein (LDL) cholesterol while elevating high-density lipoprotein (HDL) cholesterol levels, thereby improving lipid profiles and mitigating cardiovascular risk. Beyond their lipid-lowering effects, these antioxidants also possess anti-inflammatory properties, which further promote cardiovascular health by reducing the formation of arterial plaques. The review additionally addresses the pharmacokinetics, bioavailability, and safety profiles of different plant-derived antioxidants, exploring how these elements influence their effectiveness and potential as complementary therapies to conventional treatments. Although evidence suggests that natural antioxidants may be beneficial in managing hypercholesterolemia, further research is necessary to ascertain their long-term safety, optimal dosages, and clinical effectiveness. This review highlights the promise of incorporating natural antioxidants into current therapeutic strategies, potentially providing a safer and more sustainable method for managing hypercholesterolemia. By utilizing these natural compounds, it may be feasible to lessen dependence on synthetic medications, offering patients a more comprehensive treatment approach with reduced side effects and improved outcomes.

Keywords: Hypercholesterolemia, antioxidant. HDL, LDL, cardiovascular diseases