

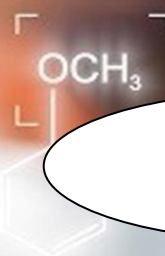
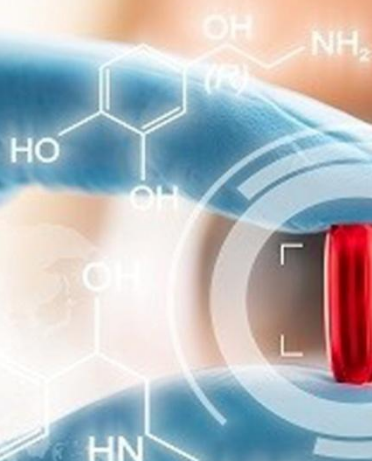


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ABSTRACTS OF PHIDAGE-2023

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ADITYA NAGAR, ADB ROAD, SURAMPALEM,

ANDHRA PRADESH, INDIA.



NANOPARTICLES

M. JYOTHI

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Abstract: Nanotechnology is a modern field of science which plays a dominant role in day to day life aspects. Different types of Nanoparticles include inorganic nanoparticles, polymeric nanoparticles, solid lipid nanoparticles, nanotubes, nanocrystals, dendrimers etc. Various methods which are used for synthesis of nanoparticles namely Sol-gel technique, Solvothermal synthesis, chemical reduction, laser ablation, inert gas condensation, biosynthetic procedures. The system can be used for various routes of administration including oral, nasal, parenteral, intra-ocular etc. The main applications of nanoparticles are biomedical applications, such as drug and gene delivery, cancer treatment and diagnostic tools, food etc. has been extensively studied throughout the past decade and also nanoparticle created a huge interest due to their very small size and large surface-to-volume ratio and they display absolutely novel uniqueness contrast to the large particles of bulk material.

Keywords: Nanoparticles, Targeted Delivery, Cancer Chemotherapy.

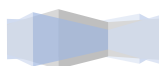
FORMULATION AND EVALUATION OF CERAMIC NANOPARTICLES OF DOLUTEGRAVIR SODIUM TABLETS

SURLA BABY

Jawaharlal Nehru Technological University, Kakinada, Andhra Pradesh, India.

Abstract: Dolutegravir sodium is the most recent antiretroviral drug approved for the treatment of HIV-1 infection. The present work aims to fabricate ceramic nanoparticles (aquasomes) of dolutegravir sodium for the enhancement of dissolution rate and act as a potential carrier for the delivery of the hydrophobic drug and to formulate and evaluate dolutegravir sodium tablets using optimized ceramic nanoparticles. Dolutegravir loaded aquasomes were prepared by three steps procedure consisting of the formation of an inorganic core, coating with starch/ chitosan / trehalose and B-cyclodextrin sugar and adsorption of the drug onto this sugar coated core. Ceramic nanoparticles were prepared by self-assembling of polyhydroxy oligomers using colloidal precipitation technique with optimized core and coat ratio (1:1 or 1:2). The formulated aquasomes were characterized by particle size and size distribution, zeta potential, FTIR, DSC, and XRD studies. Drug entrapment efficiency and drug loading, dissolution rate and efficiency was calculated from in vitro drug release studies and fit factor test was applied to the pure drug and optimized formulation. In formulation of dolutegravir aquasomes, the optimized ratio (1:2, core:coat) of trehalose coated aquasomes (F8) shows highest percent of drug entrapment efficiency ($98.54 \pm 0.72\%$) and drug loading ($4.63 \pm 0.07\%$). The optimized formulation (F8) of mean (z-average) particle size, and zeta potential was found to be 37.81nm and +31.8 respectively. PDI found to be 156.3 ± 0.06 which indicates the particles are uniform distribution with greater the stability. Ceramic nanoparticles (aquasomes) are a recent innovation for the delivery of therapeutic agents specifically for poorly soluble drugs. Ceramic nanoparticles for dolutegravir were successfully prepared by size enlargement method under reflux conditions. Process and formulation parameters were optimized to get encouraging results, optimum size, shape and percentage of yield. They have nanometric dimensions, low drug dose and hydrophilic properties has the potential to enhance the dissolution of the less soluble drug. Trehalose loaded dolutegravir ceramic nanoparticles gave gradual and linear release.

Keywords: Dolutegravir Sodium, Aquasomes, Ceramic Nanoparticles, Polyhydroxy Oligomers.



SMALL PARTICLES BIG IMPACT: NANO LIPID CARRIERS STEPPING INTO THE SPOTLIGHT

B AMEETHA

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Abstract: Linagliptin (LGP) is a dipeptidyl peptidase 4-inhibitor (DPP-4) that is used to treat type II diabetes and is essential for controlling blood glucose levels. However, the oral bioavailability of this medication is about 30%, which limits its efficacy. The primary goal of the current study was to design and characterize linagliptin-loaded Nano-structured lipid carriers (NLCs) for transdermal drug administration by Hot High-Pressure Homogenization in order to obtain the best novel formulation using central composite design. To enhance the bioavailability of linagliptin, phospholipids like glyceryl monostearate, oleic acid along with the surfactants like tween 80, and poloxamer 407 were used. GMS:LGP (lipid: drug), poloxamer 407 and tween 80 were taken as independent variables and their responses were evaluated on particle size (nm), entrapment efficiency (%), zeta potential (ZP) and polydispersity index (PDI). Optimized LGP-NLC formulation was evaluated for in vitro and ex vivo permeation studies. This formulation showed 180.5 nm of particle size, 89.2% of EE, exhibited a negative zeta potential of 25.9 mv and PDI of 0.34. In the morphological analysis conducted through SEM the observed structures were characterized by a distinct spherical shape with size 200 nm. They showed a sustained release of LGP (95.08 in 36 h) than pure LGP. The ex vivo skin permeation result exhibited a significantly enhanced flux than pure LGP. It was proved that Linagliptin NLC can get permeated through the skin. These findings revealed that Linagliptin NLC formulation could be an alternative delivery system of LGP to systemic delivery to enhance bioavailability. Future scope for the present research can be done through transdermal delivery carriers like microneedles, scaffolds, patches through which it can be administered.

Keywords: Linagliptin, Nanostructured Lipid Carriers, Transdermal Drug Delivery.

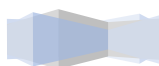
THE PHARMACODYNAMIC STUDIES OF THE OPTIMIZED VANCOMYCIN HCl TABLETS AND CAPSULES

KUDIPUDI VENKATESWARLU

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

Abstract: Vancomycin HCl is a glycopeptide antibiotic which is poorly absorbed into the systemic circulation in spite of its water solubility. Thus, it is more practical to measure the concentration of vancomycin HCl in the faecal matter which provides insights about the drug concentration. Hence, pharmacodynamic studies are carried out using faecal matter of rabbits. In vivo studies were carried out by using 12 healthy rabbits of either sex and were randomly divided into three groups consisting of four rabbits in each group. An open label, balanced, randomized, three treatment study was used. Faecal samples were collected from each animal before administration of treatments for using as blank value and at three different periods (12 hours, 24 hours and 48 hours). The faecal samples were analysed at 277 nm against the blank faecal samples. Total drug excreted from RCHP3C8, RH2C10 and oral solution of pure drug were 64%, 60.9% and 71.5% of vancomycin HCl. The results from two way ANOVA indicated that the group means are different from total population mean at 5% level of significance as evident from the p value (<0.05). Hence, H_0 is rejected as the calculated F ratio is greater than the table F value at 5% level of significance. As alternative hypothesis is accepted, Tukey-Kramer test was performed for identifying the significant difference between the groups.

Keywords: Vancomycin HCl, Pharmacodynamic Studies, Faecal Samples, Tukey-Kramer Test.



FORMULATION AND EVALUATION OF HERBAL SOAP WITH MORINGA OLEIFERA LEAF EXTRACTS FOR SKIN AILMENTS

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Abstract: Plant-based treatments have been utilised as a cure for a variety of human ailments since ancient times. Moringa oleifera, also known as the drumstick tree in India, is a well-known plant that contains several useful compounds such as sterols, tannins, flavonoids, alkaloids, saponins and terpenoids. Moringa preserves and increases collagen, decreasing premature ageing indications and rebuilding skin cells. It revitalises dull, tired skin by balancing sebum levels and making the skin glow naturally. The present goal was to make soap out of moringa leaf extracts because most commercial soaps contain chemicals and synthetic substances that can be unpleasant or even harmful to the skin. Herbal products serve two functions: body care and the naturally healthy skin. In this study, the cold process approach is applied to make herbal soap. Coconut oil, glycerine, Moringa oleifera extract, lemon grass oil and sodium hydroxide were used to manufacture herbal soap and the various extracts were then mixed into the primary saponification process. After the herbal formulation was completed, it was evaluated for pH, moisture content, foaming index, foam retention time, and high temperature stability, among other things. Various studies have revealed that these herbal plant extracts have anti-bacterial, anti-inflammatory and anti-fungal properties. The findings for the herbal soap show that these soaps are cost-effective, convenient, and do not cause skin irritation.

Keywords: Moringa, Herbal soap, Cosmetics.

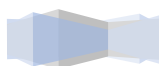
ASSESSMENT OF ANTI-CANCER DRUG RESISTANCE AND QUANTIFICATION OF DRUG RESISTANCE GENE EXPRESSION OF CANCER CELL LINES TREATED WITH NANOPARTICLE ENCAPSULATED ANTI-CANCER DRUGS

VAMSI RAPAKA

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Abstract: Nanoparticle-based drug delivery systems have gained prominence for their potential to enhance drug efficacy and overcome resistance mechanisms. In this investigation, we employed a diverse panel of cancer cell lines representing various cancer types to evaluate their response to anti-cancer drugs encapsulated within nanoparticles. The assessment involved determining the sensitivity of these cell lines to the treatment and identifying any variations in resistance profiles. To gain insights into the molecular mechanisms underlying drug resistance, we focused on quantifying the expression levels of key drug resistance genes. Through advanced molecular biology techniques such as qPCR and RNA sequencing. We measured the gene expression changes induced by the nanoparticle-encapsulated drugs. This analysis allowed us to identify specific genes and pathways associated with resistance, providing valuable information for targeted therapeutic interventions. Our findings contribute to a deeper understanding of drug resistance mechanisms in cancer and offer potential strategies for improving the effectiveness of nanoparticle-based anti-cancer drug delivery systems. Ultimately, this research may pave the way for more personalized and efficacious cancer treatments, bringing us one step closer to combating drug resistance and improving patient outcomes in oncology.

Keywords: Nanoparticles, Anti-cancer, Drug resistance, qPCR.



FORMULATION AND EVALUATION OF BILASTINE ORODISPERSIBLE TABLETS BY USING SOLID DISPERSION

GOWRIPATTAPU SRIDEVI

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Abstract: The aim of the present study is to design, formulate, develop and evaluate Bilastine orodispersible formulation to increase the solubility of the drug which will result in improvement of bioavailability and to reduce the side effects. The formulation prepared with Solid dispersion, SSG, CP, MCC, Mg stearate, talc yielded the required release of Bilastine. Bilastine was found to be compatible with Solid dispersion, CP, MCC, Mg stearate. It shows highest solubility in 0.1 N Hydrochloride. When compared to pure drug and ratio of bilastine solid dispersions, the solid dispersion comprising drug: PEG 4000 (1:2) is regarded a quick release dosage form of bilastine. Dissolution studies shows higher release for F12 formulation was about $99.99 \pm 0.012\%$ at 300 seconds which was influenced by the composition and concentration of polymer. The F12 follows first order because regression values for first order (0.9964) are higher than zero order (0.9953). The stability profile of optimized formulation at $40^\circ\text{C}/75\%\text{RH}$ shows no significant change in the dissolution profile and also there was no significant changes observed in case of physical appearance and dissolution studies when compared with initial samples. Thus, it implies that formulation F12 was found to be stable.

Keywords: Bilastine, Solid Dispersion, Solubility Enhancement.

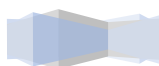
OCULAR DISEASES

GOLLA VENKATA SOWMYASREE

Annamacharya College of Pharmacy, Rajampet, Andhra Pradesh, India.

Abstract: The researcher and the physician has to focus on the occurrence of ocular diseases concerns to age and climatic conditions. The most common ocular diseases spreads after certain manifestations such as drying of eye, irritation in eye, tears out, redness of eye, painful in the interior region of eye etc. The common eye conditions could include diabetic retinopathy, astigmatism, cataracts, colour blindness, amblyopia, floaters, pink eye, glaucoma etc. Some of the natural remedies to treat eye infections are following the day to day bed practices such as clean and change pillow cases often. Placing cooled tea bags on your eyes while they're closed can be a way to relax and unwind, cold compress, avoid make up, wash linens etc. The drugs used are Ophthalmic anti-infectives include eyedrops, gels or ointments. Anti-infectives are drugs that can either kill an infectious agent or inhibit it from spreading. Anti-infectives include antibiotics and antibacterials, antifungals, antivirals and antiprotozoals. The precautions to be taken after surgery in regular life, avoiding exercises and physical activity, dusty and dirty environment, direct sunlight, wearing of sun glasses with out removal. The eye should be protected from harmful forms of rays and staying in dark place is safer for early recovery.

Keywords: Antibacterials, Eye Drops, Ocular Disease.



ADVANCES IN TRANSDERMAL DRUG DELIVERY SYSTEM

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Abstract: One of the most successful drug delivery system with tapered side effects is the transdermal drug delivery since decades. It is the most convenient route for most of the drugs and patient easy administering route of drug delivery system. It bypasses the enterohepatic circulation, there by providing a more reliable clinical action. Some of the most common examples from past include nicotine patches or patches that contain painkillers, such as prescription opioids. The requirements to fabricate this route of drug delivery is polymer matrix, membrane, drug, penetration enhancers, pressure- sensitive adhesives, backing laminates, release liner. Aceclofenac, diclofenac, zidovudine, fentanyl and Buprenorphine, Nitroglycerine, Selegiline, Methylphenidate, Scopolamine, Hormones, Clonidine etc are the active ingredients. Various approaches of this delivery could include laser, radio frequency, iontophoresis, microneedle, jet injector, ultra sound, chemical enhancers, prodrug, eutectic system, reservoir, matrix, adhesive, microreservoir etc. TDDS deserves the advantages of prolonged drug action, maintaining good plasma levels, reduction in dosing frequency, improvement in bioavailability etc. Ethyl cellulose, carboxy methyl cellulose, hydroxypropyl methyl cellulose, xanthane gum, sodium alginate, chitosan and mucilage are used as polymers in the preparation of dosage form. The fabricated dosage forms were evaluated for thickness, weight uniformity, content uniformity, folding endurance, microscopic study, swellability, pH, hardness, physical appearance, flatness, percentage of moisture content, moisture uptake, water vapour transmission study and tensile strength.

Keywords: Patches, Hydroxyl Propyl Methyl Cellulose, Drug Action, Folding Endurance.

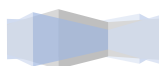
FORMULATION AND EVALUATION OF SOLID DISPERSION OF PHENYTOIN BY SOLVENT EVAPORATION TECHNIQUE

KAMMA KEERTHISAI

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

Abstract: The aim of the present study is formulation and evaluation of phenytoin by making solid dispersion with polyvinyl alcohol and inclusion complexation with HP β Cyclodextrin, β Cyclodextrin. Solid dispersion of Phenytoin is prepared with Solvent Evaporation method. Phenytoin belongs to BCS class II drug which is characterized by high membrane permeability, slow dissolution rate due to low aqueous solubility. It is an anti-epileptic or anti-convulsant and is used to treat wide variety of Seizures. The Phenytoin solid dispersions were prepared by solvent evaporation method at 1:0.25, 1:0.5, 1:0.75, 1:1, 1:1.25, 1:1.5 ratios of Phenytoin to HP β CD, β CD and PVA. The prepared dispersions were evaluated by solubility studies, in-vitro dissolution studies, melting point determination, drug content uniformity, entrapment efficiency and FT-IR studies. Finally comparing all the formulations (P:HP β F1-P:HP β F6) (P: β F1-P β F6) & (P:PF1-P:PF6) formulation P:PF4 containing Phenytoin:Polyvinyl alcohol (1:1) shows better result at the end of 90 min with drug release 93.99%, hence it was selected as the best formulation. By release kinetic studies of best formulation of Phenytoin with zero order and first order we can say that the best formulation follows first order kinetics studies having r^2 value 0.945 where as zero order release kinetics studies having r^2 value 0.849. The results indicated as formulated solid dispersion tablets displayed better dissolution profiles as compared to existing commercial tablets.

Keywords: Phenytoin, Solubility, Permeability, Biowaivers, Antiepileptic.



FORMULATION AND EVALUATION OF VALSARTAN SODIUM FAST DISSOLVING TABLETS BY USING NATURAL DISINTEGRATING AGENTS

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Abstract: Valsartan sodium is a BCS Class II drug, suffers from oral bioavailability because of its poor water solubility. In this current research, valsartan sodium dissolution was enhanced with the help of natural disintegrants. Valsartan fast dissolving tablets were prepared with help of new natural disintegrating agents namely coconut fibre powder & ridge gourd powder at two different concentrations 20% and 40% w/w per tablet. These tablets were compared with two synthetic disintegrants namely sodium starch glycolate and croscarmellose sodium at the same concentration. All the dissolution values were compared with the valsartan tablet without disintegrants. Finally, it was found that synthetic disintegrants enhanced the valsartan dissolution to 2.6-fold and natural disintegrants to 2.2-fold. Hence, natural disintegrants are having better dissolution characteristics equal to synthetic disintegrants can be used very safely than synthetic to enhance the dissolution of valsartan. The mechanism of valsartan drug dissolution improvement by natural disintegrants was expected to be their fibrous nature increases wicking nature of tablet brings the hydrodynamic pressure difference was the causative factor for drug disintegration by that fast dissolution.

Keywords: Valsartan sodium, Dissolution enhancement, Natural disintegrant, Synthetic Disintegrant.

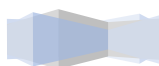
BIO-RESPONSIVE DRUGS

V. CHIRANJEEVI, P. SIRISHA, Md. FAREEN

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Abstract: Bio-Responsive Drugs also called as Smart Drugs (or) Responsive Therapeutics. They are a type of medication that are designed to specific physiological (or) pathological conditions within the body. These drugs are engineered to detect changes in the body's biochemistry (or) environment and then initiate a targeted response such as releasing the active ingredient at the desired site and adjusting the drug dosage based on the patient's needs. Bio-responsive drugs are used to enhance the therapeutic efficacy of medications which minimizing side effects, improving patient outcomes, by incorporating elements of molecular recognition (or) stimuli –responsive materials into drug formulations. Researchers aim to create drugs that can sense and adapt to the dynamic conditions in the body. The potential applications of Bio-responsive drugs are vast and varied. They hold promise in various fields including Oncology, Cardio-vascular Diseases, Diabetes, Neurology, Infectious Diseases. Bio-responsive Drugs can enable targeted drug delivery, reduce off-target effects, enhance therapeutic efficacy and improve patient compliance. Bio-responsive drugs show great potential, they are still in the early stages of development and not yet widely available. Extensive research and clinical trails are ongoing to further understand their effectiveness, safety and long-term impact.

Keywords: Bio-responsive, Molecular Recognition, Therapeutic Efficacy, Responsive Therapeutics.



BENIFITS OF MEDICAL TECHNOLOGY : WHATS THE IMPACT?

CH. DEEPTHI SOWMYA

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Abstract: Medical devices are instruments, apparatus, machines or implants specifically designed for diagnosing, preventing, monitoring or treating medical conditions in humans. The Essure is a form of permanent birth control for women. It consists of small, flexible coils made of a nickel-titanium alloy and it is very easy to use without use of surgical procedures & incision. The Metal-on-metal hip implants are a type of hip replacement device that was used in orthopaedics surgery. These implants consist of metal components. Transvaginal mesh is a medical device used in the treatment of certain pelvic conditions in women. Da Vinci Surgical system is a robotic-assisted surgical platform designed to assist surgeons in performing minimally invasive surgical procedures. It's important to note that while the da Vinci system uses advanced robotic technology, it does not perform surgery autonomously; instead, it enhances the surgeon's precision and control during procedures. Laparoscopic power morcellators are medical devices used in minimally invasive surgical procedures, particularly in gynaecology and general surgery. These devices are designed to fragment and remove tissue from the body through small incisions. Breast implants are medical devices used to augment or reconstruct the breast tissue. They are primarily used for cosmetic reasons, such as breast augmentation to increase breast size, or for reconstructive purposes, often after mastectomy (removal of the breast) due to breast cancer or other medical conditions.

Keywords: Medical devices, essure, da vince system, breast implants.

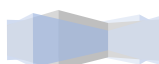
CHALLENGES OF STEM CELL THERAPY IN HEALTHCARE

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Abstract: Stem cells are undifferentiated cells which are found in the human body that have the unique ability to divide continuously and have the ability to form every tissue in the body. Hence, stem cells have great potential for therapeutic uses in several vexing diseases. Stem cell-based therapy includes human pluripotent stem cells (hPSCs), embryonic stem cells (ESCs), and adult stem cells. hPSCs are self-renewable cell types which differentiates into several phenotypes of the human body, including three germ layers. Embryonic stem cells are totipotent which are capable of differentiation into various known daughter cell type. Adult stem cell is an undifferentiated cell found in many differentiated cells in a tissue; it can renew itself to give major specialized cell types of the tissue. Stem cell based regenerative therapies have raised hopes for novel therapeutic approaches in tissue regeneration, cardiovascular disease treatment, cell deficiency therapy, blood disease treatments, stroke, cancer. Stem cell therapy is well established and rapidly growing in developed country but there are certain challenges which are shielding the development of this therapy in developing countries. The challenges include contamination during manufacturing, stem cell distribution after transplant, stem cell culture condition. Therefore, to improve the benefits of stem cell therapy, these challenges have to be removed and should create a fresh environment of modern stem cell therapeutic medicine.

Keywords: Stem cells, Differentiation, Therapeutic approach, Pluripotent stem cells.



PLASMA MEDICINE

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Abstract: Plasma medicine is an emerging field at the intersection of plasma physics, life sciences and clinical medicine that harnesses the unique properties of plasma, the fourth state of matter, for therapeutic applications. In this innovative approach, various forms of plasma, such as cold atmospheric plasma (CAP) or dielectric barrier discharge (DBD) plasma, are utilized to treat a wide range of medical conditions with little or no side effects. CAP, in particular, has gained significant attention for its potential in wound healing and tissue regeneration. When CAP interacts with biological tissues, it generates reactive oxygen and nitrogen species, as well as UV radiation, which can induce cell death in pathogens and promote tissue regeneration. Furthermore, plasma medicine shows promise in the treatment of cancer. Plasma-activated liquids (PAL) can selectively target cancer cells while sparing healthy tissue. The reactive species generated by plasma trigger apoptosis in cancer cells, offering a non-invasive and highly targeted therapeutic option. Beyond these applications, plasma medicine has demonstrated potential in dermatology for treating skin diseases like psoriasis and promoting the delivery of topical medications. Additionally, it is being explored in dentistry for sterilizing dental instruments and treating oral infections. In conclusion, plasma medicine represents a cutting-edge approach to medical treatment with diverse applications ranging from wound healing and cancer therapy to dermatology and dentistry. As research in this field advances, it holds the promise of revolutionizing healthcare by offering non-invasive, highly effective, and targeted treatments for a wide array of medical conditions.

Keywords: Plasma, Cold Atmospheric Plasma, Di-electric Barrier Discharge.

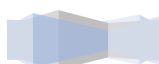
MEDICATION MANAGEMENT BY USING ARTIFICIAL INTELLIGENCE

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Abstract: Medication management is a critical aspect of modern healthcare, with patient safety and treatment efficacy depending on accurate and timely administration. However, the complexity of medication regimens, potential for errors, pose significant challenges. Artificial Intelligence (AI) has emerged in addressing these challenges. Artificial intelligence techniques are being employed to enhance various facets of medication management. AI-powered systems assist healthcare professionals in drug prescription, dosage calculation, and identification of potential drug interactions. These systems analyse patient data, medical records, and the latest research to personalize treatment plans, ensuring optimal therapeutic outcomes. Moreover, AI-driven medication adherence solutions utilize mobile applications and wearable devices to monitor patients. Through real-time reminders, personalized education, and data-driven insights, these systems empower patients to take an active role in their healthcare. Artificial intelligence also plays a vital role in pharmaceutical research and development. AI-driven drug discovery platforms expedite the identification of potential drug candidates, saving time and resources. AI algorithms helps to predict, optimize molecular structures, and accelerate the drug development. Furthermore, AI-driven robotics and automation have streamlined medication dispensing, distribution, in medication preparation, reducing human errors and ensuring precise dosage delivery. AI-powered inventory management systems enhance the tracking of medication supplies, reducing waste and cost inefficiencies. In conclusion, the integration of artificial intelligence into medication management represents a transformative shift in healthcare. AI-powered solutions enhance medication safety, personalization, and adherence, driving innovation in pharmaceutical research and optimizing medication distribution processes.

Keywords: Medication Management, Artificial Intelligence, Health Care.



ADVANCING PRECISION MEDICINE: ROBOTICS DRUG DELIVERY FOR TARGETTED THERAPIES

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Abstract: Precision medicine has revolutionized the field of healthcare by tailoring treatments to individual patients based on their unique genetic, environmental, and lifestyle factors. In this context, one of the most promising advancements is the integration of robotics into drug delivery systems, enabling highly targeted therapies with unprecedented precision and efficacy. Traditional drug delivery methods often suffer from limitations such as off-target effects, inadequate drug concentration at the disease site, and systemic toxicity. Robotics-driven drug delivery systems address these challenges by precisely navigating through the body and deploying therapeutic agents directly to the affected tissues. These systems utilize advanced sensors, artificial intelligence algorithms, and nano scale drug carriers to ensure accurate drug placement. Moreover, robotics enables real-time monitoring and adjustments during drug delivery procedures, ensuring optimal therapeutic outcomes. This level of control is particularly valuable in treating complex diseases like cancer, where minimizing damage to healthy tissues while eradicating cancer cells is paramount. Furthermore, robotics enhances patient comfort and reduces the invasiveness of medical procedures. Minimally invasive techniques, such as micro robots and nano robots, offer the potential to access previously unreachable areas within the body, further expanding the scope of precision medicine. In conclusion, robotics-driven drug delivery is poised to revolutionize precision medicine by offering unprecedented levels of accuracy, control, and patient-centric care. As this technology continues to evolve, it holds the promise of transforming the treatment landscape for a wide range of diseases, ultimately improving patient outcomes and quality of life.

Keywords: Precision Medicine, Robotics, Real Time Monitoring.

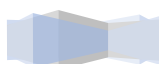
TISSUE ENGINEERING AND REGENERATIVE MEDICINE

K.S.SAI PRADEEP, T. SHILPA REDDY, M.VAMSI PAVAN KUMAR, S.SHARFUDEEN

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Abstract: Human embryonic stem cells have the potential to provide an unlimited amount of tissue for transplantation therapies to treat a wide range of diseases of the nervous system, including congenital disorders, cancers, and degenerative diseases. Degenerative diseases are caused by the death or dysfunction of cell types e.g., dopaminergic neurons in Parkinson's disease. The replacement of these cells could offer a lifelong treatment for these disorders. Parkinson's disease is a progressive disorder of motor control that affects roughly 2% of persons 65 years and older. Triggered by the death of neurons in a brain region called the substantia nigra, Parkinson's disease begins with minor tremors that progress to limb and bodily rigidity and difficulty initiating movement. The current treatment for Parkinson's disease relies on the use of the drug levodopa, which is converted in to dopamine by brain. Although the drug works well initially, levodopa eventually loses its effectiveness, and side- effects increase. Ultimately, many doctors and patients find themselves fighting a losing battle. For this reason, an enormous effort is underway to develop new treatment strategies, including growth factors that help the remaining dopamine neurons survive and transplantation procedures to replace.

Keywords: Tissue Engineering, Parkinsons Disease, Regenerative Medicine.



PLACENTAL PATHWAYS: PIONEERING DRUG INNOVATIONS IN REPRODUCTIVE MEDICINE

ALLA ESWARA SATYA SAI, GADI PRIYANKA, MD. ZOYA ALVIRA, RAKESH PANDIT

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Abstract: This abstract provides an overview of the innovative use of placental based approaches in drug development and reproductive medicine. Placental tissues and cells have emerged as valuable resources for advancing medicinal research and therapeutic application. This multidimensional avenue encompasses drug transport studies toxicity assessment, stemcell research, hormone production, biological modelling and even vaccine production. These developments are pivotal in improving, understanding pregnancy related disorders, drug safety during pregnancy and regenerative medicine by utilisation of placental materials in medicine demands rigorous ethical considerations and adherence to regulatory guidelines. This review encapsulates the significance and potential of placental based drugs innovations in reshaping the landscape of reproductive and developmental biology offering, promising prospects for improved healthcare outcomes and treatments.

Keywords: Drug Development, Placental Pathway, Reproductive Medicine.

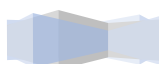
BEYOND THE LABORATORY: HOW AI IS SHAPING DRUG DISCOVERY

CH.LAKSHMI MADHAVI, A.DEEPIKA, K.N.S SATYA KUMARI, G. AMUKTHA, CH.GAYATHRI MANISHA

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Abstract: The convergence of artificial intelligence (AI) and machine learning (ML) has ushered in a new era in drug discovery. This review explores how AI and ML are reshaping the pharmaceutical landscape by accelerating drug development and optimization. Virtual Screening: AI-driven models predict the binding affinity of compounds to target proteins, enabling rapid identification of potential drug candidates. Drug Repurposing: ML algorithms analyze vast datasets to uncover new therapeutic uses for existing drugs, reducing time and costs. Predictive Toxicology: AI models assess drug safety profiles, helping prioritize compounds with fewer adverse effects. Present case studies showcasing AI/ML- driven drug discovery successes, including the identification of various drug compounds for emerging diseases. Highlight how these technologies have significantly shortened drug development timelines and reduced failure rates. AI and ML are catalysts for innovation in drug discovery, revolutionizing how we identify, optimize, and repurpose therapeutics. With their transformative potential, these technologies hold the key to faster, safer and more effective medicines for a wide range of diseases.

Keywords: Artificial Intelligence, Machine Learning, Drug Discovery, Virtual Screening.



THE POISONED PUZZLE-UNRAVELLING MYSTERIES WITH FORENSIC TOXICOLOGY

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Abstract: Forensic toxicology is one of many scientific and technological domains that has benefited greatly from the development of artificial intelligence (AI). The field of forensic science known as forensic toxicology deals with the detection and identification of drugs, poisons, and other chemicals in biological samples (such as blood, urine, or tissues) in order to ascertain their role in criminal investigations. AI systems can swiftly and accurately analyze huge databases of toxicological data. In toxicological data, they can spot patterns, trends, and anomalies that can be hard for human researchers to see. Toxicological Screening: AI-driven systems are able to automatically check biological samples for the presence of medicines, poisons, or other hazardous compounds. By examining the chemical structures of unknown chemicals and comparing them to databases of known substances, AI can help in the identification of those substances. Using toxicological data, AI can create prediction models that calculate the dose, duration, and effects of toxins on the body. AI can help analyze photographs of substances and determine their composition in scenarios involving solid or liquid samples. This can be especially helpful in situations when tangible evidence is a crucial piece of the puzzle. AI can assist forensic toxicologists in categorizing cases according to their prospective importance or complexity. Investigators can allocate resources more effectively by automating the initial evaluation of the evidence. AI systems can help maintain and organize large toxicological databases, facilitating speedy searches for and retrieval of pertinent information by forensic toxicologists. Toxicological data can be combined with other types of forensic evidence, including DNA analysis, information from crime scenes, and witness testimony, to create a more complete picture of a case.

Keywords: Toxicology, Artificial Intelligence, Toxins, Hazardous.

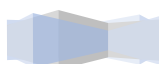
NANOMEDICINE: REVOLUTIONIZING HEALTHCARE THROUGH NANOTECHNOLOGY

N.JESSY ELIZABETH, CH.SRI KALYANI, K.DEVI CHANDRIKA, K.GODA ANJANA

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

Abstract: Nanomedicine represents a groundbreaking intersection of nanotechnology and healthcare, offering revolutionary solutions to longstanding medical challenges. This abstract provides an overview of significance of nanomedicine in modern healthcare, highlighting its potential in targeted drug delivery, enhanced imaging, and personalized treatments. One of the most transformative applications of nanomedicine is in cancer treatment. Nanoparticles enable the delivery of therapeutic agents directly to tumor sites, sparing healthy tissues from damage. This precision has the potential to revolutionize oncology by increasing treatment efficacy and improving the quality of life for cancer patients. Furthermore, nanomedicine offers the prospect of personalized medicine by tailoring treatments to individuals' genetic profiles, ensuring the right therapy for the right patient. It also extends its reach to infectious disease management, chronic disease treatment, and tissue regeneration. While nanomedicine holds immense promise, it is not without challenges. Regulatory approval, safety concerns, scalability, and ethical considerations remain critical areas of focus. However, as ongoing research explores nanorobots, advanced sensors, and sustainable nanomaterials, the future of nanomedicine is marked by continued innovation and expanding possibilities. In conclusion, nanomedicine stands as a transformative force in modern healthcare, offering precise, effective, and patient-centered solutions. Its potential to reshape the medical landscape is undeniable, providing new hope and improved healthcare for individuals worldwide.

Keywords: Nanomedicine, Nano-technology, Nano-particles.



3D PRINTING: A PARADIGM SHIFT IN DRUG CUSTOMISATION

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Abstract: The emergence of 3D printing technology has ignited a paradigm shift in drug customization within the pharmaceutical industry. This revolutionary approach is poised to reshape how medications are formulated, manufactured, and administered. With 3D printing, pharmaceutical companies can now craft personalized drug dosages, complex dosage forms, and precise drug delivery systems tailored to individual patient needs. This abstract explores the transformative potential of 3D printing in redefining drug customization, highlighting its capacity to improve therapeutic outcomes, enhance patient adherence, and streamline drug development processes. As 3D printing continues to advance, it promises to usher in a new era of precision medicine, paving the way for more effective and patient-centric healthcare.

Keywords: 3D printing, CAD models, Slicing Software, 3D printer.

NOVEL DELIVERY METHODS FOR PROTEINS AND PEPTIDES

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Abstract: Proteins and peptides are viable prospects for the creation of novel therapies for a wide range of human illnesses. Proteins and peptides can be supplied at comparatively low concentrations for therapeutic benefits due to their very specialized method of action. This powerful medication is prescribed for a number of chronic illnesses, including cancer, hepatitis, diabetes, rheumatoid arthritis, and leukemia. Modern analytical methods and the development of biotechnology have aided in the identification and industrial-scale manufacture of protein and peptide medicines. A peptide is a condensed chain of amino acids having a known sequence, such as leuprolide. Clinical applications of pharmaceutical and biopharmaceutical products are constrained by a number of issues. The formulation of these treatments into secure and efficient delivery systems is the focus of ongoing work.

Keywords: Protein, Peptide, Drug delivery.

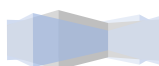
METHOD DEVELOPMENT AND VALIDATION FOR RITONAVIR AND DARUNAVIR BY RP-HPLC METHOD

KRUTHIVENTI SAI PRIYANKA

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

Abstract: A new, simple, precise and accurate method was developed and validated for the simultaneous estimation of Ritonavir and Darunavir in tablet dosage form using RP- HPLC. The separation is achieved by using Xterra C18 (4.6*150mm,5 μ) column. 0.1%TFA: methanol is used as mobile phase in a ratio of 60:40 at a flow rate of 1.0ml/min. The column is maintained at ambient temperature. The wavelength of both drugs measured at 220nm. Run time is maintained for 10 min. Retention time of Ritonavir and Darunavir was found to be 2.461min and 4.387min. Percentage assay of Ritonavir and Darunavir was found to be 99.59% and 99.96% respectively. Linearity lies from 10 μ g/ml to 50 μ g/ml for ritonavir and 60 μ g/ml to 300 μ g/ml for darunavir. It is concluded that our method is capable of producing good sensitivity. This method is useful for routine analysis.

Keywords: Darunavir, RP-HPLC, Ritonavir.



DIGITAL TWIN & AI FOR SMART PHARMA

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Abstract: The biopharma industry is facing many challenges in industrial side as well as developing side. About 2-3 million deaths are prevented by vaccination. By introducing “digital twin” helps in combining the real and digital world and allows us to collect data to understand what exactly happening in real time and in production to optimize the vaccine manufacturing. Introducing the in-line sensors in every step of vaccine manufacturing, this helps in collecting the data to analyze what actually happening in real time and to gain information of all stage development and production process in order to stimulate the changes. AI(Artificial intelligence) speeds up vaccines development for future pandemic. Here AI deals with the structures of viruses these identifies the target proteins that stimulate the immune responses. The AI identified epitopes can be used immediately after knowing the gene sequence of the pandemic, then these can be introduced into the rapid response vaccine platform to start the production of vaccines for clinical tests as the AI identified epitomes has already been approved in preclinical trials. Vaccine library is a storage of established, verified AI generated vaccines of 25 different viral families in-order to help in pandemic outbreak. Digital twin and AI reduces the raw material waste by 20%, reduces the physical test cycles by 50% and provides high quality products and increase continual deliver of new vaccines faster.

Keywords: Digital twin, In-line sensors, Artificial Intelligence, Vaccine Library, Epitopes.

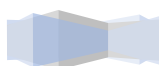
3D PRINTING FOR DRUG DELIVERY: TRANSFORMING PERSONALIZED MEDICINE

TANINKI SRI SOWKHYA, DEYYALA LAXMAN, G. VYSHNAVI, G. KEERTHI, G. SRAVYA

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Abstract: 3D printing technology has emerged as a disruptive force in the pharmaceutical business, creating the way for novel drug delivery innovations. Personalized medicine is a cornerstone of 3D printing in drug delivery, allowing therapeutic dose forms to be customized to meet the specific needs of individual patients. Complex geometries, which are not possible to achieve using typical manufacturing methods, provide precise control over drug release kinetics and targeting inside the body. Pharmaceutical-grade polymers and excipients facilitate the development of drug-loaded matrices and coatings, allowing for controlled drug release while protecting sensitive components. Multi-drug formulations and flavor masking are also possible, allowing for combination therapy and improving patient compliance, particularly in children and adolescents. Rapid prototyping capabilities help to accelerate medication development by making it easier to create prototypes for testing and optimization. Furthermore, 3D printing can be used to create drug-eluting implants and scaffolds for localized and sustained drug release, in addition to oral medication delivery. Recognizing the promise of 3D printing, regulatory agencies have begun the development of guidelines to ensure the safety and effectiveness of 3D-printed drugs. While 3D printing has potential in medicine delivery, difficulties like as standardization, quality control, and regulatory compliance must be addressed. 3D printing in medication delivery represents a paradigm shift in pharmaceuticals, with individualized, precise, and complicated drug dosage forms on the horizon. In research and technology breakthroughs are projected to broaden the applications of 3D printing in drug delivery, transforming the healthcare and patient-centric therapy.

Keywords: 3D printing, Drug delivery, Complex Geometries, Phototype.



ARTIFICIAL INTELLIGENCE IN HEALTH CARE

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Abstract: Artificial intelligence (AI) is revolutionizing the healthcare industry by offering innovative solutions to longstanding challenges. This abstract provides an overview of the role of AI in healthcare, emphasizing its impact on diagnosis, treatment, patient care, and administrative processes. AI-driven diagnostic tools have shown remarkable accuracy and efficiency in interpreting medical imaging, such as X-rays, MRIs, and CT scans. Despite its transformative potential, AI in healthcare raises ethical and regulatory concerns. Privacy, security, and the responsible use of patient data remain critical issues. Regulatory bodies are continually adapting to ensure that AI applications meet safety and ethical standards.

Keywords: Artificial Intelligence, Diagnostics, Robotics, Drug discovery.

A COMPREHENSIVE REVIEW ON AQUAPORINS

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Abstract: In studies, from decades research works were performed in the view of water transporting channels responsible for various epidemic disorders and diseases. Aquaporins are one search transporting channels presenting on plasma membrane, which facilitates water transport across the cell. Aquaporins are ubiquitous that means from lower to higher organisms. Aquaporins transport varies other solute like glycerol, urea, gases etc. Aquaporin is a tetrameric protein consist of NPA segments at the loop regions carries water molecule. Among 13 types of aquaporin, AQP1 and AQP4 has its role in etiology of different type of cancers, CNS disorders. AQP3 involved in obesity, diabetes. Drugs like Acetazolamide, cisplatin inhibit the aquaporin activity.

Keywords: Aquaporin, NPA segment, Cancer, Acetazolamide.

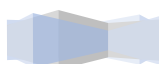
ALGAE BASED MICROROBOTS DELIVER ANTIBIOTICS TO TREAT BACTERIAL PNEUMONIA

TEJESWARI

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Abstract: Pneumonia is a disease which causes inflammation of lung parenchyma characterized by consolidation which is caused by bacteria, viruses, fungi. Actually antibodies are administered bases on the severity of infections. The microrobots are developed for this treatment by inserting antibodies in it. Microrobots use chlamydomonas reinhardtii algae as vehicle to deliver through biological fluids. This chlamydomonas algae is modified with drug loaded NPs and then administered in *in vivo* treatment. By using this microrobots effectively reduce the bacterial burden with little dose and negligible toxicity at the targeted site.

Keywords: Pneumonia, Microrobots, Chlamydomonas alga.



CALCIUM ALGINATE MICROPARTICLES AS A CORE CARRIER FOR COLON TARGETED DRUG DELIVERY BY IONOTROPIC GELATION METHOD

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Abstract: The aim of present study is to investigate the calcium alginate microparticles as a core carrier to release the water soluble drug into colon. Mebeverine is a well -known drug used in the treatment of irritable bowel syndrome. Due to extensive first pass effect of the drug, this is one of the real challenges to release the drug in the colon with its improved bioavailability. Drug loaded micro-particles were prepared by ionic gelation methodology of alginate with calcium chloride. Four formulations were prepared with varying drug and polymer ratio. The effect of sodium alginate concentration on the particle size and entrapment efficacy was studied. On increasing the polymer concentration particle size and entrapment efficiency was found in the increasing manner. Alginate concentration (3% w/v) of and calcium chloride (15%) concentration was found suitable for preparation of alginate micro-particles. The resulted alginate microparticles loaded with mebeverine (1:3) showed highest entrapment efficiency 94.22% with highest drug release 95.87%. The morphology and sizes of microparticles were studied using optical microscopy and SEM. The best-fit release kinetics was achieved with Koresmeyer-Peppas plot followed by zero order. The release of mebeverine was influenced by the drug to polymer ratio and particle size & was found to be both diffusion and dissolution controlled. The drug release of mebeverine from microparticles was found to decrease as the polymer concentration increased. All values of in vitro release are statistically significant.

Keywords: Alginate, Microparticles, Drug delivery, Encapsulation efficiency.

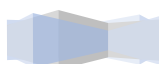
HERBAL NANO-FORMULATIONS: A POTENTIAL ROLE IN WOUND MANAGEMENT

MADHUCHANDRA LAHAN, PARAG BARMAN, SURAJ BORA, TANZIMUL AKHTAR

School of Pharmacy, The Assam Kaziranga University, Jorhat, Assam, India.

Abstract: Natural goods are a plethora of sources for different therapeutic components that are employed in the treatment of wounds. For the purpose of treating wounds, mixtures of plant extracts or components in varying amounts are used to create cream, ointment, or lotion formulations. However, these traditional herbal topical formulations have a number of drawbacks, including the potential for localized skin irritation, poor skin absorption of drugs, difficulty in absorbing drugs with larger particle size and higher molecular weight, potential for toxicity reactions after application, or the possibility that drugs may be denatured by the epidermis's enzymes. These restrictions are now possible to overcome because to the development of new technologies like nanotechnology. The majority of items produced with the help of nanotechnologies are biocompatible, biodegradable, have a longer duration of action, may serve several purposes, may alter drug release, and may be targeted and have lower toxicity levels, among many other advantages. At various phases of wound healing, several nanostructured drug delivery systems have been employed to enhance healing, including nanoparticles, micelles, nanoemulsions, and liposomes. Combining herbal medicine with nanotechnology has produced impressive wound healing outcomes and has a bright future.

Keywords: Wound healing, Nanotechnology, Nano herbal, Nanofibers, Silver nanoparticles.



MICROPARTICLES AND RECENT ADVANCES TARGETED FOR PULMONARY DRUG DELIVERY

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Abstract: Microparticles are tiny solid particles ranging from 1 to 1000 micrometers in size. Microparticles and nanoparticles are emerging areas for drug delivery and research for drug administration to patients in convenient way besides of conventional method. By minimizing side effects and enhancing therapeutic outcomes, targeted drug delivery systems have a significant impact on patient health; As a result, modern research has focused on particulate drug delivery systems. Nanoparticles and microparticles are important tools for targeted, delayed, and tissue-specific drug delivery. Microparticles are used to deliver drugs in a consistent way to specific sites without causing side effects, and to achieve an effective therapeutic concentration at the target site. When compared to other conventional methods, pulmonary drug delivery offers several benefits for the treatment of a variety of conditions. As well as targeting alveolar macrophages, inhaling drugs can be used to maintain a high concentration of drugs in the lungs to improve efficacy and shorten treatment duration. This reduces the risk of drug toxicities. Therefore, this kind of treatment can be useful in the treatment of many pulmonary and nonpulmonary diseases. Inhalable microparticles have been developed using new techniques and delivery devices. Furthermore, it may result in improved therapeutic effectiveness and patient compliance, resulting in improved quality of life and improved therapeutic outcomes for patients.

Keywords: Microparticles, Pulmonary Drug Delivery, Nanoparticles, Alveolar Macrophages.

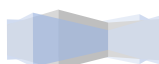
DESIGN, DEVELOPMENT AND EVALUATION OF TENOFOVIR ALAFENAMIDE FUMARATE EMULGEL

PRAKASH NATHANIEL KUMAR SARELLA, PRAVALLIKA GODAVARI

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

Abstract: To develop topical emulgel formulations of tenofovir alafenamide fumarate (TAF) for the treatment of HIV and assess their physicochemical properties, in vitro drug release, and stability. Twenty-five emulgel formulations (F1-F25) with varying concentrations of oil, emulsifier and polymer were prepared using an emulsification technique. The formulations were evaluated for particle size, polydispersity index, drug content, viscosity, pH, spreadability, extrudability and bioadhesion. In vitro drug release was assessed up to 18 hours. Stability studies were carried out on optimized formulations F8 and F25 at room temperature over 30 days. Skin irritation studies were performed on formulations F8 and F25 using rabbits. All formulations showed uniform color, homogeneity, consistency and no phase separation. Particle size ranged from 8-30 μm . Most formulations released >90% drug within 10 hours and followed first order or Higuchi release kinetics. Formulations F8 and F25 were stable for 30 days with <5% changes in viscosity, pH and drug content. Skin irritation tests found F8 and F25 non-irritating. The developed emulgel formulations showed favorable properties for topical delivery of TAF. Formulations F8 and F25 with prolonged release were optimized through stability and skin irritation studies. The emugels have potential as a patient-friendly dosage form for the sustained delivery of TAF to treat HIV infection.

Keywords: Tenofovir alafenamide fumarate, Topical Emulgel, HIV infection.



ARTIFICIAL INTELLIGENCE IN PHARMACEUTICAL ANALYSIS

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Abstract: Artificial intelligence (AI) has emerged as a powerful tool in the field of pharmaceutical analysis, revolutionizing drug discovery, development, and patient care. This abstract explores the application of AI in pharmaceutical analysis, highlighting its potential to enhance efficiency, accuracy, and decision-making. In drug discovery, AI algorithms play a very crucial role in accelerating the identification of potential drug candidates. Machine learning models analyze vast amounts of data to predict drug efficacy and safety, enabling researchers to prioritize compounds for further investigation. This saves time and resources, expediting the drug development process. Researchers can develop models that predict pharmaceutical properties, such as solubility, stability, and bioavailability. These models aid in decision-making during drug development, optimizing the selection of promising candidates and reducing the risk of failure. Quality control is another area where AI has made significant advancements. AI's impact extends to personalized medicine, where algorithms analyze patient data to develop tailored treatment plans. In clinical decision support, AI assists healthcare professionals in making accurate diagnoses and treatment decisions. Ensuring regulatory compliance is critical in the pharmaceutical industry, and AI technologies play a vital role in automating data analysis, documentation, as well as reporting. By improving accuracy and efficiency, AI aids in meeting regulatory requirements. In conclusion, the application of Artificial Intelligence in pharmaceutical analysis holds immense potential. AI enhances efficiency, accuracy, and decision-making from drug discovery to personalized medicine. Embracing AI in pharmaceutical analysis can lead to advancements in drug development, improved patient care and better overall outcomes in the field of pharmaceuticals.

Keywords: Artificial Intelligence, Regulatory Compliance, Data Analysis.

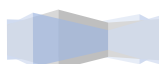
DIGITAL TWINS AND DRUG REPURPOSING: A NEW FRONTIER IN PHARMACEUTICAL CHEMISTRY

TANINKI SRI SOWKHYA

Aditya Pharmacy College, Surampalem, Andhra Pradesh, India.

Abstract: As it adopts the idea of "Digital Twins" to explore unexplored frontiers in drug repurposing, the science of pharmaceutical chemistry is undergoing a fundamental revolution. The nexus of digital innovation and pharmaceutical chemistry provides a glimpse of the fascinating new frontier that lies ahead. Drug repurposing aims to find novel therapeutic applications for already-approved drugs, frequently ones with proven safety profiles. In the past, this task was a time- and money-consuming, difficult procedure characterized by trial and error. However, a revolution is taking place in the age of digital era. Digital twins play a crucial role in pharmaceutical chemistry, shedding light on how they are positioned to change the game. Researchers may simulate complex drug interactions, analyze molecular pathways, and predict consequences all within a virtual laboratory by building digital replicas of biological systems. Through the use of these digital copies, we are able to conduct hypothesis-driven tests, identify interesting drug candidates, and determine how current treatments might be applied to as-yet unidentified medical diseases. The fundamental concepts underlying digital twins on how meticulously they are constructed to accurately imitate biological systems impact accelerating drug repurposing, personalized pharmaceutical chemistry and data synergy. The blending of digital technology with pharmaceutical chemistry has the power to transform drug discovery, expand the range of available treatments, and alter how we think about healthcare. The start of a digital era in pharmaceutical chemistry, in which technical innovation and healthcare work together to give people all across the world a better future.

Keywords: Digital Twins, Accelerating Drug Repurposing, Data Synergy, Digital Era.



ADVANCEMENTS IN PHARMACOKINETIC STUDIES: MICROSAMPLING TECHNIQUES REVOLUTIONIZING BLOOD SAMPLE COLLECTION

VINNY THERISSA MANGAM

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Abstract: Pharmacokinetic studies are indispensable in the pharmaceutical industry for assessing how drugs interact with the human body. Traditionally, these studies relied on venous blood draws, which can be invasive, inconvenient, and carry the risk of complications. However, recent advancements in microsampling techniques have transformed the landscape of pharmacokinetics. This work explores the emerging trends in pharmacokinetic studies, focusing on two innovative microsampling methods that include dried blood spot (DBS) and microdialysis. DBS involves collecting a small volume of blood (typically 10-50 μ L) onto a filter paper, which is then dried and stored for analysis. Microdialysis, on the other hand, employs a minimally invasive probe to continuously sample interstitial fluid, providing real-time data on drug concentrations. These microsampling techniques offer several advantages. Firstly, they require significantly smaller sample volumes compared to traditional methods, reducing the stress on study participants and the risk of complications. Secondly, they enable more frequent and convenient sampling, allowing for better characterization of drug concentration-time profiles. Thirdly, they offer opportunities for remote monitoring, reducing the need for patients to visit clinical sites frequently.

Keywords: Pharmacokinetic studies, Microsampling techniques, Dried blood spot (DBS), Microdialysis.

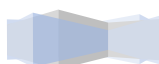
EXPLORING THE VERSATILITY OF TARO STARCH AS A PROMISING BIOPOLYMER IN THE PHARMACEUTICAL AND FOOD INDUSTRIES

SUSHANTA SARMAH, KASHMIRI SONOWAL, BISWAJIT BHUYAN, TAMOSWAMA SAIKIA

School of Pharmacy, The Assam Kaziranga University, Jorhat, Assam, India.

Abstract: Colocasia esculenta is a tropical tuber crop mainly cultivated due to its edible starchy corm. According to many studies, taro flour has a high carbohydrate content, a high water absorption capacity, a lower protein content, and a higher foaming capability than other flours. In the pharmaceutical sector, taro starch has shown potential as a pharmaceutical excipient, offering advantages such as good binding properties, controlled drug release, and biocompatibility. Its compatibility with various drug formulations and its ability to modulate drug release kinetics make it a valuable component in tablet and capsule manufacturing, enhancing drug stability and bioavailability. Furthermore, the usage of novel starch has grown in recent years because of the low cost, plentiful availability, and biodegradability of taro starch, which aligns with the rising need for green pharmaceutical products. In the food industry, taro starch serves as an excellent thickening, gelling, and stabilizing agent due to its high amylopectin content. It enhances the texture and mouth feel of various food products, ranging from sauces and soups to bakery items and dairy products. Taro starch also contributes to gluten-free and clean label trends, making it suitable for consumers with dietary restrictions. This review discusses the recent advancements in taro starch research, highlighting its potential as a versatile biopolymer in pharmaceutical and food applications. It emphasizes the need for further studies to explore its physicochemical properties, processing techniques, and industrial scalability. The utilization of taro starch can not only drive innovation in these sectors but also promote sustainability and reduce the reliance on synthetic polymers, aligning with the global push for more environmentally friendly practices.

Keywords: Colocasia esculenta, Taro Starch, Biopolymer, Biodegradability.



SYNTHESIS, CHARACTERIZATION AND ANTIBACTERIAL STUDIES OF NEWER NAPHTHALENE SUBSTITUTED SULFONAMIDE ANALOGUES

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Chalapathi Institute of Pharmaceutical Sciences, Guntur, Andhra Pradesh, India.

Abstract: Naphthalene substituted compounds possess antibacterial, mycolytic, nasal decongestant, antihypertensive, analgesic, anticoagulant and anti-inflammatory activities. In the present project work, synthesis and characterization of newer sulfonamide derivatives substituted with naphthalene moiety was carried out. The compound was synthesized by Friedel crafts acylation of 1-Naphthol to yield 1-Hydroxy acetophenone derivatives which upon bromination with N-bromo succinimide yielded acyl bromide. The obtained intermediate was reacted with sulphonamide group containing drug substances to obtain the newer sulphonamide derivatives. Compounds were characterized by IR, NMR, and mass spectrometric techniques. Further the compounds were evaluated for antibacterial activity by minimum inhibitory concentration techniques. In this project there is utilisation of parallel synthesizer in synthesis of newer naphthalene substituted sulfonamide derivatives. This is an eco-friendly process.

Keywords: IR spectrum, NMR spectrum, MS spectrum

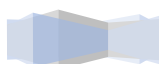
A REVIEW ON ANALYTICAL TECHNIQUES FOR ESTIMATING GANGLIOSIDE NEUROBLASTOMA CELLS

E. PRASANTHI, P. VENKATA SURESH

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Abstract: Gangliosides are made of sphingolipids with sialic acid moieties as backbone which are generally referred to as sialoglycosphingolipids. They are natural biological compounds as well as found in mammals and other lower vertebrates such as bacteria, fungi, viruses, archaea, etc. Based on the major condition, the biological importance of gangliosides is highly influenced. In humans, gangliosides have been well defined and characterized in a number of vital tissues as they are in a part by being in higher concentration in those tissues. Gangliosides in the brain and central nervous system exert plenty of functions in spite of their activity also been explained in other non-neural tissues and organs including, the lung, liver, spleen, gut, bone marrow etc. Gangliosides are predominantly present in the CNS and where the expression of gangliosides is positively as well as adversely involved in many processes including, synaptogenesis, synaptic transmission, neurogenesis, and cellular proliferation of neuroblasts. Apart from this, gangliosides have also been widely found in many diet varieties like egg yolk, meat, colostrum, human and animal milk. Since in neurons and neuroblasts, ganglioside-mediated pathways elevate cancer-related outcomes, they are considered to play both positive and negative roles in association with cancer growth and development, thus, it is of significance to estimate their circulatory, cellular, and tissue level that will aid clinical platform for better diagnosis and treatment.

Keywords: Gangliosides, Neuroblastoma, Sialic acid, Central Nervous System, Cancer.



COMPUTATIONAL TOOL IN DRUG DESIGN

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Abstract: Computer-aided drug design (CADD) is a rapidly evolving field that aims to accelerate the drug discovery process by using computational techniques to predict and optimize the properties of potential drug molecules. This approach has become an integral part of modern drug discovery, as it offers a cost-effective and time-efficient alternative to traditional experimental methods. In CADD, various computational tools and methods are used to predict the activity, selectivity, and toxicity of potential drug candidates. These include molecular docking, molecular dynamics simulations, quantitative structure-activity relationship (QSAR) modeling, and virtual screening. Molecular docking involves predicting the binding affinity and mode of interaction between a drug candidate and its target protein, while molecular dynamics simulations provide insights into the dynamic behavior of these molecular complexes. QSAR modeling helps to predict the biological activity of compounds based on their molecular structure, while virtual screening involves rapidly screening large compound libraries to identify potential leads. CADD has also enabled the repurposing of existing drugs for new indications by predicting their interactions with different target proteins. Furthermore, CADD has been used to design drugs with improved properties, such as increased potency, selectivity, and reduced toxicity. Despite its advantages, CADD still faces challenges, such as the accurate modeling of protein-ligand interactions and the difficulty in predicting the behavior of complex biological systems. However, with the rapid advancement of computational techniques and the availability of large databases of chemical and biological information, CADD holds immense promise for the future of drug discovery and development.

Keywords: Virtual Screening, Molecular Docking, Molecular Dynamics.

SYNERGISTIC NOOTROPIC ACTIVITY OF ETHANOLIC LEAF EXTRACTS OF ZIZIPHUS JUJUBA AND TINOSPORA CORDIFOLIA AGAINST STRESS INDUCED RATS

VEERADURGALAKSHMI CHERAKANI

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Abstract: The present investigation deals with the preliminary phytochemical screening and synergistic nootropic activity of ethanolic leaf extracts of *Ziziphus jujuba* and *Tinospora cordifolia* against stress induced rats. Nootropic activity was observed in Albino Wistar rats of either sex using behavior paradigms such as elevated plus maze, staircase and morris water maze. In elevated plus maze and morris water maze, the rats were treated with extracts at doses (100 and 200 mg/kg) po for 9 days and were observed on 9th day of treatment. The test leaf extracts were compared with the standard piracetam (100 mg/kg). In the elevated plus maze, the mixture of *Ziziphus jujuba* and *Tinospora cordifolia* leaf extracts at 200 mg/kg significantly decreased the transfer latency when compared to 100 mg/kg. In the staircase, the mixture of leaf extracts of *Ziziphus jujuba* and *Tinospora cordifolia* at 200 mg/kg significantly decreased the number of climbings and the number of rearings when compared to 100 mg/kg. In the morris water maze, the mixture of leaf extracts of *Ziziphus jujuba* and *Tinospora cordifolia* at 200 mg/kg significantly decreased the escape latency when compared to 100 mg/kg.

Keywords: Nootropic activity, *Ziziphus jujuba*, *Tinospora cordifolia*, Morris water maze.



EVALUATION OF ANTIBACTERIAL AND WOUND HEALING ACTIVITIES OF ETHANOLIC EXTRACT OF LINUM USITATISSIMUM (FLAX SEED) ON RABBITS

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Abstract: *Linum usitatissimum* was evaluated for its antibacterial and wound healing capacity. This involved the collection and authentication of the plant, preparation of herbal extracts, phytochemical analysis for the prepared extracts, development of herbal formulation for the prepared extracts, evaluating the antibacterial activity of *Linum usitatissimum* seed extract, and the evaluation of the wound healing activity by excision wound model. The antibiotic activity was studied by cup plate method using nutrient agar medium. The zone of inhibition was then determined after culturing and incubation. The results of the extract of *Linum usitatissimum* shows antibacterial activity as demonstrated by zone of inhibition when cultured with selected bacterial species (Both gram positive and gram negative). Different concentration of (200 µg/ml) and (400 µg/ml) were used. The extract showed an improved wound healing capacity from the third application as demonstrated by the increase in the percentage of healing ($9.55 \pm 0.04\%$) with significant increase on the sixth day ($23 \pm 0.4\%$). Betadine was used as a standard medication for wound healing.

Keywords: *Linum usitatissimum*, Antibacterial activity, Excision wound model.

PHYSICOCHEMICAL AND FUNCTIONAL CHARACTERIZATION OF NATIVE AND MODIFIED STARCH FROM ARTOCARPUS LAKOOCHA SEED

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Abstract: Starch, a vital polysaccharide with numerous industrial applications, can be sourced from various botanical origins. In the present study, we studied a novel source of starch derived from *Artocarpus lakoocha* seeds, evaluating both its natural and modified forms in terms of their physicochemical and functional qualities. The adjustments were made using pregelatinization and ultrasonication methods. Our research showed that the modified starches had enhanced flow characteristics, which offer great promise for their application in tablet formulation as well as other unit operations like mixing and compression. Additional investigation using Field Emission Scanning Electron Microscopy (FESEM) revealed a notable loss of granular structure in the native starch after thermal modification, offering light on the structural alterations brought on by the modification methods. The presence of carbohydrates in both native and modified starches was confirmed by Fourier Transform Infrared Spectroscopy (FT-IR), highlighting their chemical makeup. These starches were found to be thermally stable up to 260 °C before depolymerizing by Thermogravimetric Analysis (TGA). This study highlights the benefits of modification approaches, improving starch functioning, and introduces *Artocarpus lakoocha* seed starch as a viable non-conventional source of starch.

Keywords: Starch, Modification, *Artocarpus*, Physicochemical characterisation.



EVALUATION OF POLYHERBAL FORMULATION FOR HEPATOPROTECTIVE ACTIVITY AGAINST ANTI TB DRUGS INDUCED HEPATOTOXICITY ON ALBINO RATS

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Abstract: In treatment of tuberculosis, Isoniazid (INH) and rifampicin (RIF) are used in the first line of treatment and produces hepatotoxicity as their adverse effect. The present study was designed to evaluate hepatoprotective activity of poly herbal formulation (Andrographis paniculata, Phyllanthus emblica, Cinnamomum zeylanicum) in Wistar albino rats using Anti- TB drugs induced hepatic damaged experimental animals. Anti- TB drugs (Isoniazid 50 mg/kg + Rifampicin 100 mg/kg b.w, p.o) was co-administered daily to induce hepatotoxicity. Poly herbal formulation (200 mg/kg and 400 mg/kg, p.o) and liv-52 syrup (50ml/kg, p.o.) were administered daily for 28 days. The degree of hepatoprotection was measured by estimating serum glutamate oxaloacetate transaminase (SGOT), serum glutamate pyruvate transaminase (SGPT), serum alkaline phosphatase (SALP), bilirubin, plasma protein and the histopathological parameters were also determined. The results showed the PHF (poly herbal formulation) treated group has significantly reduced the serum enzymes, bilirubin, plasma protein production and improved histological parameters by reducing liver necrosis. In conclusion, this study strongly indicated that the polyherbal formulation exerts potential hepatoprotective action against anti- TB drugs induced hepatic damage in experimental animals which could be associated to their phytochemical constituents and antioxidant activity.

Keywords: Poly herbal formulation, Hepatoprotective, Anti- TB drugs, Liv-52 syrup.

UNMASKING THE PHYSIOLOGY OF POSTPARTUM DEPRESSION

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Abstract: Postpartum depression (PPD) is a psychiatric disorder experienced by many new mothers after the childbirth. For many years maternal depression has been masked away assuming it as physical and emotional trauma related to childbirth. In recent era, PPD is believed to be a clinical complication of childbirth which not only impacts the psychological behaviour of mother leading to suicidal intentions but also negatively impacts the cognitive development of the child. Approximately 1 in 7 women develop PPD, which tend to last longer and affects the mother's relationship with the infant. The symptoms of PPD are usually manifested during the pregnancy hence it is classified as "Major Depression Disorder, with peripartum onset". The exact pathogenesis of PPD is currently unknown, but there are some theories which suggests the involvement of endocrine hormones, neuronal transmission, epigenetic factors, stress and inflammatory mechanisms. A decline in estrogen after birth is suspected as one of the pathogenic factors in PPD as it is involved in enhancing serotonin function and reducing inflammatory responses. Dysregulation of several other reproductive hormones like progesterone, oxytocin, prolactin, can dysregulate the levels of stress hormones like corticotrophin releasing hormone (CRH), adrenocorticotrophic hormone (ACTH) leading to PPD. Polymorphisms in monoamine oxidase (MAO A), catechol-O-methyltransferase (COMT) and tryptophan hydroxylase 2 (TPH2) genes have also been implicated in PPD. Currently PPD is treated using antidepressant drugs, but there is a need to clearly understand the exact mechanism so that the treatment targets only PPD.

Keywords: Postpartum depression, Suicide, Pathogenesis, Hormones.



COMPREHENSIVE REVIEW ON GENE THERAPY

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Abstract: Gene therapy is the therapeutic exchange of genetic material, such as DNA or RNA, with the aim of treating conditions brought on by inherited mutations or acquired abnormalities. Somatic gene treatments target cells not involved in reproduction, while germ line gene therapies target cells actively involved in reproduction. It is well known that there is some risk associated with gene therapies; however, the vast majority of these risks stem from the delivery system or technology available at the time the therapies were developed, not from the idea of using genes to treat illness itself. Gene therapy isn't just one operation; rather, it's a group of techniques designed to alter how our genes are expressed in our bodies. There are numerous methods for doing this. By correcting a genetic mutation or substituting a defective gene for a healthy copy of the gene, these treatments aim to treat or prevent disease. For numerous non-life-threatening disorders, gene therapy is now being researched. All of them, including the ones that have an impact on the patient's quality of life. There is justification for broadening the scope of treatments provided by the fact that there is not enough therapy accessible. This provides an over view of common methods used to transfer genes and various examples of their clinical applications.

Keywords: Gene therapy, Vectors, Adeno-associated virus, GIC, CAR-Tcell.

EVALUATION OF ANTI-PSYCHOTIC ACTIVITY OF ETHANOLIC PEEL EXTRACT OF CITRUS LIMETTA IN MICE MODEL

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Abstract: The present study aims to research the anti-psychotic activity of Citrus limetta (sweet lime) peel extract where the active and most abundant constituent was found to be d-limonene which has many traditional applications and found to have neuroprotective role in alzheimer's, epilepsy, multiple sclerosis, anxiety and stroke thereby reducing stress and mood disorders. This activity was evaluated using mice behavioral models like photoactometer and forced swim test to check the locomotor activity, social withdrawal and T-maze for studying the working memory which represents the positive, negative and cognitive symptoms. The orally administered extract of Citrus limetta showed favorable outcome reducing the immobility and enhancing the social interaction and memory in psychotropic induced animal models. The test extract of Citrus limetta showed convincing results when compared with the standard drug Chlorpromazine along with the control group. Thus, it is concluded that Citrus limetta could be a possible source for psychiatric and neurological disorders.

Keywords: Citrus limetta, d-limonene, Neuroprotective, Anti-psychotic, Photoactometer, T-maze.



EVALUATION OF IN-VIVO ANTI-ANEMIC ACTIVITY OF ETHANOLIC LEAF EXTRACT OF NEOLAMARCKIA CADAMBA

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Abstract: Neolamarckia cadamba is an evergreen tropical tree native to south and southeast Asia commonly known as Kadamba belongs to family Rubiaceae which has many medicinal properties as mentioned in many Indian medicinal literatures display for treating the diseases such as fever, cough, vomiting, diarrhoea, anemia, inflammation, microbial infections, diabetes, ulcers, leprosy, wounds and mental disorders. Preliminary phytochemical screening showed the presence of saponins, terpenes, sesquiterpenes glycosides, alkaloids. Anemic condition leads to reduced RBC count which affects tissue oxygenation and lowers the amount of haemoglobin [which is functional unit in RBC] than normal levels (13g/dL in male and 12g/dL). In the current study the in-vivo anti-anemic properties of ethanolic leaf extract of Neolamarckia cadamba has performed using rat model. Different concentrations of the extract (250mg/kg and 300mg/kg) showed increased RBC count, Haemoglobin content and % Haematocrit in comparison to control group which was observed using Haematology analyser apparatus.

Keywords: Neolamarckia cadamba, Anemia, Tissue oxygenation.

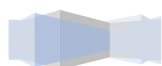
EVALUATION OF ANTIBACTERIAL, ANTHELMINTIC AND ANTIDIARRHOEAL ACTIVITIES OF ETHANOLIC AERIAL EXTRACT OF MIMOSA PUDICA LINN

RUCHI KUMARI

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

Abstract: Mimosa Pudica is an important medicinal herbal plant, used for its medicinal uses against different types of diseases. Therefore present study was designed to investigate the antibacterial, anthelmintic and antidiarrhoeal activity of ethanolic aerial extract of Mimosa Pudica Linn. Antibacterial effect were tested against gram positive bacteria such as Bacillus subtilis and gram negative bacteria such as Echerichi coli, Pseudomonas aeruginosa using cup plate method and agar diffusion method. Anthelmintic effect would be expected to minimize the infection of parasitic worm Pheritima posthuma. The Antidiarrhoeal potential of the ethanolic extract of mimosa pudica has been evaluated in Swiss Albino Mice by two different approaches that include castor oil induced diarrhoea and loperamide induced constipation in mice. The detailed research study revealed Mimosa pudica aerial parts possess significant antibacterial, anthelmintic and antidiarrhoeal potential and the research study could drop establish information for the possibility to develop medicinal preparation for the treatment of all these mentioned ailments.

Keywords: Mimosa pudica, Antibacterial, Anthelmintic, Antidiarrhoeal.



BIG DATA ANALYTICS IN PHARMACOLOGY

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Abstract: Big data analytics are being used to alter the discipline of pharmacology in the modern day. This abstracts explores the enormous potential of using big data analytics in pharmacology to enhance drug development and advance customized treatment. Researchers can examine enormous volumes of various data sets, including genomes, proteomics, clinical trials, electronic health records, and patient-reported outcomes, by utilizing the potential of big data. This thorough study enables the finding of possible drug-drug interactions, the identification of novel pharmacological targets, and the forecasting of negative drug reactions. Big data analytics also makes it easier to design individualized medicine strategies. Healthcare professionals can customize treatments and interventions for specific patients by combining patient-specific data, such as genetic profiles, lifestyle characteristics, and environmental impacts. With this tailored approach, therapeutic effectiveness is increased, side effects are reduced, and patient outcomes are enhanced. Big data analytics is also essential for pharmacovigilance and post-market monitoring. Researchers can quickly uncover safety issues, analyze drug effectiveness, and spot new patterns by continuously monitoring real-world data, such as social media, electronic health records, and drug utilization databases. In summary, the application of big data analytics to pharmacology has the potential to transform the process of developing new drugs and the practice of customized medicine. Researchers and healthcare professionals may make data-driven decisions, maximize treatment outcomes, and improve patient care with the ability to analyze massive volumes of data in real-time. Embracing this digital transition will surely influence pharmacology's future and enhance the lives of many people all around the world.

Keywords: Genomes, Proteomics, Clinical trials.

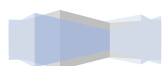
DRUG UTILIZATION PATTERN AND RATIONAL DRUG USE AT ORTHOPAEDIC AND TRAUMATOLOGY

MADDALI SEETHA SIRISHA

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Abstract: Drug utilization pattern and rational drug use were assessed among patients seeking orthopaedic and traumatology care at both outpatient and inpatient facilities. A retrospective study was conducted among 480 patients. Data on patient demographics, diagnosis, medications prescribed (both name and quantity), treatment outcomes and adverse drug reactions were collected. The most common conditions treated included osteoarthritis, fractures, spondyloarthritis and soft tissue injuries. A total of 29,520 drugs were prescribed to the patients during the study period. Analgesics including paracetamol, NSAIDs and opioid drugs constituted 46% of total drugs prescribed. Antibiotics contributed to 30% of prescriptions while steroids, disease modifying anti-rheumatic drugs and supplements made up the remaining 24%. Overall 70% of drug prescriptions adhered to standard treatment guidelines. However, 30% of prescriptions exhibited irrational practices like inappropriate duration of antibiotic therapy, failure to step down pain medications and unnecessary polypharmacy. Adverse drug reactions occurred in 5% of patients in which gastrointestinal side effects were observed mostly.

Keywords: Drug utilization, Rational drug use, Orthopaedics.



REVIEW ON STEM CELL TRANSPLANTATION IN AIDS PATIENTS

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Abstract: Acquired immunodeficiency syndrome (AIDS) is a chronic, potentially life-threatening condition caused by the human immunodeficiency virus (HIV). A stem cell transplant can involve taking healthy stem cells from the blood or bone marrow of one person. There are a few cases nearly six in which the persons were diagnosed with the AIDS at their last stage of cancer, the persons had been transplanted with the CCR5 mutated gene for the purpose of treatment of cancer. After transplantation remission of virus had noted. CD4+ cells count also increased, after stopping Anti retro-viral therapy (ART) for a certain period of time after transplantation. Most of the persons have the viral cells undetectable and few have their viral load within the levels and uninfected after stopping their ART. Here, the bone marrow transplantation had been received from the donors who have Delta 32 mutation in the short (p)-arm at 21 position of chromosome 3 that results in the genetic deletion of a portion of CCR5 gene that involves in inhibition of viral cell transmission into the CD4+ cell. So, that the HIV transmission is inhibited into the CD4+ cell. CCR5 receptor mainly involves in the transmission of HIV virus into the cell by fusing with the gp120 of viral cell. With the presence of CCR5 mutated gene the viral transmission is inhibited into CD4+ cell.

Keywords: CCR5 Gene mutation, Stem cell transplantation, CD4+cells, Antiretroviral therapy, AIDS.

SLEEP'S ROLE IN THE DARK STRUGGLES: UNRAVELING THE LINK BETWEEN NIGHTMARES AND ADDICTION

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Abstract: Substance addiction, a pressing concern in society, encompasses narcotics and steroids, each with a distinct set of consequences. This abstract explores the profound connection between these substances and their impact on sleep patterns, primarily focusing on insomnia. Narcotics, including opioids, synthetic drugs, and prescription medications, are a significant concern, especially among the youth. These addictions, driven by societal and psychological factors, lead to a prevalent issue – insomnia. Insomnia, characterized by difficulty falling and staying asleep, both triggers and results from addiction. Similarly, steroid addiction, often pursued for enhanced physical performance, brings severe health risks like hormonal imbalances, liver damage, heart problems, and psychological issues. Steroids disrupt the body's natural hormonal balance, leading to sleep disturbances and insomnia. This review uncovers the overlooked link between steroid addiction and insomnia, shedding light on the psychological toll it exacts on sleep patterns and overall well-being. By examining these facets of addiction together, we find a common thread – sleep disruption. Recognising this intricate relationship between addiction and sleep disturbances is crucial for crafting effective interventions to safeguard the well-being of our youth. Understanding how narcotics and steroids affect sleep can pave the way for healthier choices and a brighter future.

Keywords: Insomnia, Narcotics, Steroids, Synthetic Drugs, Hormonal Imbalance, Opioids.



A REVIEW ON LINDERNIA CRUSTACEA : AN UNEXPLORED PLANT OF NORTHEAST INDIA**HEMANTA KR GOGOI, MRIDUPLABAN BORAH, BHAIKAV BURAGOHAIN, DHRUBADEEP SAIKIA***School of Pharmacy, The Assam Kaziranga University, Jorhat, Assam, India.*

Abstract: There are numerous medicinal plants available in Northeast India, Lindernia crustacea is one of the most commonest plant available in Northeast India which has various medicinal properties. People are mostly unaware of the medicinal properties that this plant possess. The whole plant is used to demonstrate various pharmacological activities. The plant shows various pharmacological activities such as anti-inflammatory, analgesic, anti-pyretic and anti-cancer. The main objective of this review is to provide a brief summary of data that are available on various literatures, on the area of its pharmacological and traditional uses which provides an up to date data for future research to reveal its full potency and also help in manufacture of drugs and further clinical studies.

Keywords: Lindernia Crustacea, Anti-cancer, Anti-inflammatory, Analgesic, Anti-pyretic, Medicinal plants.

ROLE OF INDIAN SPICES IN MITIGATING CONGESTIVE HEART FAILURE**NAGA PRANATHI JAJI, YELIPE SUNITHA, MUTYALA DEVI***Jawaharlal Nehru Technological University, Kakinada, Andhra Pradesh, India.*

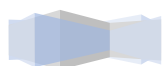
Abstract: Congestive Heart Failure [CHF] is a chronic condition that affects millions of people worldwide. It is characterized by reduced cardiac output and fluid accumulation in the lungs and other tissues. Current treatments for CHF include medication, lifestyle changes and surgery, but they have limitations and side effects. Therefore, there is a need for alternative therapies that are safe, effective and affordable. This review explores the role of Indian spices in mitigating CHF. Indian spices are widely used in ayurvedic medicine and culinary practices. They have various pharmacological properties that may benefit the cardiovascular system, such as anti-inflammatory, antioxidant, anti-hypertensive, anti-atherosclerotic and cardio protective effects. Some of the spices that have been studied for their effects on CHF include turmeric, garlic, ginger, cardamom, cinnamon, black pepper and chili pepper. This reviews explores the evidence from animal and human studies on the mechanisms, dosages, safety and efficacy of these spices in CHF. Indian spices may have potential as complimentary therapies for CHF, but more rigorous and large-scale studies are needed to confirm their benefits and optimal use.

Keywords: Congestive Heart Failure, Indian Spices, Complimentary therapies,

ABSORPTION ENHANCEMENT BY MITIGATING EFFLUX PUMPS**SRAVYA KAMADA , SD.CHAMAN FATHIMA, AASA KATTULA***Jawaharlal Nehru Technological University, Kakinada, Andhra Pradesh, India.*

Abstract: Efflux pumps are the bacterial transport proteins involved in the extrusion of the substrates from the cellular interior to exterior environment (especially antibiotics). It has become a major threat to the humans by the development of multi-drug resistance. For the drug to show its therapeutic efficacy, it should be absorbed into the cell. So EPI (Efflux pump inhibitors) are used to inhibit the expulsion of drug from the cell thereby, absorption of the drug occurs and therapeutic effect is produced. In case of non-adherence to drug treatment or development of resistance to the available drugs is resulted, in such cases these EPI's can be used to elevate the kinetics of absorption thereby the desired response is obtained during treatment of various diseases. The efflux pumps are considered as the significant drug targets for the development of combination strategies. Therefore an experimental approach can be done by selecting the animal, separation of ileum, immersion of it into physiological buffer and with desired drug, incubation followed by the analysis of the concentration of solutions to determine the efflux pump mechanism.

Keywords: Absorption, Inhibition, Therapeutic efficacy, Surface Proteins, Resistance, Elevation.



HERBALPLAST- THE WOUND HEALING PATCHES THAT TREATS DIABETIC FOOT ULCERS**B.MAHALAKSHMI, A.SIRISHA, M.YAGNA SRI, P.SRINIDHI***Shri Vishnu College of Pharmacy, Bhimavaram, Andhra Pradesh, India.*

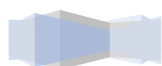
Abstract: Herbalplast is a novel wound healing patch that treats diabetic foot ulcers with a proprietary polyherbal nanoparticle composition. Nanotechnology is the accelerating successful trend in the medical field. It helps in increasing the effective drug treatment by increasing the bioavailability of the drug. Drugs prepared from the extracts of natural sources are having less adverse effects. The combination of natural substances and innovative nanotechnology speeds up healing, boosting speedier recovery and lowering the risk of infection. The beneficiaries of Herbalplast would be diabetic patients with foot ulcers (DFU). Of all the diabetic patients about 15% -20 % are being suffered with DFU. Treating DFU is a complex as well as costly as it requires long period of hospitalization, at severe cases surgery (amputation). They need it because the innovative wound healing patches offer an effective and natural solution to accelerate healing, prevent complications, and improve their overall quality of life. The end result is enhanced Herbalplast wound healing patches that are ready for production and distribution and have demonstrated their usefulness in treating diabetic foot ulcers.

Keywords: Herbalplast, Poly herbal nanopatch, Nanotechnology.

KARTAGENER SYNDROME**SANIPINI SRI LAKSHMI, PEDDINTI LAKSHMI PADMINI, PILLADI SATHVIKA, VELISETTI KRANTHI SWAROOPA***Aditya College of Pharmacy, Surampalem, Andhra Pradesh, India.*

Abstract: Kartagener Syndrome is a rare genetic disorder characterized by a classic triad of symptoms that includes situs inversus totalis, chronic sinusitis, and bronchiectasis. The first component of the triad, situs inversus totalis, entails a reversal of the normal organ positioning, primarily affecting the heart and major visceral organs. This unusual anatomical arrangement often leads to diagnostic confusion and underscores the importance of early recognition. Chronic sinusitis is the second hallmark feature, presenting as recurrent, persistent sinus infections due to impaired mucociliary clearance. Bronchiectasis, the final component, involves the irreversible dilation of bronchial tubes, resulting from recurrent respiratory infections and chronic inflammation. The pathophysiology of "Kartagener Syndrome" is rooted in dysfunctional ciliary motility, primarily attributed to mutations in ciliary dynein genes (dynein arm defects). These structural abnormalities impair ciliary movement, disrupting the essential role of cilia in mucociliary clearance within the respiratory and reproductive tracts. Diagnosis often relies on a combination of clinical assessment, imaging tests, and specialized tests such as high-speed video microscopy and genetic testing. Management includes addressing respiratory and sinus infections, promoting airway clearance techniques, and surgical interventions for severe cases.

Keywords: Kartagener Syndrome, Genetic Disease, Ciliary dysfunction.



ECTOPIC PREGNANCY: A HIDDEN THREAT TO MATERNAL HEALTH

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Abstract: In the fallopian tube, usually, a fertilized egg implants outside the uterus, resulting in an ectopic pregnancy, a potentially fatal condition. Ectopic pregnancies can be brought on by a number of conditions, including fallopian tube injury, inflammation, or previous ectopic pregnancies. For early detection, risk factors must be identified. Abdominal pain, uterine hemorrhage, and shoulder ache are typical symptoms. In order to find the pregnancy and evaluate the patient's status, early diagnosis relies on a mix of blood tests detecting hCG levels, transvaginal ultrasounds, and pelvic examinations. Methotrexate is a medication used to stop embryonic growth. Either the ectopic pregnancy needs to be removed or the fallopian tubes need to be repaired through laparoscopic surgery. An emergency laparotomy is performed in cases of rupture to stop the bleeding and save the fallopian tube. Ectopic pregnancies that go undiagnosed or untreated can result in fallopian tube rupture, which can cause life-threatening internal bleeding. It is crucial for patients to comprehend the potential effects on future fertility. Ectopic pregnancy is a difficult condition that necessitates early discovery and immediate therapy.

Keywords: Ectopic Pregnancy, Diagnosis, Management, Fallopian Tube.

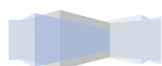
COMPARISON OF REMOGLIFLOZIN WITH EMPAGLIFLOZIN IN PATIENTS HAVING TYPE 2 DIABETES MELLITUS WITH CHF

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Arka Jain University, Jamshedpur, Jharkhand, India.

Abstract: Remogliflozin as well as Empagliflozin are two anti-diabetic medications that are often used to treat Type 2 Diabetes Mellitus. Both medications, sodium-glucose transporter 2 inhibitors, act by lowering blood sugar levels and enhancing glycemic control (regulation of glucose levels) in diabetic patients by removing extra sugar from the body through urine. In adults having type 2 diabetes who also have heart disease, both are also used to diminish the risk of death from heart attack, stroke, or heart failure. Hospitalisations related to heart failure & levels of N-terminal pro-brain natriuretic peptide (NTproBNP) in HF are decreased by SGLT2 inhibitors. The purpose of the research was to compare the therapeutic benefits of Remogliflozin with Empagliflozin in patients having T2DM and CHF. About 38 patients with diabetes mellitus and CHF (EF 40%) and NTproBNP > 600 pg/ml were included in this multicentric, prospective investigation. The Remogliflozin (R) group had 22 patients, while the Empagliflozin (E) group had 16 patients. Among the two groups, baseline glycemic, cardiac, and renal parameters were comparable. In T2DM patients with CHF, Remogliflozin improved glycaemic indices and NTproBNP as a measure of treatment benefits. In T2DM individuals with CHF, Remogliflozin was well tolerated and non-inferior to Empagliflozin.

Keywords: Remogliflozin, Empagliflozin, NTproBNP, CHF, Sodium glucose transporter 2 inhibitor, T2DM.



EVALUATION OF ANTIMICROBIAL POTENTIAL OF A TRADITIONAL WOUND HEALING EXTRACT OF APOROSA OCTANDRA

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Abstract: *Aporosa octandra* (Bunch.-Ham. ex D. Don) (Euphorbiaceae) is an indigenous species in South-eastern region of India. It is having a great contribution in ethno botany as a herbal medication for various ailment like inflammation, hypotension, arthritis, peptic ulcer, itching etc. This study aimed to perform phytochemical screening and evaluate the antimicrobial activity of the leaves extract which is used by the tribals (Kandhas, Odisha) as a remedy for wound healing and skin infection. A choice of extract was obtained by Soxhlet method of extraction by using solvent viz., Petroleum ether (P.et), methanol (Met) and distilled water (Aqs). The phytochemical screening of crude extracts was performed as per the standard protocol. The antimicrobial activity was assessed against multidrug resistant micro organism such as; *P. aeruginosa*, *K. pneumonia*, *S.epididimis*, *S. aureus* by performing minimum inhibitory concentration (MIC) and agar well diffusion method. The phytochemical screening indicates the presence of secondary metabolites like flavonoids, terpenoids, tannins, saponins, and glycosides as well as absence of proteins and alkaloids. The antimicrobial study revealed that the crude extracts showing an adequate effect as antimicrobial where the methanol extract exhibited the most significant inhibitory activity. The minimum inhibitory concentration was observed at 3.12 mg/ml in methanol extract against *S.epididimis*. The highest zone of inhibition was found against *S. aureus* and *K. pneumonia* 28mm and 19mm respectively for methanol extract. Hence, this plant may be suggested for further exploration of molecular lead irrespective of its pharmacological activity.

Keywords: *Aporosa octandra*, Antimicrobial activity, Ethno botany.

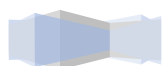
STEPHANIA HERNANDIFOLIA : AN ETHNOMEDICAL PLANT SOURCE EFFECTIVE AS ANTI UROLITHIATIC AGENT

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Abstract: Urolithiasis, the formation of urinary stones at any point within the urinary tract, is a condition that has prompted exploration into therapeutic plants as sustainable sources with antiurolithiatic properties. Numerous commercially available plants holding traditional practices have demonstrated for antiurolithiatic activity and have been clinically employed to dissolve kidney and urinary bladder calculi. Additionally, various traditional plants have undergone scientific evaluation for their potential antiurolithiatic effects. In this review article, we focus on the potential of *Stephania hernandifolia*, an ethnomedicinal plant originating from Assam, an Indian medicinal plant in the treatment of urinary stones by traditional practices. Furthermore, *Stephania hernandifolia* is a well-established folk remedy for addressing urolithiasis and a wide spectrum of urinary disorders, hyperglycemia, inflammatory and arthritic disorders. Therefore we are focusing on all possible pharmacognostic and pharmacological activity of the selected plant by reporting its traditional usage in Assam and its various bioactivity profiles.

Keywords: Urolithiasis, Antiurolithiatic, Antidiabetic, Anti-inflammation, Antiarthritic.



SOLENA AMPLEXICAULIS : AN ETHNOMEDICINAL PLANT SOURCE OF NORTH EAST INDIA EFFECTIVE AS ANTI-INFLAMMATORY AGENT

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Abstract: Hostile to inflammatory activity is shown by the plants that have the capacity to blend assortment of phytochemical compounds as optional metabolites. By showing impacts on body mechanics the spices of regular beginning diminish a wide range of irritation. spices give help from expanding, firmness, joints agony and irritation. Mitigating supplement as well as calming spices decline the degree of prostaglandins which is substance delivered by cells at locales of injury and furthermore sharpen the sensitive spots that cause torment. In various frameworks like Ayurveda, Siddha, and Unani, a few therapeutic plants were utilized for relieving different human illnesses. In this audit a work is being made to ask calming movement of restorative natural medications. Solena amplexicaullis (Lam.) Gandhi, is a multipurpose minor cucurbit with periodic event in biodiversity focal points of Asian subcontinent and the majority of the plant parts are utilized for customary medication. These plants are fit for combining optional metabolites which can be utilized for the new medications disclosure and advancement. Restorative plant removes are possible hotspot for the advancement of new specialists successful against irritation as of now hard to treat.

Keywords: Inflammatory activity, Natural Medications, Solena amplexicaullis.

USES OF NATURALLY OCCURING DRUG DURING CUTS AND WOUND

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Abstract: Cutaneous injury recuperating is the interaction by which skin fixes itself. It is for the most part acknowledged that cutaneous injury mending can be separated into 4 stages: haemostasis, irritation, multiplication, and redesigning. In people, keratinocytes re-structure a practical epidermis (reepithelialization) as quickly as could be expected, containing the injury and restoring tissue homeostasis. Dermal fibroblasts relocate into the injury bed and multiply, making "granulation tissue" wealthy in extracellular network proteins and supporting the development of fresh blood vessels. Eventually, this is rebuilt over a drawn out period, returning the harmed tissue to a state like that before injury. Dysregulation in any period of the injury mending overflow postpones recuperating and may bring about different skin pathologies, including nonhealing, or constant ulceration. Native and conventional prescriptions utilize regular items and subordinates of normal items and give the greater part of all drugs consumed today all through the world. Perceiving the significant job customary medication keeps on playing, we have attempted a broad review in detailing the utilization of clinical plants and plant-based items for cutaneous injuries. We portray the dynamic fixings, bioactivities, clinical purposes, details, techniques for readiness and clinical worth of clinical plant species. The prevalence and proof of proceeded with use obviously shows that there are still illustrations to be gained from conventional practices. Concealed in the horde of regular items and subordinates from normal items are undescribed reagents, neglected mixes and assistant mixtures that could have a spot in the contemporary restorative stock.

Keywords: Natural drug, Injury, Cut, Wound.



ANIMAL IN RESEARCH: IMPORTANCE, MANAGEMENT AND ETHICAL REGULATION**SABIR HUSSAIN, MINTU RAVA, SUIDA JAKIYA MUHSININ, RAJESH JESUDASAN***School of Pharmacy, The Assam Kaziranga University, Jorhat, Assam, India.*

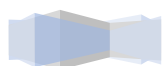
Abstract: The use of animals in scientific research is a vital component that has significantly advanced our knowledge of biology, medicine, and other fields of study. Its importance is highlighted by its crucial role in illuminating intricate biological processes, promoting medicinal advancements, and improving our understanding of basic phenomena. The ethical care of study animals must be guaranteed, and strict management is essential. This requires careful experimental planning, ideal animal care, and vigilant health monitoring which must be carried out by qualified experts. Furthermore, technological advancements like genetic engineering and sophisticated imaging continue to enhance and improve study approaches. Animal research is ethically governed by rules like the Replacement, Reduction and Refinement, which serve as a moral compass. These recommendations are designed to reduce animal suffering, improve study results, and encourage good stewardship of research participants. Institutional Animal Care and Use Committees (IACUCs) oversight promotes accountability and openness by ensuring adherence to moral norms. Animal research essentially promotes scientific advancement while protecting the welfare and dignity of the animals involved, achieving a harmonic balance between information gain and moral responsibility when managed efficiently and ethically controlled.

Keywords: Animal research, Scientific advancement, Ethical care.

**AGRIMONIA PILOSA: A PROMISING MEDICINAL HERB FOR THE FUTURE
MANAGEMENT OF CHRONIC DISEASES****SABIR HUSSAIN, IRFAN YASIN ROHMAN, AFRA BEGUM, RAJESH JESUDASAN***School of Pharmacy, The Assam Kaziranga University, Jorhat, Assam, India.*

Abstract: Ethnopharmacologically relevant natural compounds originating from plants have recently received a lot of attention. These medicinal plants are regarded to be a good source of phytochemicals for drug development and research. Agrimonia pilosa Ledeb is a Rosaceae family perennial herbaceous flowering plant. It is often found in Asian countries such as India (Meghalaya), China, and others. It contains a variety of phytoconstituents such as flavonoids, triterpenoids, phenols, coumarins, phenolic acids, tannins, phenolic glycosides, flavonol glycosides, etc. These phytoconstituents have various pharmacological activities such as anticancer, anti-inflammatory, anti-oxidant, anti-viral, anti-nociceptive, anti-bacterial, anti-microbial, hepatoprotective, and so on. Agrimonolide, an isocoumarin chemical discovered from Agrimonia pilosa Ledeb, is a very important compound that has to be researched further for the treatment of chronic disorders. Agrimoniin is also a tannin derivative that may pique people's interest due to its intriguing properties and medicinal potential. Natural phytoconstituents, as we know, are formed naturally and do not require any additional human intervention for isolation. As a result, there are extremely few negative effects in both humans and the environment when using herbal treatments. Synthetic medications, on the other hand, require unique synthesis techniques. As a result, they have detrimental human and environmental consequences. Thus, this medicinal herb i.e. Agrimonia pilosa may become an emerging green treatment for several chronic ailments in the near future, promoting human health while also preserving the environment.

Keywords: Agrimonia Pilosa Ledeb, Natural medicine, Antioxidant, Anti-inflammatory, Antiviral, Anti-Cancer.



HEALING BEYOND PILLS: REGENERATIVE MEDICINE'S IMPACT ON PHARMACEUTICALS SCIENCES

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Abstract: Regenerative medicine is rapidly emerging as a groundbreaking discipline within pharmaceutical sciences, offering innovative solutions for treating various diseases and injuries that encompass diverse modalities including stem cell therapy, tissue engineering, and gene therapy, with an aim to restore, repair, or replace damaged tissues and organs. The convergence of regenerative medicine and pharmaceutical sciences has unlocked new avenues for drug discovery, drug delivery, and personalized medicine. Furthermore, regenerative medicine has inspired the creation of advanced drug delivery systems. Nanoparticles and biomaterials are engineered to enhance the targeted delivery of therapeutic agents, reducing side effects and increasing treatment efficacy. These innovative delivery platforms have the potential to revolutionize the administration of traditional pharmaceuticals. Regenerative medicine also paves the way for personalized medicine. By utilizing patient-specific induced pluripotent stem cells (iPSCs), pharmaceutical scientists can develop tailor-made therapies that consider individual genetic variations and disease profiles. This approach holds promise for more effective treatments with fewer adverse effects. In conclusion, regenerative medicine is reshaping pharmaceutical sciences, offering novel solutions for drug development, delivery, and personalized treatment strategies. As this discipline continues to advance, it holds the potential to transform the pharmaceutical industry, leading to more effective and patient-centered therapeutic approaches. Pharmaceutical researchers and practitioners should embrace the opportunities presented by regenerative medicine to drive innovation and improve healthcare outcomes.

Keywords: Regenerative medicine, Stem cell therapy, Tissue engineering, Gene therapy.

BEYOND BOUNDARIES: ARTIFICIAL ORGANS REDEFINING PHARMACEUTICALS

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Abstract: Artificial organs, a burgeoning discipline at the intersection of pharmaceutical sciences and biomedical engineering, are poised to revolutionize the landscape of healthcare. This abstract explores the transformative potential of artificial organs, highlighting their impact on drug development, personalized medicine, and patient care. Artificial organs, such as artificial hearts, kidneys, and pancreas, have emerged as innovative tools for pharmaceutical research and development. These biomimetic devices mimic the functions of their natural counterparts, providing a controlled environment for testing drug efficacy and safety. This accelerates drug discovery by reducing the reliance on animal models and facilitating more accurate predictions of human responses to medications. Moreover, artificial organs have catalyzed advancements in drug delivery systems. These devices can be engineered to interface seamlessly with the human body, facilitating targeted drug delivery and continuous monitoring of therapeutic outcomes. This precise drug administration minimizes side effects, enhances treatment efficacy, and improves patient compliance. In conclusion, artificial organs are emerging as a transformative discipline within pharmaceutical sciences, offering innovative solutions for drug development, personalized medicine, and drug delivery. As this field continues to evolve, it holds the potential to redefine pharmaceutical research and enhance patient-centered healthcare strategies. Pharmaceutical researchers and practitioners should embrace the opportunities presented by artificial organs to drive innovation and improve healthcare outcomes.

Keywords: Artificial organs, Pharmaceutical sciences, Drug development.



CASE REPORT ON ACUTE DISSEMINATED ENCEPHALOMYELITIS

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Abstract: Acute disseminated encephalomyelitis refers to a monophasic, acute, non-vasculitic, inflammatory demyelinating illness of the central nervous system that is characterized by diffuse neurologic signs and symptoms along with indications of multifocal demyelinating lesions on neuroimaging. According to the prevalent idea, it is an autoimmune condition of the CNS that affects people with hereditary susceptibility to it. As per molecular sequencing myelin autoantigens like myelin basic protein (MBP) and viruses or bacteria may share antigenic determinants. This disease more frequently affects children and adults and has an incidence of 8 per 1million people. Here we report a case of 20 year old male patient been admitted to neurology department with the complaints of high grade intermittent fever, slurred speech, abnormal sensory perception and irritable behaviour. Computerized tomography, CSF analysis and Magnetic resonance imaging brain are the proposed diagnostic criterias. High doses of IV corticosteroids such as methyl prednisolone or dexamethasone are the standard first line treatment. This is followed by 3-6weeks of gradually lowering oral prednisolone dosages. Acute treatment aim to reduce inflammation and typically result in significant clinical improvement .

Keywords: Acute disseminated encephalomyelitis, Antigenic determinants, Computerized Tomography.

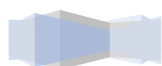
AI-POWERED TOOLS FOR ENHANCING STUDY AND RESEARCH: TRANSFORMING LEARNING AND DISCOVERY

NISAR AHMED

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Abstract: In the era of rapid technological advancement, Artificial Intelligence (AI) has emerged as a transformative force in the realms of education and research. This abstract provides a glimpse into an upcoming presentation that will delve into the profound impact and promising potential of AI-powered tools in shaping the future of learning and discovery. Our presentation aims to navigate the dynamic landscape of AI applications in education and research. We will explore how AI-driven solutions are revolutionizing traditional study methods and research practices, fostering innovation and efficiency. From intelligent virtual assistants and interactive chatbots that offer personalized learning support to cutting-edge recommendation systems that curate tailored research materials, the presentation will showcase a spectrum of AI tools. These tools streamline tasks, adapt to individual learning styles, and empower researchers with data-driven insights. Moreover, we will delve into the ethical dimensions surrounding AI implementation in these fields. Discussions will encompass topics like safeguarding data privacy, mitigating biases, and ensuring responsible AI deployment to uphold the highest standards of integrity. Attendees can anticipate a comprehensive understanding of AI's current impact on education and research, as well as visionary insights into the horizon of possibilities and challenges. Whether you're a student seeking innovative study aids or a researcher at the frontier of discovery, this overview will offer actionable insights and guidance.

Keywords: Artificial Intelligence, Research Advancements ,Ethical AI ,Personalized Learning.



CASE REPORT ON DRUG INDUCED ORTHOSTATIC HYPOTENSION AND VERTIGO IN HYPERTENSIVE AND BENIGN PROSTATIC HYPERPLASIA PATIENT

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Abstract: Orthostatic Hypotension (OH) is a clinical condition characterized by a drop in blood pressure upon standing, leading to symptoms such as dizziness and lightheadedness. Benign prostatic hyperplasia (BPH) is a condition that affects many men and can cause lower urinary tract symptoms (LUTS). Some of the drugs used to treat BPH, such as alpha-blockers, can also cause OH. Here is a case of a patient who experienced drug-induced orthostatic hypotension along with Vertigo. The management of drug-induced OH and vertigo included dose adjustment, drug discontinuation or switching, hydration, salt intake, compression stockings, physical countermeasures, and pharmacological interventions. In conclusion, drug-induced OH and vertigo are important adverse effects that should be considered in BPH patients who are treated with alpha-blockers or antimuscarinics. Clinicians should be aware of the risk factors, diagnosis methods, and management strategies for these conditions. Further research is needed to compare the safety and efficacy of different drug classes and combinations for BPH patients with LUTS.

Keywords: Orthostatic Hypotension, Drug-induced, Adverse effects, Vertigo, Dizziness.

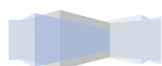
INTERNET OF THINGS IN PHARMACEUTICAL INDUSTRY

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Avanthi Institute of Pharmaceutical Sciences, Andhra Pradesh, India.

Abstract: IoT is a global network of connected people and devices. It is enabled by decreasing technology costs, sensors, connectivity, APIs and more. The IoT has made significant inroads into the pharmaceutical industry, revolutionising various aspects of drug development, manufacturing, and distribution. One of the primary applications of IoT in pharmaceuticals is in research and development (R&D). IoT enabled sensors and devices collect real time data during the drug development, allowing scientists to monitor experiments remotely and make data-driven decisions. This not only accelerates the drug development process but also enhances its precision. Applications of IoT in pharmaceutical industry are: inventory management, quality control, remote monitoring of clinical trials, patient medication adherence, environmental monitoring etc. In conclusion, IoT has ushered in a new era of innovation and efficiency in pharmaceutical industry. From drug development and manufacturing to supply chain management and patient care, IoT applications are transforming the sector. As technology continues to advance, the industry can expect even more profound changes in the years to come.

Keywords: Internet of Things (IoT), Drug development, Sensors.



FACTORS AFFECTING THE QUALITY OF LIFE OF PATIENTS WITH PULMONARY ARTERIAL HYPERTENSION IN A TERTIARY CARE HOSPITAL

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Abstract: Despite advancement in medicine, PAH is a chronic condition that has high rate of morbidity and mortality. The main objective of this study is to evaluate the connection between outcomes and HRQoL in PAH patients. Data on demographics, clinical conditions, physiology and hemodynamics were gathered from the patient. The MMRC dyspnea scale, MMAC scale and Kuppaswamy scale are a few self rating scales that are used as proven evaluation instruments to evaluate various factors. Out of 70 patients a total of 26 patients i.e (37.14%) had low quality of life which lead them to progressive stages of PAH. About 42 (60%) patients had low socioeconomic status which lead to worsening of disease. Patient with low score of medication adherence (34.28%) were more likely to have severe PAH disease. The patients perception of an improvement in HRQoL should be a fundamental sign of high quality care making it a crucial tool in assessing the success of medical interventions.

Keywords: Pulmonary Arterial Hypertension, Morisky Medication Adherence Scale.

PHARMACOGENOMICS

JIGEESHA LAKSHMI GANJA

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Abstract: Pharmacogenomics is a field of study that blends pharmacology and genomics to improve the ways in which medication is prescribed to patients. The adoption of AI & development in genomics is making hospitals smarter by advancing personalized health care. The use of trial & error method in prescribing medication is both inconvenient & potentially dangerous for patients. It is possible to predict which individuals can benefit from treatment and which ones may suffer from toxicity. By using unique genetic information, doctor's can prescribe medications with greater accuracy. Drug-gene interactions describes how a patient's genetic makeup can affect the outcomes of medication therapy. The new arena of personalized medicine is possible due to innovations in genomics by providing speciality care for several unmet clinical needs like chronic conditions.

Keywords: Medication Therapy, Genetic, Interactions, Genomics, Pharmacology.

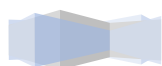
CASE STUDY ON AUTOIMMUNE ENCEPHALITIS WITH SEIZURES

VENKATA PRATHIGNA KUDIPUDI, P.V.M .SINDHU, K. VERONICA

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Abstract: Autoimmune encephalitis is a rare and complex neurological disorder characterized by the immune system's misguided attack on healthy brain tissue, leading to inflammation and a spectrum of diverse clinical presentations. A 29 year old female was admitted to the hospital presenting with pronounced hyperthermia. Subsequent medical evaluation by the physician revealed a diminished platelet count. After a span of a few hours, the patient manifested acute seizures of severe intensity. Upon diagnosis MRI brain scan a slight thickening of the ethmoidal mucosa was observed bilaterally. Due to severe seizures the patient was transferred to a nearby secondary care hospital. As a result of these seizures, the patient entered an unconscious state and fell into a coma on PET-CT imaging, which indicated finding consistent with a possible autoimmune encephalitis, potentially involving the limbic system. After undergoing a 45 day course of maintenance therapy, the patient regained consciousness. However, she exhibited significant retrograde amnesia, resulting in the inability to recollect various aspects of her personal history.

Keywords: Autoimmune Encephalitis, Diminished platelet count, Severe acute seizures.



REVOLUTIONIZING MEDICINE: ADVANCEMENTS IN 3D BIOPRINTING FOR TISSUE ENGINEERING

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Abstract: In recent years, 3D bioprinting has emerged as a groundbreaking technology with the potential to revolutionize the field of medicine, particularly in tissue engineering and regenerative medicine. This abstract delves into the remarkable advancements achieved in the realm of 3D bioprinting and their profound implications for healthcare. 3D bioprinting involves the precise deposition of bioinks containing living cells and biomaterials to fabricate complex, functional tissues and organs layer by layer. This technique holds the promise of addressing the critical shortage of donor organs, enabling personalized medicine, and advancing our understanding of human biology. One of the most significant breakthroughs in 3D bioprinting is the development of bioinks that closely mimic the native extracellular matrix, allowing for the creation of tissues with improved functionality and integration into the body. Researchers have successfully bioprinted tissues such as skin, cartilage, and even miniaturized organs for drug testing and disease modeling. Innovative bioprinting methods, like organ-on-a-chip systems, are enabling the study of diseases and drug responses with unprecedented accuracy. This abstract also highlights the challenges and opportunities that lie ahead. Ethical considerations, regulatory frameworks, and long-term safety assessments are vital aspects that must be addressed as 3D bioprinting moves toward clinical applications. In conclusion, 3D bioprinting is poised to revolutionize medicine by offering novel solutions to age-old healthcare challenges. This presentation will provide a comprehensive overview of recent advancements, showcasing the potential of 3D bioprinting to transform the landscape of tissue engineering and regenerative medicine.

Keywords: 3D Bioprinting, Extracellular matrix, Technology, Regenerative medicine.

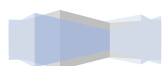
CASE REPORT ON MAPLE SYRUP URINE DISEASE

BORUSU BALAVENDRA SRINIVAS

Aditya Pharmacy College, Surampalem, Andhra Pradesh, India.

Abstract: Maple Syrup Urine Disease (MSUD) is a rare metabolic disorder that affects the breakdown of certain amino acids. MSUD is caused by mutations in genes that encode enzymes responsible for breaking down the amino acids, leucine, isoleucine, and valine. The prevalence and incidence of MSUD were estimated around 5 per million newborn infants. This case reports a 2-year-old female patient with MSUD who was previously a healthy toddler who presented with poor feeding, vomiting, and unique odour resembling maple syrup in her urine. Her parents initially dismissed these symptoms but sought medical attention when they persisted. A physical examination revealed no remarkable findings apart from the characteristic maple syrup odour in her urine. Her laboratory investigations included elevated levels of leucine, isoleucine, and valine and metabolic acidosis with elevated ammonia levels in blood. The urine analysis included elevated levels of branched-chain keto acids and the characteristic odor of maple syrup. Genetic analysis identified mutations in the BCKDHA gene, confirming the diagnosis of MSUD. She was treated with thiamine supplementation to enhance the function of the deficient enzyme. Her parents were educated about the importance of seeking immediate medical attention in case of illness, infection, or dietary non-compliance. Her MSUD required lifelong management. MSUD is a rare but treatable metabolic disorder. Early diagnosis, a strict low-protein diet, and close medical monitoring are essential for the long-term health and well-being of affected individuals. This case highlights the importance of awareness and early intervention in managing MSUD.

Keywords: Maple Syrup Urine Disease, Leucine, Isoleucine, Valine.



THE DIGITAL METAMORPHOSIS OF THE PHARMACEUTICAL INDUSTRY

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Abstract: Digital metamorphosis refers to the adoption of digital technologies to transform services or businesses by replacing non-digital or manual processes with digital processes or by replacing obsolete digital technology with modern technology that enables efficient coordination and facilitates evidence-based decision-making. Pharmaceutical companies are working hard to keep up with the changes caused by digital technologies. Artificial Intelligence and Big Data Analytics, increased use of robotics, automatization solutions, and computerization, are just a few of the advances that are transforming the healthcare business thereby allowing for reduced costs, improved efficiency and productivity, and to be flexible to changes in the same way that they have altered the media, retail, and banking industries. This digital transformation allows for more efficient collaboration among healthcare practitioners, the elimination of duplicate paperwork, and the facilitation of evidence-based decision-making. Several research and development activities in numerous disciplines are gaining momentum in this regard. For instance, Artificial intelligence in pharmacy can be used to help design medicines during drug discovery, speed tech transfer and scale-up in drug development, maintain consistency and quality in manufacturing, and build efficiencies across the whole continuum which decreases the health hazards related to preclinical trials and also reduces the cost substantially.

Keywords: Digital Metamorphosis , Artificial intelligence, Medicines, Drug discovery, Health hazards.

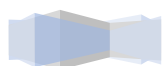
CASE REPORT ON MILLARD GUBBLER SYNDROME

VEMANA HEMA RATNA SAI LAKSHMI

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Abstract: Ventral Pontine Syndrome (VPS) is a neurodegenerative disorder that is characterized by lesions affecting certain areas of the cerebral stem. Symptoms of VPS include facial paralysis (Peripheral Facial Nerve Palsy) and neuromuscular weakness or paralysis of one or more limbs, usually the limbs of the body. This condition is caused by a lesion that affects the sixth cranial nerves and the corticospinal tract in the cerebral stem. Factors such as vascular problems or tumours may also contribute to the development of VPS. Millard Gubler Syndrome is a very rare condition. It is estimated to affect between 1 in 1,000,000 and 4 people in every 100,000. Men are more likely to develop the syndrome than women. It is most common in people aged 40 to 60. A 47-year- male patient had facial deviation to the left side for 4 days prior to presenting with weakness on the left side of his upper and lower limbs. He also mentioned that he had previously had a 2-minute loss of consciousness (LOC), dizziness and an upward tilting of the right eye both before and after the LOC. patient was diagnosed as Millard Gubler Syndrome and prescribed with aspirin, atorvastatin, gabapentin and nortriptyline to treat the patient condition.

Keywords: Millard Gubler Syndrome, Ipsilateral facial paralysis, Contralateral hemiplegia.



HUTCHINSON–GILFORD PROGERIA SYNDROME - A RARE GENETIC DISEASE

MOLLETI VIJAYRAJ KUMAR, SAI SRINIDHI VISWANADHAPALLI, ANNIE CHRISTINE NADIPALLI,
GRACE HADASSAH BUSI

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

Abstract: Hutchinson–Gilford Progeria Syndrome is a rare and deadly genetic condition characterized by rapid infant maturation. The term derives from Greek, meaning ‘prematurely old.’ This syndrome is primarily caused by mutations in the LMNA gene, which encodes the protein Lamin-A. Lamin-A plays a crucial role in maintaining the structural integrity of cell nuclei. Recent research has revealed that mutations in Lamin-A result in the destabilization of cell nuclei, leading to the premature aging seen in Progeria. A literature review has provided valuable insights into therapeutic research, mutational causes, and the common symptoms of Hutchinson–Gilford Progeria Syndrome. There is currently no cure for progeria, but there are some treatments that can help manage the symptoms and complications of the disease. Lonafarnib is the only FDA-approved treatment for progeria, and it has been shown to slow the progression of the disease. Researchers are also studying a number of new treatments for progeria, including gene therapy and stem cell therapy. Investigations into this rare condition have been ongoing for several years, with some studies exploring potential treatments to improve the quality of life for affected individuals, minimizing symptoms and side effects. Future research will likely shed more light on curative approaches and the underlying mechanisms of the disease, offering hope for improved care and a healthier life for Progeria patients.

Keywords: Hutchinson Gilford Progeria Syndrome, LMNA gene, Lamin-A, Rapid infant maturation, Lonafarnib.

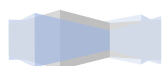
A CROSS- SECTIONAL STUDY ON AWARENESS OF HARMFUL EFFECTS ON TOBACCO SMOKING AMONG ADULT MALE SMOKERS

YARLAGADDA SRI SWATHI, GAVINI SIVA BHARATH

Chalapathi Institute of Pharmaceutical Sciences, Guntur, Andhra Pradesh, India.

Abstract: Aim: To evaluate the awareness of the harmful effects on tobacco smoking among adult male smokers and their spouses. **Methods:** A cross sectional study was conducted among adult male smokers in Guntur district. Participants were asked to fill out a questionnaire about their knowledge of illnesses brought on by smoking. **Results:** Most participants, 95.3%, are aware of the health risks of tobacco consumption, with 93.4% aware of its harmful effects on others. However, awareness of smoking-related health issues is more. But the awareness related to passive smoking is low. **Conclusion:** Most male smokers are aware of the negative effects on their respiratory, cardiac, and circulatory systems, but there is limited awareness about the impotence, infertility, birth defects and premature births.

Keywords: Morbidity, Mortality, Passive smoking, Stroke.



PHARMACOKINETICS, PHARMACODYNAMICS AND COMPUTATIONAL METHODS FOR PHYSIOLOGICALLY BASED PHARMACOKINETIC MODELLING BASED ON ARTIFICIAL INTELLIGENCE

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Abstract: Pharmacokinetics and pharmacodynamics are critical parts of drug development because they define the best dosage, administration route, and drug safety in the body. Traditionally, animal studies and human clinical trials have been used to undertake pharmacokinetic and pharmacodynamic research. Important obstacles to these methodologies include interindividual variability, sample size issues, and ethical dilemmas. Furthermore, the pharmacokinetics and pharmacodynamics of drugs in humans may not always be accurately predicted by this research. Computational models and artificial intelligence (AI) techniques have been created to forecast drugs pharmacokinetics and pharmacodynamics more quickly, more efficiently, and with greater accuracy. In the areas of pharmacokinetics, pharmacodynamics, and drug discovery, AI has demonstrated enormous potential. AI has the potential to revolutionize PKPD investigations and their impact on therapies, despite the difficulties of massive data and credible datasets, which are difficult to ignore. To imitate drug distribution and clearance in the body, PBPK models are frequently utilised. These models are complicated, and creating them requires a lot of data and processing power. By employing machine learning algorithms to pinpoint the model's most crucial characteristics, AI-based approaches can streamline the construction of PBPK models. The PBPK model's parameters can be optimized using AI-based computational methods, which can eliminate the requirement for animal studies and human clinical trials.

Keywords: Artificial Intelligence, Pharmacokinetics, Pharmacodynamics, Physiologically based pharmacokinetic modelling (PBPK).

ARTIFICIAL INTELLIGENCE FOR ORAL SOLID DOSAGE FORM DEVELOPMENT

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Abstract: AI uses cutting-edge hardware and software to develop abilities that are similar to those of humans. Over the past few years, such innovation has aided various industries, including the pharmaceutical sector, particularly during the product development stage. The adoption of these technical advancements can reduce the amount of time, money, and resources needed for production and efficient delivery to final consumers through the supply chain. Tablets are one of the most common dosage forms on the pharmaceutical market, where solid dosage forms typically predominate. AI can aid in the investigation of the desirable features contained in an optimized formulation as well as its search. Artificial neural networks (ANNs), fuzzy logics, and neural networks, together with genetic algorithms, are some of the AI technologies that are used to generate reliable dosage forms and a clearer understanding between the inputs and outputs for processes. Tablets are a popular solid dosage form that accounts for a significant portion of the market for drug delivery. Excipients and active drug compounds are both used in the production of this product, which is then compressed or molded to the desired shape and size. AI can be used to anticipate drug release under conditions of systemic drug delivery. In order to maintain consistent quality control procedures, it is also used to explore the effects of critical processing factors that are essential to tablet manufacture. Also, tablet defects have been detected using specific AI applications.

Keywords: Artificial Intelligence, Drug development, Drug release.

