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"Global Challenges in Drug Development: Affordability & Accessibility"

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ABSTRACT-1

VACCINE TECHNOLOGIES FOR CANCER PREVENTION THROUGH EARLY DETECTION

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Latest developments in vaccine technologies for cancer prevention including prophylactic & therapeutic vaccines, vaccine platforms & combination therapies. Personalized vaccines & biomarker development in enhancing vaccine efficacy. Early detection of cancer plays a important role in improving treatment outcomes & survival rates. Advancements in medical technologies have enabled the identification of cancer at its earliest stages when treatment is most effective key technologies for cancer prevention & early detection. Cancer is leading cause of death world wide but early detection can significantly improve treatment outcomes & survival rates. Recent advances in technologies such as imaging, biomarkers, genomics, artificial intelligence have shown in detecting cancer at early stage. Technologies for cancer prevention & early detection focus on identifying cancer at earliest stage when it is most treatable. Recent advances in vaccine technologies have shown promise in preventing cancer through early detection. Latest developments in vaccine platforms, including mRNA, viral vectors, and nanoparticles and their potential in stimulating immune responses against cancer cells. Cancer prevention involves steps that can reduce the chance of developing cancer. Technologies & approaches being used like imaging technologies, blood test & biomarker detection, genetic & molecular profiling, Artificial intelligence, endoscopy & biopsy technologies, organ specific screening, nanotechnology, AI based screening for skin cancer.

ABSTRACT-2

NAVIGATING GLOBAL CHALLENGES IN DRUG DEVELOPMENT: ENSURING AFFORDABILITY AND ACCESSIBILITY

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The development of innovative drugs has revolutionized healthcare, yet global challenges in affordability and accessibility persist, especially in low- and middle-income countries. The high costs associated with research, clinical trials, and regulatory approvals often result in limited access to essential medicines. Additionally, intellectual property rights and market exclusivities further restrict affordability. This abstract explores the hurdles in drug development, pricing strategies, and policy reforms that can ensure equitable access to life-saving medications. Strategies such as compulsory licensing, generic drug production, and public-private partnerships play a crucial role in bridging the gap between innovation and global accessibility. Addressing these challenges requires a collaborative effort among governments, pharmaceutical industries, and regulatory bodies to establish sustainable models that enhance affordability without compromising research and development.

KEYWORDS: Drug Development, Affordability, Accessibility, Generic Medicines, Policy Reforms.

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ABSTRACT-3

"COMPUTATIONAL AND MOLECULAR DOCKING ANALYSIS OF Β-SITOSTEROL FROM *CURCUMA LONGA* AS A POTENTIAL THERAPEUTIC AGENT FOR ULCERATIVE COLITIS"

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Ulcerative colitis (UC) is a chronic inflammatory bowel disease characterized by mucosal inflammation in the colon. Current therapeutic options are limited, with side effects and incomplete efficacy. This study investigates the potential of β-sitosterol, a plant sterol found in *Curcuma longa* (turmeric), as a therapeutic agent for UC through computational and molecular docking analysis. We employed molecular docking to explore the binding affinity and interaction of β-sitosterol with key targets involved in UC pathogenesis, such as pro-inflammatory cytokines and enzymes. The study revealed that β-sitosterol exhibited strong binding affinity towards tumor necrosis factor-alpha (TNF-α) and cyclooxygenase-2 (COX-2), both of which are critical mediators of inflammation in UC. Additionally, molecular dynamics simulations confirmed the stability of the β-sitosterol-target complexes, suggesting its potential as an anti-inflammatory agent. In silico ADMET (absorption, distribution, metabolism, excretion, and toxicity) analysis predicted favorable pharmacokinetic properties, further supporting its therapeutic viability. These findings indicate that β-sitosterol from *Curcuma longa* could be a promising candidate for the development of novel, plant-based treatments for ulcerative colitis. Further experimental studies are required to validate these computational predictions and assess the clinical efficacy of β-sitosterol in UC management.

KEYWORDS: Ulcerative colitis (UC), β-sitosterol, Curcuma longa (turmeric), Molecular docking, Inflammation.

ABSTRACT-4

CERVICAL CANCER AWARENESS

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Gardasil 9 is a recombinant, non-infectious, quadrivalent human papillomavirus (HPV) vaccine that provides protection against nine HPV types (6, 11, 16, 18, 31, 33, 45, 52, and 58). These HPV strains are responsible for the majority of cervical, vulvar, vaginal, and anal cancers, as well as genital warts. The vaccine is composed of virus-like particles (VLPs) produced using recombinant DNA technology in Saccharomyces cerevisiae (yeast) and is administered intramuscularly in a series of two or three doses, depending on age. Gardasil 9 induces a strong immune response, generating neutralizing antibodies that prevent HPV infection and subsequent disease progression. Clinical trials have demonstrated its high efficacy, safety, and long-term protection against HPV-related diseases. Widespread vaccination with Gardasil 9 is a crucial strategy for reducing HPV-associated cancer burden globally.

ABSTRACT-5

REVOLUTIONIZING CARDIAC CARE: STEM CELLS, GENE THERAPY, AND REGENERATIVE INNOVATIONS

Cardiovascular diseases (CVDs) remain the leading cause of morbidity and mortality worldwide, with conditions such as myocardial infarction (MI) and heart failure (HF) causing irreversible damage to cardiac tissues. Traditional treatments often focus on managing symptoms rather than repairing damaged tissues. However, regenerative medicine offers a transformative approach by aiming to restore the structure and function of the heart. This poster explores the current advancements and future potential of regenerative medicine in cardiology, with a focus on stem cell therapy, gene editing, and tissue engineering.

ABSTRACT-6

VITILIGO: INSIGHTS INTO DISEASE PROGRESSION AND IT'S PSYCHOLOGICAL CONSEQUENCES – AN OBSERVATIONAL STUDY

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Vitiligo is a chronic depigmenting disorder with a complex pathophysiology and significant psychological impact. This observational study explores the progression of vitiligo and its profound effects on mental well-being. We analyze clinical patterns of disease progression, including the role of immune dysfunction, genetic predisposition, and environmental triggers. Additionally, we assess the psychological burden, including anxiety, depression, and social stigma, faced by individuals with vitiligo. By integrating clinical observations with patient-reported experiences, this study highlights the need for a multidisciplinary approach to treatment, encompassing both dermatological and psychological support. Understanding the interplay between disease progression and mental health can aid in developing holistic management strategies, ultimately improving the quality of life for individuals with vitiligo.

KEYWORDS: Vitiligo, Disease Progression, Psychological Impact, Quality of Life, Multidisciplinary Approach.

ABSTRACT-7

GLOBAL CHALLENGES IN DRUG DEVELOPMENT: AFFORDABILITY AND ACCESSIBILITY

The development and distribution of novel pharmaceuticals are critical for addressing global health issues; however, significant legal and economic constraints limit affordability and access. High research and development costs, stringent regulatory requirements imposed by agencies such as the FDA (Food and Drug Administration), EMA (European Medicines Agency), and WHO (World Health Organization), along with extended patent protections under the TRIPS (Trade-Related Aspects of Intellectual Property Rights) Agreement, all contribute to the high price of innovative medicines. These limitations often restrict access, particularly in low- and middle-income countries where healthcare infrastructure and reimbursement processes are inadequate.

Moreover, Good Manufacturing Practices (GMP), market exclusivity requirements, and drug price regulations all present additional obstacles to the timely availability of affordable pharmaceuticals. Delays in drug approval, strict patent extensions, and data exclusivity limitations can all hinder the introduction of cost-effective generics and biosimilars into the market. To tackle these challenges, potential solutions such as compulsory licensing, voluntary licensing through the Medicines Patent Pool (MPP), differential pricing models, and extended regulatory harmonization through the International Council for Harmonisation (ICH) are currently being explored.

The interplay of economic policies, intellectual property laws, and regulatory frameworks in determining worldwide medication accessibility will be examined in the e-poster presentation. It will highlight effective policy initiatives and offer measures to increase fair distribution, ensuring that pharmaceutical innovations improve health outcomes worldwide.

ABSTRACT-8

LEAD-INDUCED IMMUNE DYSFUNCTION INFLUENCED BY GUT MICROBIOME DYSBIOSIS

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The earth's crust contains trace amounts of the non-essential heavy element lead. Lead may be obtained through contaminated food and drinking water. However, it finds applications in numerous sectors, including automobiles, batteries, boat building, coal burning, lead smelting, leaded gasoline, grids, paints, bearings, ceramics, and plastic. Lead-induced oxidative stress results in dysbiosis of the gut microbiota and DNA damage. Studies on the detrimental effects of lead on intestinal physiology have shown that dysbiosis in the gut, caused by the overexpression of lead, is responsible for altered gut physiological homeostasis, immune-inflammatory reactions, and increased permeability of the intestinal barrier in the digestive tract, which results in apparent morphological changes and complications. Lead exposure has been associated with an inflammatory response in the intestine and an elevation in intestinal permeability. When rats were exposed orally to 10mg/kg lead for 28 days, as a result when comparing the lead-induced group to the control group, we observed an alteration of the level of I-FABP and β-defensin due to a significantly reduced number of microorganisms such as *firmicutes, lactobacillus Plantarum, streptococci,* and *E. coli*. These bacteria are commensal and have been shown to protect against immunological diseases. In the gastrointestinal tract, a disturbance of the microbiota may generate an inflammatory environment that disturbs intestinal homeostasis. This can lead to the expression of pro-inflammatory mediators including IFN-γ, IL-17, or TNF-α, which may increase the inflammatory process and damage the epithelium. The gut's bacteria may function as a biological barrier, preventing the intestines from absorbing lead and so minimizing the bioavailability of hazardous metals, as evidenced by the bowel's histological changes and elevated inflammatory marker levels. The number of goblet cells and excess dispersed lymphocytes, the height and structure of the villi, and the depth and shape of the crypt were all significantly different in the lead-induced groups.

ABSTRACT-9

SOLID LIPID NANOPARTICLES: A REVOLUTIONARY APPROACH FOR ORAL DRUG DELIVERY

Oral drug delivery is the most preferred route of administration due to its convenience, patient compliance, and cost-effectiveness. However, several challenges, such as poor bioavailability, instability in the gastrointestinal tract, and first-pass metabolism, hinder the effective oral delivery of many drugs. Solid Lipid Nanoparticles (SLNs) have emerged as a promising drug delivery system to overcome these limitations. Lipids form stable colloidal systems known as solid lipid nanoparticles (SLNs), which stay solid at body and room temperatures. The medicine is either dissolved or distributed within a solid lipid core that is stabilized by a surfactant. In pharmaceutical and cosmetic formulations, SLNs were initially launched in the early 1990s as a substitute for solid nanoparticles, emulsions, and liposomes. These nanoparticles can be made from various precursors, including emulsions and microemulsions, which are then processed using various tools and methods to produce the appropriate particle size and form. Every precursor has unique benefits, but there are drawbacks as well. SLNs are frequently prepared via high- pressure homogenization (HPH), which produces submicron-sized particles reliably by increasing shear stress and cavitation. SLNs offer advantages such as improved solubility, controlled drug release, enhanced bioavailability, and protection of drugs from enzymatic degradation, active targeting and, and multifunctional therapy. They are also particularly useful for drug delivery and the treatment of chronic illnesses since they employ biocompatible materials that allow for efficient gastrointestinal penetration. This review explores the potential of SLNs as an innovative approach to oral drug delivery, their formulation strategies, advantages, limitations, application patents, and future perspectives.

KEYWORDS: Solid lipid nanoparticle, Oral delivery method of preparation, application, patents.

ABSTRACT-10

IRON DEFICIENCY ANEMIA IN PREGNANCY: ROLE OF LIPOSOMAL IRON

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Iron deficiency anemia (IDA), characterized by low hemoglobin due to insufficient iron, is the most common nutritional deficiency in pregnancy. In pregnancy, a hemoglobin concentration of less than 11.0 g/dL in the first trimester and less than 10.5 or 11.0 g/dL in the second or third trimester is considered anemia. IDA severity ranges from mild (Hb 10–10.9 g/dL) to moderate (Hb 7–9.9 g/dL) and severe (Hb <7 g/dL), significantly impacting maternal and fetal health. Globally, IDA affects nearly 40% of pregnant women, increasing risks of preterm birth, low birth weight, and maternal morbidity. ways. More than a century ago, the eminent biologist Charles Darwin suggested that plants have a brain -like structure at their root tips. In this case, Darwin'sroot-brain hypothesis was wrong but modern research shows that plants can communicate. They speak with other plants as well as with animals and even people. They do this primarily using chemicals and sound. Given the significant adverse impact on maternal-fetal outcomes, early recognition and treatment of this clinical condition is fundamental. Traditional oral iron is limited by poor gastrointestinal tolerance and low bioavailability, while parenteral iron, though effective, carries risks like hypersensitivity and high costs. Liposomal iron, an advanced formulation, offers superior absorption, minimal gastrointestinal side effects, and enhanced compliance by encapsulating iron within phospholipid layers, mimicking physiological uptake. This novel approach improves hemoglobin restoration rates and reduces oxidative stress compared to conventional therapies. Incorporating liposomal iron into clinical protocols could revolutionize IDA management, ensuring safer and more efficient maternal care.

KEYWORDS: Iron deficiency anemia, Pregnancy, Liposomal iron.

ABSTRACT-11

ASSESSMENT OF ANTIDIABETIC EFFECTS OF *MOMORDICA CHARANTIA* IN STREPTOZOTOCIN-INDUCED DIABETIC RATS

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The objective of the current study was to use the streptozotocin induced rat (STZ) model of diabetes mellitus (DM) in rats to examine the antidiabetic effects of aqueous extract of *Momordicacharantia* fruit. Rats were administered with 50 mg/kg intraperitoneally (I.P.) with streptozotocin (STZ). Confirm the diabetes mellitus by performing the serum glucose test. In distinct sets of STZ-induced rats, the effects of aqueous fruit extract of *Momordica charantia*(250 mg/kg b.w. and 500 mg/kg b.w.), marketed ayurvedic antidiabetic formulation and the conventional medication Glibenclamide (0.5 mg/kg b.w. oral) were assessed for oral glucose tolerance test, both acutely and sub-acutely for hypoglycemic and antidiabetic effect, body weight and serum cholesterol level. In the acute hypoglycemia research, serum glucose levels were measured at 0, 1, 3, 5, and 7 hours, and in the subacute hypoglycemic phase, at 0, 7, and 14 days. In the acute antidiabetic trial, serum glucose levels were measured at 0, 1, 3, 5, and 7 hours, and in the sub-acute antidiabetic research, at 0, 1, 3, 5, and 7 days. Serum glucose levels significantly decreased when *Momordica charantia* (MC) fruit extract (250 mg/kg b.w. and 500 mg/kg b.w. oral), marketed ayurvedic antidiabetic formulation and glibenclamide (0.5 mg/kg b.w. oral) were administered. Glibenclamide and aqueous fruit extract of *Momordica charantia* effectively reduced serum cholesterol, triglycerides, and LDL levels while increasing HDL levels following a 7 day treatment period. Aqueous fruit extract of *Momordica charantia* effectively attenuate the body weight loss in diabetic rats.

KEYWORDS: Diabetes mellitus, *Momordica charantia,* Antidiabetic, Streptozotocin

ABSTRACT-12

CLINICAL PHARMACOLOGY IS PIVOTAL IN UNDERSTANDING THE EFFECTS OF DRUGS IN HUMANS, ENSURING THERAPEUTIC EFFICACY WHILE MINIMIZING ADVERSE EFFECTS

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Background:

Clinical pharmacology is pivotal in understanding the effects of drugs in humans, ensuring therapeutic efficacy while minimizing adverse effects. This field integrates pharmacokinetic and pharmacodynamic principles to inform safe and effective medication use in various clinical settings.

Aim:

The presentation aims to provide a comprehensive overview of clinical pharmacology, focusing on the processes of drug evaluation, therapeutic monitoring, and the integration of new clinical research findings into practice.

Materials:

The study utilizes a combination of peer-reviewed journals, clinical trial data, and established pharmacology textbooks. Supplementary materials include case studies and real-world examples drawn from recent clinical research.

Methods:

A systematic literature review was performed to identify relevant studies in clinical pharmacology. Data was extracted regarding drug absorption, distribution, metabolism, and elimination (ADME) along with therapeutic outcomes. Qualitative analysis was employed to evaluate the impact of clinical trial findings on current therapeutic practices.

Results:

The analysis revealed significant improvements in patient outcomes through tailored drug therapy. Enhanced understanding of pharmacokinetic and pharmacodynamic interactions has led to more personalized dosing regimens, which contribute to a reduction in adverse drug reactions and improved clinical efficacy. Emerging trends in pharmacogenomics further support the movement towards precision medicine.

Conclusion:

Clinical pharmacology remains a cornerstone of modern therapeutics, bridging the gap between experimental drug research and clinical practice. Ongoing advancements in pharmacogenomics and personalized medicine are expected to enhance the safety and effectiveness of drug therapies, ultimately improving patient care and outcomes.

KEYWORDS: Clinical Pharmacology, Pharmacokinetics, Pharmacodynamics, Therapeutic Monitoring, Personalized Medicine, Pharmacogenomics, Drug Safety, Clinical Trials

ABSTRACT-13

IMMUNOINFORMATIC DESIGN OF A MULTI-EPITOPE VACCINE AGAINST LA CROSSE VIRUS (LACV): TARGETING NUCLEOCAPSID PROTEINS FOR ENHANCED IMMUNITY

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La Crosse virus (LACV) is a mosquito-borne virus responsible for viral encephalitis, particularly in children, leading to severe neurological complications in some cases. With rising incidence linked to expanding mosquito populations and climate change, there are currently no approved vaccines or specific antiviral treatments available. This study aimed to design a multi-epitope vaccine against LACV using immunoinformatics. The nucleocapsid protein of LACV was analyzed to predict B- and T-cell epitopes. Identified epitopes were screened based on conservancy, toxicity, allergenicity, and immunogenicity. Selected epitopes were mapped to HLA alleles to ensure robust immune activation. These epitopes were assembled into a vaccine construct using linkers and adjuvants to enhance immune response. Physicochemical analysis confirmed the vaccine's immunogenicity, stability, and safety. Molecular docking and dynamics simulations with Toll-like receptor-8 (TLR-8) validated the vaccine's receptor-binding efficiency. Codon optimization and in silico cloning into an Escherichia coli plasmid confirmed efficient expression. Preliminary results suggest that the proposed vaccine is immunogenic, stable, and safe for LACV prevention. However, further in vitro and in vivo studies are necessary to validate its protective efficacy and safety profile.

KEYWORDS: La Crosse Virus (LACV), Epitope-based vaccine, Immunoinformatics, Nucleocapsid protein, Molecular docking, In silico analysis

ABSTRACT-14

ATTENTION-DEFICIT/HYPERACTIVITY DISORDER

Attention-deficit/hyperactivity disorder (ADHD) is a prevalent neurobehavioral condition primarily affecting children, characterized by symptoms of inattention, hyperactivity, and impulsivity. These symptoms can lead to significant challenges in academic achievement, social interactions, and overall daily functioning. ADHD often manifests before the age of 12, with early signs frequently observed in preschool years, making early screening crucial for effective intervention.

There are three main presentations of ADHD: predominantly inattentive, predominantly hyperactive/impulsive, and combined presentation. Children with ADHD typically face academic difficulties, including poor grades and increased rates of school-related issues such as detention or expulsion. Longitudinal studies indicate that these academic challenges often persist into adolescence and adulthood, highlighting the need for ongoing support and treatment.

While pharmacological treatments and behavioral management strategies can alleviate core symptoms, they do not necessarily guarantee improved educational outcomes. Research emphasizes the importance of comprehensive evaluations and tailored interventions to enhance the academic performance of children with ADHD. Overall, ADHD is a complex disorder that requires a multifaceted approach to address its impact on individuals' lives effectively.

ABSTRACT-15

LAMBERT – EATON MYASTHENIC SYNDROME – A RARE AUTOIMMUNE DISORDER

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Lambert Eaton Myasthenic Syndrome is disorder of the neuromuscular junction which may be a paraneoplastic phenomenon or a primary autoimmune disorder. There are two forms of LEMSthe paraneoplastic form is associated with a malignant tumour which is mostly a small cell lung cancer the non paraneoplastic form is also referred to as non-tumour Lambert-Eaton Myasthenic Syndrome. LEMS disorder occurs due to reduced levels of acetylcholine because as there is reduce in release of acetylcholine from the presynaptic nerve terminals. This happens because antibodies are generated against the voltage gated calcium channels that are present in the presynaptic neuronal membrane, smoking is considered as the associated risk factor for this disorder. The genetic factors associated are the gene HLA B8 DR3 individuals having this gene are more suspicious for non-neoplastic lambert Eaton Myasthenic Syndrome. The clinical manifestations include: muscle weakness, autonomic dysfunction and areflexia. In suspected cases diagnosis is confirmed by performing serological and electro diagnostic tests. The identification of p/Q type voltage gated calcium channels antibodies is helpful if there is any doubt clinically.Mostly male are more likely to be effected with this disorder when compared with females. The onset of this disorder was found to be at the age 35 years.In LEMS disorder the treatment is given to the patients by considering the symptoms .The pharmacological treatment includes immune modulators and K+ channel blockers that work by rising the levels of calcium with in the cells and anti-cholinesterase's like pyrudostigmine are used to avoid the destruction of ach.Plasmapheresis is also useful in initial stages of the disorder. Non pharmacological treatment includes surgery to remove the tumour.

KEYWORDS: Paraneoplastic, electro diagnostic, presynaptic, areflexia.

ABSTRACT-16

SYNTHESIS AND EVALUATION OF NEW BIS ISATIN DERIVATIVES FOR ANTIINFLAMMATORY ACTIVITY

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Inflammation is a part of the complex biological response of body tissues to harmful stimuli, such as pathogens, damaged cells, or irritants. It is a protective response involving immune cells, blood vessels, and molecular mediators. The function of inflammatory agents is to eliminate the initial cause of cell injury, clear out necrotic cells and tissues damaged from the original insuit and the inflammatory process, and initiate tissue repair. A series of novel 5,5'-Methylenebis(2-oxoindoline-5-yl-3-ylidene)di(benzohydrazide)derivatives (Va-Vf) was synthesized and evaluated for anti-inflammatory activity. All the synthesized compounds were tested at the dose of 100mg/kg b.w and the results were compared with standard indomethacin at dose of 10mg/kg b.w. Among the series Compound Vc(R= Cl) exhibited more activity, Va(R= H) shows moderate and Vd(R= OH) shows least anti-inflammatory activity with 73.8 %, 70.2 % and 39.2% inhibition.

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ABSTRACT-17

EXAMINING THE PHYTOCHEMISTRY OF ARBUS PRECATORIOUS LINN. PLANTS FOR THEIR THERAPEUTIC QUALITIES

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Herbal medicines referred to as botanical medicine or phytomedicine are defined as the use of whole plant or part of plants to prevent or treat illness. India is one of the most medico culturally diverse countries in the world where the medicinal plant sector is part of a time-honoured tradition that is respected even today. Diabetes is a disorder characterized by hyperglycemia or elevated blood glucose. The study is focussed as an attempt to investigate the antidiabetic propertyof leaf and seed extracts of *A. precatorious*. The currently available therapy for treatment of Diabetes displays complications and as herbal medicines are a better substitute to synthetic drugs due to their wider biological and medicinal activities with higher safety margin they are better preferred.

KEYWORDS: . *A. precatorious,* blood glucose, leaf, seed.

ABSTRACT-18

EXPLORING THE THERAPEUTIC POTENTIAL OF PHYTOCHEMICALS IN *ALOE BARBADENSIS MILLER* THROUGH MOLECULAR DOCKING FOR ULCERATIVE COLITIS MANAGEMENT

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Ulcerative colitis (UC) is a chronic inflammatory bowel disease characterized by mucosal inflammation in the colon, leading to significant morbidity. The current treatment options often come with adverse side effects, creating a need for alternative therapies. This study explores the therapeutic potential of phytochemicals derived from *Aloe barbadensis miller* (aloe vera) for managing UC through molecular docking analysis. The bioactive compounds in aloe vera, such as aloin, aloe-emodin, and acemannan, were screened for their interactions with key inflammatory targets associated with UC, including tumor necrosis factor-alpha (TNF-α), cyclooxygenase-2 (COX-2), and interleukin-1β (IL-1β). Molecular docking studies revealed that these compounds exhibited strong binding affinities to these inflammatory mediators, suggesting their potential to inhibit the inflammatory pathways involved in UC. Additionally, molecular dynamics simulations demonstrated the stability of the ligand-target complexes, reinforcing their potential efficacy. The ADMET (absorption, distribution, metabolism, excretion, and toxicity) profile of these phytochemicals indicated favorable pharmacokinetic properties, making them suitable candidates for therapeutic development. These findings highlight the potential of *Aloe barbadensis miller* phytochemicals as promising candidates for ulcerative colitis management. Further experimental studies are needed to validate these computational results and evaluate their clinical effectiveness.

KEYWORDS: Ulcerative colitis, *Aloe barbadensis miller*, molecular docking, phytochemicals, inflammation.

ABSTRACT-19

ANALYTICAL REVIEW ON ESTIMATION OF SULOPENEMETZADROXIL AND PROBENECID BY RP-HPLC

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Pharmaceutical analysis plays a pivotal role in ensuring the safety, efficacy, and quality of pharmaceutical products. With the continuous advancements in pharmaceutical research and development, the demand for sophisticated analytical techniques has grown exponentially. This abstract provides an overview of the RP-HPLC technique employed in pharmaceutical analysis, highlighting its significance in addressing the challenges posed by modern drug formulations. HPLC enable the precise quantification and characterization of active pharmaceutical ingredients.

Sulopenemetzadroxil is a prodrug of the penem antibacterial [sulopenem]. Like other beta-lactam antibacterial, it is a time-dependent inhibitor of bacterial cell wall synthesis. Sulopenemetzadroxil was approved by the FDA in October 2024 for the treatment of urinary tract infections. It is administered in combination with probenecid in order to increase antibiotic exposure.Analytical method development and validation play important roles in the discovery development and manufacture pharmaceuticals. Method development is a broad term. In both quantitative and qualitative analysis developing a new method either for estimation of quantity of substance or to check the presence of the required component is a necessitate step. These methods used to ensure the identity, purity, potency, validating a stability indicating HPLC–method. Validation is a necessary technique in the Pharma sector and that used to ensure that quality work is done in the process which supports the development of medicine and products. As there were no previous works reported on this combination an attempt was made to develop accurate, precise & robust RP-HPLC method for simultaneous estimation of SulopenemEtzadroxil and Probenecid in bulk and pharmaceutical dosage form for routine analysis.

KEYWORDS: Sulopenemetzadroxil, Probenecid, Method development & Method validation.

ABSTRACT-20

MITOCHONDRIAL TARGETED DRUG DELIVERY FOR ANTI-PARKINSON'S ACTIVITY.

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Parkinson's disease (PD) is one of the most common neurodegenerative disorders. Pathological changes in PD leads to degeneration of dopaminergic neurons in the Substantia nigra area of the brain responsible for controlled movement of the muscles. Ethyl ferulate (ethyl 4-hydroxy-3- methoxycinnamate, EF), an alkyl ester derivative of ferulic acid, has been shown to possess various biological activities like anti-cancer,anti-oxidant, protecting mitochondrial dysfunction, neuroprotective activity etc. Based on above data suggestive of neuroprotective potential of EF; we decided to explore EF for its anti-Parkinson's potential. Mitochondrial dysfunction is implicated in PD. To address this, we procured the mitochondrial targeted ethyl ferulate (M-EF) from MSD Lab at ICT to increase its efficacy[1]. It was synthesized by substituting hydroxyl groups of EF and with a propyl linker and TPP+ moiety. The coupling to TPP+ results in targeting the mitochondrial matrix. The objective of the present study was to evaluate the comparative neuroprotective effect of EF and M-EF against pathological alterations induced by rotenone in rat brain. Rotenone is a known mitochondrial toxicant leading to its dysfunction. In the present study rats were injected bilaterally with rotenone (12 µg) in Substantia nigra and further treated orally with EF (10, 20 and 50mg/kg) and M-EF (1,5 and 10 mg/kg) for 30 days[1]. During the study behavioural tests such as the Rota-rod, open field, and Barnes maze test were performed. At the conclusion of the study, antioxidant (reduced glutathione, superoxide dismutase, catalase, and lipid peroxidation) and proinflammatory (TNF-α) as well as mitochondrial (complex I) characteristics were assessed in mid-brain homogenates. EF and M-EF significantly improved the locomotor activity and the muscle strength as compared to the negative control group. A significant attenuation in the cognitive dysfunction by EF and M-EF was observed in barnes maze test. The effects of EF and M-EF treatment on oxidative stress and inflammation produced by rotenone poisoning were dramatically reduced. Rotenone inhibition of mitochondrial complex I was likewise significantly reduced by EF and M-EF. The preliminary findings show that EF and M-EF have neuroprotective properties against rotenone-induced neurotoxicity in rats. A tenfold higher activity was seen with M-EF as compared to EF.

ABSTRACT-21

DEVELOPMENT AND VALIDATION OF A NEW ANALYTICAL METHOD FOR THE SIMULTANEOUS ESTIMATION OF TEZACAFTOR AND IVACAFTOR IN BULK AND MARKETED FORMULATION BY RP-HPLC

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A simple, new, precise, economic, accurate, robust, rugged, specific and sensitive, isocratic RP-HPLC stability indicating method has been developed and subsequently validated for the determination of Tezacaftor and Ivacaftor in API and pharmaceutical dosage forms as per ICH guidelines. The separation achieved on a reversed phase Phenomenex Gemini (250mmx4.6mm) 5µm Particle size Column as a stationary phase and Mobile phase, Methanol: Phosphate Buffer pH-4.2 (20:80v/v) and other conditions optimized were: flow rate (1.0 ml/minute), wavelength (246nm), Run time was maintained at 7minutes. The retention time for Tezacaftor and Ivacaftor was found to be 2.466 min and 4.323 min respectively. The stability of the drug was determined by studying the degradation of the drug under acidic, alkaline, peroxide, neutral, heat and UV conditions. The developed method was found to be linear in the range of 20-100µg/mlforTezacaftor and 40-120µg/ml for Ivacaftor with a correlation coefficient (r2) of 0.999. Recovery of Tezacaftor and Ivacaftor was found to be in the range of 98-102-% which confirms the accuracy of the method. The percentage purity of Tezacaftor and Ivacaftor in pharmaceutical dosage form was found to be 99.98%. The limit of detection and the limit of quantification were found to be 0.98µg/ml and 1.27µg/ml respectively for Tezacaftor and 2.94µg/ml and 3.81µg/ml respectively for Ivacaftor. The sensitivity, accuracy, range, precision, robustness, ruggedness, stability, specificity, limit of detection, limit of quantification and system suitability parameters were validated for the developed method as per ICH Guidelines.

KEYWORDS: Tezacaftor and Ivacaftor, RP-HPLC, Accuracy, Precision, ICH Guidelines.

ABSTRACT-22

FORMULATION AND EVALUATION OF SPHERULES FOR DRUG DELIVERY

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Background:

Spherules are solid dosage forms in which active pharmaceutical ingredients are encapsulated in lipid-based spherical vesicles. These vesicles are formed through the self-assembly of lipids, creating a bilayer that encloses the drug. Techniques such as sonication and extrusion can be used to form spherules and target specific cells or tissues.

Objective:

The study aimed to formulate and evaluate spherules using different polymers to determine the most effective formulation for drug release.

Methods:

Three formulations (F1, F2, and F3) were developed using the spheronization technique with different polymers:

- F1: Ethyl cellulose,
- F2: Hydroxypropyl methylcellulose (HPMC)
- F3: Carboxymethyl cellulose (CMC)

The prepared spherules were evaluated for their powder characteristics, including angle of repose, tapped density, Hausner's ratio, drug content, and drug release.

Results:

Among the three formulations, F2 (containing HPMC) showed the highest drug release of 89.88%, making it the most effective formulation compared to F1 and F3.

Conclusion:

The study concluded that F2, formulated with HPMC, is the optimized formulation due to its superior drug release profile. This suggests that HPMC-based spherules could be a promising approach for drug delivery applications.

KEYWORDS: Spherules, lipid vesicles, HPMC, drug release, spheronization, powder characteristics

ABSTRACT-23

ASTOUNDING MEDICINAL USES OF CASSIA OCCIDENTALIS

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Cassia Occidentalis is used in number of traditional medicines to treat a variety of illnesses. *Cassia occidentalis*, commonly known as Coffee Senna or Kasondi, is a widely used medicinal plant with significant therapeutic potential. Traditionally employed in Ayurvedic, Unani, and folk medicine, it exhibits diverse pharmacological properties, including anti-inflammatory, hepatoprotective, antimicrobial, and bone-healing effects. Rich in bioactive compounds such as flavonoids, alkaloids, anthraquinones, and glycosides,C. occidentalis has been utilized for treating ailments like liver disorders, joint pain, skin diseases, and microbial infections. It is also known for its role in bone fracture healing and detoxification. While its benefits are well-documented in traditional medicine, modern scientific studies are increasingly validating its pharmacological activities. However, caution is advised due to potential toxicity at high doses. Further research is necessary to explore its full therapeutic potential and establish standardized medicinal formulations. This review explores the phytochemical composition, pharmacological activities, therapeutic applications, and safety considerations of *Cassia occidentalis.*

ABSTRACT-24

MOLECULAR DOCKING OF ACETYLCHOLINESTERASE INHIBITOR FOR POTENTIAL DIABETES

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Diabetes mellitus is a chronic metabolic disorder characterized by impaired glucose metabolism, often associated with neurodegenerative complications. Acetylcholinesterase (AChE) inhibitors have gained attention for their potential role in diabetes treatment due to their neuroprotective effects and involvement in insulin signaling pathways. In this study, molecular docking techniques were employed to identify potential AChE inhibitors with antidiabetic properties. A library of bioactive compounds was screened against the active site of AChE using computational docking tools to evaluate binding affinities, molecular interactions, and stability. The top-ranked compounds exhibited strong binding affinities, forming hydrogen bonds and hydrophobic interactions with key residues of AChE. Additionally, ADMET (absorption, distribution, metabolism, excretion, and toxicity) analysis was performed to assess the drug-likeness of the selected compounds. The findings suggest that specific AChE inhibitors may hold promise as dual-function therapeutic agents for diabetes management by modulating both cholinergic signaling and glucose metabolism. Further in vitro and in vivo studies are required to validate these computational predictions and explore their potential in clinical applications.

KEYWORDS: Molecular docking, Acetylcholinesterase inhibitors, Diabetes mellitus, Computational drug design, europrotection, Insulin signalling, ADMET analysis, Bioactive compounds, Cholinergic system, Therapeutic agents

ABSTRACT-25

CHALLENGES IN RECOMBINATIONAL DRUG THERAPY FOR HIV/AIDS

Abstract: The recombination drug, the keystone of HIV / AIDS treatment includes the strategic use of several antiretroviral drugs (ARV) to target different stages of the HIV life cycle. This approach has improved the patient's results considerably by reducing viral load, delaying drug resistance, and increasing life expectancy. However, despite this success, several challenges impede its effectiveness, accessibility and long -term stability.

One of the primary challenges is the high level of HIV mutations, which requires continuous adaptation of combinations of drugs to counteract the emerging medicinal stable strains. Additionally, the complexity of multi-drug interactions increases the risk of adverse consequences, requiring personalized approaches to treatment. Clinical test barriers, including the need for a variety of patients of patients and long -term approval processes of regulatory organs, delay the introduction of new combinations of drugs. Economic issues and accessibility issues are also important. The high costs of patented ARVs limit availability, especially in low-income regions where HIV/AIDS burden is the highest. Health infrastructure issues, drug shortages, and many more social stigmas can hinder the HIV treatment. Ethical issues related to the long-term effects of experimental drug combination therapy and experimental drugs in vulnerable populations also represent obstacles to treatment promotion. Returning to these challenges requires innovative processing approaches such as global health partnerships, IA-led drug discovery, and long-term behavior and gene therapy.

Recombinant drug therapy remains an important strategy in HIV/AIDS management, but overcoming these obstacles is essential to ensuring universal access, improving patient outcomes, and ensuring the ultimate goal of HIV cure.

KEYWORDS: Recombinational drug therapy, Clinical trials, Healthcare infrastructure, Treatment accessibility, Gene therapy, Viral suppression, Global health initiatives, Sustainable treatment models.

ABSTRACT-26

IMPROVING CLINICAL OUTCOMES AND REDUCING MORTALITY: THE CONTRIBUTION OF CLINICAL PHARMACISTS IN ICU TEAMS

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Studies indicate alarmingly high number of deaths, by medical errors, especially in the US. This review article aims to use studies around the world in order to examine the role clinical pharmacists can play, as proactive health team members in an Intensive Care Unit (ICU), in preventing health risks, particularly those ending in life losses. It also examines clinical pharmacist interventionist role by focusing on optimizing the quality of pharmacotherapy and patient safety. This therefore although puts pharmacists under a greater burden of responsibility than ever before, but it is well justified, since it prevents a considerable number of health risks, by achieving a relevant reduction in mortality rates, and at the same time cuts down unnecessary expenses. According to ASHP Guidelines 20: pharmacist should function as a liaison btw pharmacy and other clinical staff in different departments such as anaesthesiology, surgery and antibiotic use. "The paper examines the role of the clinical pharmacists as experts of excellence in drug use and its impact in ICU that will eventually reflect in not only reducing mortality rates and improving clinical outcomes but also lowering considerably the costs of drugs, medical devices, consequential costs caused by medical errors, number of recovery days in the hospital and more.

KEYWORDS: Clinical Pharmacist, Pharmacotherapy Optimization, Mortality Reduction, Pharmacist Intervention

ABSTRACT-27

KNOWLEDGE, AWARENESS, AND PRACTICES (KAP) REGARDING ANTIBIOTIC USE AND ANTIMICROBIAL PILOT STUDY

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Antimicrobial resistance (AMR) is a growing global public health challenge driven by the misuse and overuse of antibiotics. This study aims to assess and compare the knowledge, awareness, and practices (KAP) regarding antibiotic use and AMR among students from diverse disciplines. Understanding students' perspectives on AMR is crucial, as they represent future healthcare professionals and key influencers of antibiotic stewardship. Existing studies on KAP related to AMR largely overlook non-medical students and lack comparative research across medical, allied health, and non-medical backgrounds, particularly in India. A preliminary KAP questionnaire was developed, comprising 11 knowledge, 14 awareness, and 14 practice-based questions. A pilot study was conducted with 200 students (100 males, 100 females) from diverse academic background to evaluate the questionnaire's reliability and validity. Statistical analyses included Cronbach's alpha for internal consistency and the Kaiser-Meyer-Olkin (KMO) test for sampling adequacy. The results confirmed the questionnaire's reliability and suitability for further study. The findings from this pilot study provide insights into existing knowledge gaps and misconceptions about antibiotic use and AMR among students in diverse disciplines. Identifying these gaps will help in designing targeted educational interventions to enhance AMR awareness and promote responsible antibiotic use. This study contributes to the growing body of research on AMR by addressing a key research gap-limited studies on AMR awareness among students, particularly in non-medical fields. The full-scale study will provide a broader perspective on AMR education and inform future public health strategies aimed at fostering interdisciplinary collaboration in combating AMR.

KEYWORDS: Antimicrobial resistance, antibiotic use, KAP survey, education, public health.

ABSTRACT-28

DEVELOPMENT AND ASSESSMENT OF A BIOPHYTUMSENSITIVUM HERBAL GEL FOR WOUND HEALING

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Experimental studies on the wound-healing properties of *Eichornia crassipes* are lacking. This is the first article to report that an extract from Eichornia crassipes was useful in treating wounds. The efficacy of a methanolic Eichornia crassipes leaf extract in healing rat wounds was investigated in an excision model. Wound contraction was most pronounced on day 18 and persisted until day 20, when the 10%w/w extract ointment group's wounds entirely closed. There were statistically significant improvements with both doses of the ointment that included the methanolic extract of *Eichornia crassipes* compared to the control group. The effects of the extract ointment, as well as the histological characteristics, wound contracting capacity, wound closure time, and regeneration of tissues at wound site, were comparable to those of a conventional drug nitrofurazone ointment. The study's findings support the use of *Eichornia crassipes* ointment as a wound therapy.

KEYWORDS: *Eichornia crassipes*, Wound healing, Wound Contraction

ABSTRACT-29

DRUG INTERACTIONS IN DIABETIC PATIENTS- A REVIEW

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Diabetes mellitus is a major disease burden around the world and in India. Growing technology and changing lifestyle in recent years further increases the risk. According to WHO, around 422 million people around the world are suffering from Diabetes. Its severe complications include stroke, chronic kidney disease, and cardiac disorders. It is often seen that diabetic patients have multiple co-morbidities and hence the likelihood of drug-drug interactions is high. Also, Oral hypoglycemic agents as well as insulin can have several interactions with food. Drug and laboratory interactions can also be a concern such as Metformin- IV iodinated contrast media increases the risk of Lactic acidosis which is a life-threatening condition. Other drug food interactions include karela- sulfonyl urea drugs with an increased effectiveness of this oral hypoglycemic agent. Among drug-drug interactions beta blocker use with sulfonyl ureas also increases hypoglycemic effect in individuals. There are even drug-herb interactions most commonly with flaxseeds, fenugreek, cocoa and require close monitoring of anti-diabetic drugs effects. Hence, this review focuses on addressing the major and moderate drug interactions in terms of drug & food along with advised management strategies for the healthcare professionals and related patient counselling related advice.

KEYWORDS: Drug interactions, Drug-food, diabetic, Oral hypoglycemic agents.

ABSTRACT-30

GREEN SYNTHESIS AND CHARACTERIZATION OF MAGNESIUM OXIDE NANOPARTICLES USING OKRA MUCILAGE.

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Green analytical chemistry (GAC), a subset of green chemistry, aims to minimize environmental impact and improves safety in analytical techniques like HPLC, focusing on reducing hazardous chemicals, energy consumption and waste generation. Anastas initially defined "green chemistry" as a field that aims to eliminate or significantly reduce the production of dangerous compounds during any type of chemical process. Green chemistry principles applied to High-Performance Liquid Chromatography (HPLC) aim to minimize environmental impact by reducing solvent consumption, using greener solvents, and optimizing methods for efficiency and waste reduction. Green analytical chemistry (GAC) is an emerging discipline that emphasizes the development of analytical techniques that reduce harmful environmental and health impacts. The field originates from the broader concept of green chemistry, which was introduced in the 1990s in response to growing concerns about chemical pollution and sustainability. One of the basic principles of green analytical chemistry is to replace traditional, often toxic solvents with more benign alternatives, also in liquid chromatography. This change reduces the negative impact of chemical analyses on the environment, increases laboratory safety, and reduces the costs associated with the disposal of hazardous waste. Implementing green chemistry and placing a focus on it in the laboratory are two themes that are becoming more and more popular in the chemical world. Chemists all across the world are striving to adapt more sustainable, energy-efficient processes and reactions for conventional ones. Green chemistry can take many different shapes, such as redesigning experiments with more environmentally friendly ingredients or actively managing waste.

KEYWORDS: Green chemistry, HPLC, Method Development.

ABSTRACT-31

REVIEW ON COMPARITIVE ASSESSMENT OF FATTY LIVER INDEX (FLI) AND HEPATIC STEATOSIS INDEX (HSI) FOR PREDICTING NON-ALCOHOLIC FATTY LIVER DISEASE (NAFLD) IN METABOLIC SYNDROME PATIENTS

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Fatty liver index was introduced by Bedogni et al in 2006. It is a screening tool used for detecting Fatty Liver Disease. The FLI is a simple and easy tool that includes waist circumference, body mass index (BMI), serum triglycerides level and serum gamma – glutamyl transferase to predict fatty liver. It was developed initially to detect fatty liver in western countries. Hepatic steatosis index was developed by Dr. Prashanth Sharma and his colleagues in 2009. It is a simple screening tool for fatty liver disease. HSI is a non-invasive marker to identify patients at high risk of fatty liver. The HSI include ALT, AST, BMI, gender, diabetic status.

KEYWORDS: Fatty Liver Index, Hepatic Steatosis Index, Fatty liver diseases

ABSTRACT-32

LIPOSOMES: A NOVEL DRUG DELIVERY SYSTEM

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Liposomal drug delivery systems (DDS) represent a promising approach to enhancing pharmaceutical agents' therapeutic efficacy and safety. These lipid-based nanoparticles encapsulate hydrophilic and hydrophobic drugs, offering targeted drug delivery, improved bioavailability, and prolonged release profiles. Liposomes have gained significant attention due to their biocompatibility, low toxicity, and ability to encapsulate a variety of drugs, including anticancer agents, antibiotics, and gene therapy vectors. The liposomal structure consists of a lipid bilayer that mimics cell membranes, making it an ideal platform for drug encapsulation and controlled release. By modifying liposome surface characteristics, such as size, charge, and surface ligands, drug delivery can be further optimized for specific tissues or cells, enabling targeted therapy and minimizing off-target side effects. Recent advancements in liposomal formulations have focused on enhancing drug stability, reducing immune system recognition, and improving the controlled release of therapeutics. Liposomes can also be engineered to respond to specific stimuli, such as pH, temperature, or enzymatic activity, providing a platform for stimuli-responsive drug delivery. The potential for liposomal systems to revolutionize drug delivery is significant, particularly in the treatment of cancer, infectious diseases, and genetic disorders.

KEYWORDS: Liposomes, Bioavailability, Controlled Release, Drug Encapsulation, Biocompatibility, Stimuli-Responsive.

ABSTRACT-33

MICRONEEDLES – A PROMISING METHOD FOR DELIVERY OF DRUGS BY TRANSDERMAL ROUTE FOR ENHANCED THERAPEUTIC EFFICIENCY

A microneedle patch comprises of many dozens to hundreds of micron-sized needles and the needles are in micron length range, therefore allow relatively little or no pain. The microneedles are more beneficial than regular transdermal delivery systems because of advantages like these needles circumvent the Stratum corneum layer, which is the rate dependent layer and allows large molecular weight proteins to pass into the blood stream through the skin. It is a transdermal delivery system that associates the technology of transdermal patches and hypodermic needles. Applications of these preparations include the delivery of macromolecules such as vaccines, proteins and peptides etc. Various types of microneedles are available which includes, solid microneedles, hollow microneedles, dissolving microneedles, and coated microneedles. They generally encompass a shaft and tip that encapsulates or is coated with a drug. The microneedle array is attached on base substrate that is attached to patch backing to facilitate handling and helps in skin adhesion. The Drug delivery approaches includes usage as a pretreatment, after which drug formulation is placed on the skin surface for gentle drug release through the residual pores in water-soluble microneedles. They contain two parts an invasive and supporting components. The invasive component is array composed of hundreds of needles with length from 25 to 2000 microns and supporting part is a base plate that produces mechanical support for the sharp needle tips enabling them to pierce through the Stratum corneum. These needles helps to create micron-sized channel on skin which is beneficial for drug delivery.

KEYWORDS: Stratum corneum, permeation, proteins, transdermal.

ABSTRACT-34

CRYPTIC PREGNANCY.

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This study explores denied pregnancy, introducing the term 'cryptic pregnancy' within an evolutionary framework. Contrary to conventional psychodynamic explanations, it emphasizes the fetus's active biological role and parent-offspring conflicts. Recent studies show a higher incidence (1:475) than believed, manifesting with atypical pregnancy symptoms and often escaping detection. The proposed term reframes the condition, prompting an exploration into physiological correlates and evolutionary implications. Cryptic pregnancy minimizes energetic and ecological costs for the mother, theorized to involve reduced human chorionic gonadotropin (hCG) production or effectiveness. Three evolutionary hypotheses are presented: as a non-adaptive outcome of conflict resolution processes linked to disruptions in genomic imprinting, resulting from spontaneous abortions of low-quality fetuses, or representing 'forced cooperation' in challenging circumstances, maximizing chances of survival until delivery. This abstract critically assesses the phenomenon, acknowledging its link to suboptimal outcomes for both mother and child. The study delves into incidence, characteristics, sub-classification, consequences, and management strategies, addressing ethical and legal considerations. Rejecting psychodynamic interpretations, it challenges traditional theories by recognizing the biological influence of the fetus and parent-offspring conflicts. The term 'cryptic pregnancy' adds depth to understanding, offering potential explanations through evolutionary perspectives. In conclusion, this research contributes to the broader discourse on denied pregnancy, shedding light on its complexity. The proposed term and evolutionary framework offer a fresh perspective, challenging existing paradigms and paving the way for further exploration. Understanding cryptic pregnancy is crucial for improved detection, management, and support for women experiencing this condition.

ABSTRACT-35

EVALUATION OF ANTI-ANAEMIC ACTIVITY OF ETHANOLIC EXTRACT OF *Luffa acutangula*

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Herbal medicines are known for their therapeutic benefits. One of such medicinally effective plant is *Luffa acutangula*. The present research work mainly focused on the preparation of ethanolic extract of *Luffa acutangula* fruits and its pharmacological evaluation for anti-anaemic property. The ethanolic extract was prepared by simple maceration process. Preliminary screening of the extract showed the presence of all phytochemicals. Wistar rats were taken and grouped accordingly. Phenyl hydrazine was used to induce anaemia. Haematological parameters and body weights were calculated for all rats. The haematological parameters were estimated using 3-part haematology analyzer. The results were compared with that of the standard dexorange syrup which is vitamin supplement that treats anaemia. A significant increase of 73.11% in the haemoglobin content and 78.54% in heamatocrit was observed in rats treated with *Luffa* extract was observed when compared to that of the standard group which clearly indicates the anti-anaemic activity. Thus, from the present study, it was concluded that the ethanolic extract of *Luffa acutangula* shows significant anti-anaemic activity.

KEYWORDS: *Luffa acutangula*, Ethanolic extract, Anaemia, Phenyl hydrazine.

ABSTRACT-36

DISCOVERY AND DEVELOPMENT OF PLANT MODULATORS AGAINST THE INFLUENCING TARGETS OF TYPE-2 DIABETES MELLITUS – COMPUTATIONAL STUDIES

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Diabetes encompasses a range of metabolic disorders marked by elevated blood sugar levels, which can lead to serious health complications. The primary objective of this research is to identify drug-like candidates derived from medicinal plants through various computational methods. In this investigation, phytoconstituents from different plants were analyzed, and molecular docking was conducted targeting PPARγ and alpha amylase, key enzymes associated with diabetes management. Several compounds were chosen for additional evaluation, including studies on molecular similarity, absorption, distribution, metabolism, and excretion (ADME). The molecular similarity analysis indicated that the stability of the compounds in relation to their targets was high, while toxicity and ADME assessments confirmed their potential as drug-like candidates. Based on these findings, it can be concluded that certain phytoconstituents may serve as promising leads for the development of new therapeutic agents or for repurposing in the treatment of diabetes. Further in vitro and in vivo studies are necessary to verify their safety profiles.

KEYWORDS: Type 2 DM, MSD analysis, Computational studies.

ABSTRACT-37

A NOVEL NANOPARTICULATE DRUG DELIVERY SYSTEM

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Nanoparticulate drug delivery systems (NDDS) have emerged as a revolutionary approach to enhancing the therapeutic efficacy of pharmaceutical compounds while minimizing side effects. These systems, typically composed of nanoparticles with sizes ranging from 1 to 1000 nm, offer several advantages over traditional drug delivery methods, including improved solubility, enhanced bioavailability, and controlled release of therapeutic agents. Nanoparticles can be engineered from various materials such as lipids, polymers, and metals, allowing for versatile drug encapsulation and targeted delivery. By modifying the surface properties of nanoparticles, including size, charge, and surface functionalization, they can be directed to specific tissues or cells, facilitating targeted therapy, particularly in cancer, infectious diseases, and chronic conditions.

The design of NDDS also enables the encapsulation of both hydrophilic and hydrophobic drugs, making it an attractive option for a wide range of therapeutics. Recent advancements focus on the development of stimuli-responsive nanoparticles that release drugs in response to environmental factors like pH, temperature, or enzymatic activity, allowing for site-specific delivery and enhanced drug efficacy. Moreover, the ability to cross biological barriers such as the blood-brain barrier further broadens the potential applications of nanoparticulate systems. This review examines the current trends, strategies, and challenges in the design and clinical implementation of NDDS, highlighting their transformative role in modern medicine and future therapeutic landscapes.

KEYWORDS: Schiff bases, Ligands, Secondary ketamine, Antimalarial.

ABSTRACT-38

STANDARDISATION, QUALITY CONTROL AND EVALUATION OF ANTIOXIDANT ACTIVITY OF *GUAIACUM OFFICINALE-INVITRO & INSILICO*

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Medicinal and aromatic plants are alternative rich source of therapeutic agents. The present study was an attempt to standardize and investigate macroscopic, microscopic, qualitative phytochemical and antimicrobial activity of *Guaiacum officinale*. The plant is also used in preparation of variety of indigenous medicine. Macroscopic, microscopic, qualitative phytochemical analysis, physiochemical analysis, extractive values in ethanol and water of the leaves were done. Macroscopic and microscopic study showed distinct morphological characteristics in the leaf. Physiochemical analysis of leaf powder revealed total ash 5%, acid-insoluble ash 2.7% alcohol soluble extractive 22.6%, water soluble extractive 31.4%. Pharmacognostic study of leaf is helpful in sample identification and to ensure quality and purity standards of *Guaiacum officinale.* During this study analysis anti-oxidant activity of *Guaiacum officinale* leaf extract using reducing power assay were performed. The *invitro* antioxidant activity of the chloroform and hydroalcoholic extracts was found to be significant when compared with absorbance with standard ascorbic acid. *Insilico* studies of the active constituents for antioxidant activity were also performed.

KEYWORDS: *Guaiacum officinale,* Pharmacognosy, Microscopy, Anti-oxidant, *Insilico*.

ABSTRACT-39

PHARMACOKINETIC PROCESS OF A DRUG ADMINISTERED VIA INTRAVENOUS (IV) INJECTION

Pharmacokinetics refers to the movement of a drug through the body, encompassing four major processes: absorption, distribution, metabolism, and excretion (ADME). When a drug is administered via intravenous (IV) injection, the pharmacokinetic profile differs from other routes due to the direct introduction of the drug into systemic circulation.

1. Absorption: Definition: Absorption refers to the movement of a drug from the site of administration into the bloodstream. IV Administration and Absorption: Unlike oral or intramuscular routes, IV drugs do not undergo an absorption phase because they are directly injected into the bloodstream. The drug immediately reaches systemic circulation, leading to 100% bioavailability (F = 1.0). This results in rapid onset of action, making IV administration ideal for emergencies (e.g., anesthesia, antibiotics, emergency cardiovascular drugs).

2. Distribution: Definition: Distribution is the process by which the drug is transported from the bloodstream to various tissues and Organ.

Factors Affecting Distribution: Plasma Protein Binding: Drugs bind to plasma proteins (e.g., albumin). Only the free (unbound) drug is pharmacologically active.

Blood Flow: Highly perfused organs (e.g., brain, liver, kidney) receive the drug faster than poorly perfused tissues (e.g., fat, muscle).

Lipid Solubility: Lipophilic drugs easily cross cell membranes and the blood-brain barrier (BBB), whereas hydrophilic drugs remain in plasma. Volume of Distribution (Vd): A higher Vd means the drug extensively distributes into tissues, whereas a lower Vd indicates drug confinement to plasma.

3. Metabolism (Biotransformation): Definition: Metabolism is the chemical alteration of a drug, primarily occurring in the liver, to convert it into a more excretable form.

Phases of Metabolism: Phase I (Functionalization Reactions): Carried out by enzymes like cytochrome P450 (CYP450) in the liver. Reactions include oxidation, reduction, and hydrolysis. Converts drugs into active, inactive, or toxic metabolites.

Phase II (Conjugation Reactions): Involves conjugation with molecules like glucuronic acid, sulfate, or glutathione. Increases drug water solubility for easier excretion. First-Pass Metabolism: Unlike oral drugs, IV drugs bypass the first-pass effect, leading to higher bioavailability.

4. Excretion (Elimination): Definition: Excretion is the process of removing the drug and its metabolites from the body. Primary Routes of Excretion: Renal Excretion (Kidneys): Most common route for water-soluble drugs. Three major processes: Glomerular Filtration – Free drugs filter through the kidney glomeruli. Tubular Secretion – Active transport of drugs into the renal tubules. Tubular Reabsorption – Lipophilic drugs may be reabsorbed into the bloodstream. Hepatic (Biliary) Excretion: Drugs metabolized in the liver may be excreted in bile and eliminated via feces. Some drugs undergo enterohepatic circulation, prolonging their half-life. Other Routes: Lungs (for volatile drugs like anesthetics). Sweat, saliva, breast milk (minor pathways).

ABSTRACT-40

NEUROPHARMACOLOGY: – PLEASURE SYSTEM'S IN THE BRAIN

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Neuropharmacology is the study of how drugs affect the brain and nervous system. It looks at how different chemicals can change the way our brain cells work, how they communicate, and how these changes impact our thoughts, feelings, and actions.

The brain's pleasure systems play a central role in motivation, reward processing, and the regulation of mood. This study explores the neural circuits underlying pleasure, focusing on key areas such as the mesolimbic dopamine system, the ventral striatum, and the prefrontal cortex.

Methods:- Using a combination of neuroimaging, electrophysiology, and behavioral analysis, we examine how these brain regions are activated in response to rewarding stimuli, both intrinsic and extrinsic. Our findings suggest that dopamine release in the mesolimbic pathway is critically involved in the experience of pleasure and the reinforcement of rewarding behaviors. Additionally, individual differences in the responsiveness of these systems may contribute to susceptibility to addiction and mood disorders.

Conclusion: - This research contributes to a better understanding of the neurobiological basis of pleasure and its implications for therapeutic strategies aimed at treating conditions such as depression, addiction, and anhedonia. Future studies could further investigate the interaction between pleasure circuits and other brain systems involved in cognition and emotion regulation.

ABSTRACT-41

REPURPOSING DIABETES MEDICATIONS FOR ALZHEIMER'S DISEASES: A NOVEL THERAPEUTIC APPROACH.

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Type 2 diabetes mellitus (T2DM) is a recognized risk factor for Alzheimer's disease (AD), with both conditions sharing common pathophysiological mechanisms. Antidiabetic drugs, particularly glucagon-like peptide-1 receptor agonists (GLP-1RAs), have emerged as promising candidates for neuroprotection in AD.

Preclinical studies demonstrate that GLP-1RAs reduces amyloid-beta deposition, inhibits tau hyperphosphorylation, and enhances synaptic function. Liraglutide has shown improvements in cerebral glucose metabolism and functional connectivity in AD patients, dipeptidyl peptidase-4 inhibitors and metformin, also exhibit neuroprotective effects.

Targeting brain insulin signaling and incretin pathways may provide a viable strategy for repurposing antidiabetic drugs as neuroprotective agents. Future research should focus on well-designed clinical trials with refined outcome measures and combination therapies. By exploring the link between T2DM and neurodegeneration, we may uncover new therapeutic opportunities for AD and other neurodegenerative diseases. Further studies are needed to fully elucidate the potential benefits of antidiabetic drugs in AD treatment.

KEYWORDS: Alzheimer’s disease, GLP-1 receptor agonists, neuroprotection, diabetes, insulin resistance, cognitive function, amyloid beta, tau phosphorylation.

ABSTRACT-42

SYNTHESIS AND EVALUATION OF NEW BIS ISATIN DERIVATIVES FOR ANTIINFLAMMATORY ACTIVITY

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Inflammation is a part of the complex biological response of body tissues to harmful stimuli, such as pathogens, damaged cells, or irritants. It is a protective response involving immune cells, blood vessels, and molecular mediators. The function of inflammatory agents is to eliminate the initial cause of cell injury, clear out necrotic cells and tissues damaged from the original insuit and the inflammatory process, and initiate tissue repair. A series of novel 5,5’-Methylenebis(2-oxoindoline-5-yl-3-ylidene) di(benzohydrazide)derivatives (Va-Vf) was synthesized and evaluated for anti-inflammatory activity. All the synthesized compounds were tested at the dose of 100mg/kg b.w and the results were compared with standard indomethacin at dose of 10mg/kg b.w. Among the series Compound Vc (R= Cl) exhibited more activity, Va(R= H) shows moderate and Vd(R= OH) shows least anti-inflammatory activity with 73.8 %, 70.2 % and 39.2% inhibition.

ABSTRACT-43

THE ORAL USE OF ITRACONAZOLE

Itraconazole is an imidazole derivative and used for the treatment of local and systemic fungal infection. The oral use of Itraconazole is not much recommended as it has many side effects. Commercially Itraconazole topical gel preparation are not available in the market, thus this formulation is made for better patient compliance and to reduce the dose of drug and to avoid the side effects like liver damage and kidney damage. The gel was formulated by changing the polymer ratio. FT-IR study confirmed the purity of drug and revealed no interaction between the drug and excipients. Gel formulations were characterized for drug content, pH determination, viscosity measurement, in vitro diffusion, antifungal activity and skin irritation. Among the five formulations, F1 was selected as the best formulation as its %CDR after 4½ h was 97.846% and release rate of drug from F1 formulation is best fitted to Higuchi model. The viscosity of the F1 formulation was within the limits and F1 formulation did not show any skin irritation. Gel formulation F1 was found to be stable at 30 ±2°C and 65 ± 5 RH. It was found that at 40 ± 2°C and 75 ± 5 RH the gel formulation was not stable and %CDR was decreased. Efficient delivery of drug to skin application was found to be highly beneficial in localizing the drug to desired site in the skin and reduced side effects associated with conventional treatment.

ABSTRACT-44

STRATEGIES TO TACKLE ANTIMICROBIAL RESISTANCE (AMR): COMPREHENSIVEAPPROACH

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Introduction: Antimicrobial resistance is a global health threat for humans, animals, and plants. It is associated with the rampant use of antimicrobials among humans, the agrifood industry, and veterinary medicine. AMR spreads through animal and human populations, plants, and the environment. More than 50,000 people die each year worldwide due to infections caused by resistant bacteria. In the next 50 years, around 10 million people could die every year. Entire world is facing AMR, but its burden is greater in low and middle-income countries like Africa, Asia, and Latin America. Managing this crisis requires a systematic approach.

Methods: Global initiatives work on improving AMR awareness and understanding, strengthening knowledge through surveillance and research, and encouraging the implementation of international standards. National strategies include the establishment of a national committee to monitor the impact of antibiotic resistance and provide intersectoral coordination. Community-level approaches include: 1) Rational use of antibiotics 2) Control over-the-counter sales 3) Educating Healthcare providers 4) Antibiotic stewardship programs 5) Enhancing surveillance 6) Improving infection prevention and Control 7) Developing new antibiotics8) Promoting vaccination 9) Fostering global collaboration 10) Engaging multiple stakeholders.

Conclusion: Implementing these strategies collectively can help curb the emergence of antimicrobial resistance and preserve the effectiveness of antibiotics for current and future generations.

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ABSTRACT-45

HITCHING THE ANTIVIRAL POTENCY OF HERBS AGINST HMPV INFECTIONS: MACHINE LEARNING TECHNIQUE.

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HMPV (Human metapneumovirus) poses a significant threat to respiratory health, primarily due to the lack of specific antiviral treatments and vaccines. This research presents a comprehensive computational analysis aimed at assessing the antiviral effectiveness of phytoconstituents sourced from traditional medicinal plants. A variety of advanced techniques, including molecular docking, molecular dynamics (MD) simulations, density functional theory, and ADMET profiling, were employed to thoroughly investigate the potential of these compounds against the Fusion Protein. Among the evaluated substances, ten phytoconstituents displayed strong docking with the target. Furthermore, ADMET profiling validated the safety and drug-like properties of these compounds. These findings suggest that traditional phytochemicals could serve as promising candidates for the development of antiviral drugs. This study effectively connects traditional medicine with contemporary computational methods, paving the way for innovative and effective therapeutic approaches to combat HMPV.

KEYWORDS: Molecular Docking, HMPV, Natural Plants, MSD.

ABSTRACT-46

PHARMACEUTICAL CARE IN PUBLIC HEALTH-TECHNOLOGY AND FUTURE TRENDS

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Abstract: Pharmaceutical care in public health aims to optimize medication use, improve patient outcomes, and ensure safety on a population level. The integration of advanced technologies has brought transformative changes, enabling a personalized, efficient, and accessible healthcare approach. Telepharmacy, electronic health records (EHR), artificial intelligence (AI), and data analytics are reshaping medication management, patient monitoring, and clinical decision-making. Digital health tools like mobile applications and wearable devices further enhance real-time monitoring of medication adherence and health parameters, fostering better patient engagement and outcomes.Proper integration and regulation of these innovations can significantly improve the effectiveness of pharmaceutical care, reduce healthcare costs, and enhance public health outcomes. As technology advances, AI algorithms predicting patient outcomes, blockchain for secure medication distribution, and machine learning for pharmacovigilance will play pivotal roles. The growing reliance on digital health tools will expand the accessibility of pharmaceutical care services, particularly in underserved and remote areas.The future of pharmaceutical care lies in harnessing these innovations to ensure equitable and effective healthcare delivery. By leveraging technology and focusing on personalized care, pharmaceutical services can significantly contribute to the evolution of global health systems, improving quality of life and addressing healthcare disparities worldwide.

ABSTRACT-47

REVIEW ON HUMAN METAPNEUMONIA VIRUS

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Human metapneumovirus (hMPV), discovered in 2001, most commonly causes upper and lower respiratory tract infections in young children, but is also a concern for elderly subjects and immune-compromised patients. hMPV is the major etiological agent responsible for about 5% to 10% of hospitalizations of children suffering from acute respiratory tract infections. hMPV infection can cause severe bronchiolitis and pneumonia in children, and its symptoms are indistinguishable from those caused by human respiratory syncytial virus. Initial infection with hMPV usually occurs during early childhood, but re-infections are common throughout life. Due to the slow growth of the virus in cell culture, molecular methods (such as reverse transcriptase PCR (RT-PCR)) are the preferred diagnostic modality for detecting hMPV. A few vaccine candidates have been shown to be effective in preventing clinical disease, but none are yet commercially available. Our understanding of hMPV has undergone major changes in recent years and we will review the currently available information on the molecular biology and epidemiology of hMPV. We will also review the current therapeutic interventions and strategies being used to control hMPV infection, with an emphasis on possible approaches that could be used to develop an effective vaccine against humph.

KEYWORDS: Bronchiolitis; Human metapneumo virus; Respiratory diseases; Viral pneumonia.

ABSTRACT-48

IN SILICO EVALUATION OF QUERCETIN FROM *ALLIUM CEPA* AS POTENTIAL MODULATORS OF INFLAMMATORY PATHWAYS IN ULCERATIVE COLITIS

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Ulcerative colitis (UC) is a chronic inflammatory disorder of the colon, often associated with significant morbidity and limited treatment options. Quercetin, a flavonoid found in *Allium cepa* (onion), has been shown to exhibit anti-inflammatory and antioxidant properties, making it a promising candidate for UC management. In this study, we perform an in-silico evaluation of quercetin to assess its potential as a modulator of key inflammatory pathways involved in UC. Using molecular docking techniques, we examine the interaction of quercetin with critical inflammatory targets, including tumor necrosis factor-alpha (TNF-α), cyclooxygenase-2 (COX-2), and nuclear factor-kappa B (NF-κB). Our results demonstrate that quercetin binds strongly to these targets, suggesting its potential to inhibit the pro-inflammatory pathways implicated in UC. Additionally, molecular dynamics simulations confirm the stability of the quercetin-target complexes, further supporting its therapeutic potential. The ADMET (absorption, distribution, metabolism, excretion, and toxicity) properties of quercetin indicate favorable pharmacokinetic characteristics, making it a suitable candidate for further development. These findings provide compelling evidence for the use of quercetin from *Allium cepa* as a potential therapeutic agent in the management of ulcerative colitis, though further experimental validation is necessary to confirm these predictions.

KEYWORDS: Quercetin, *Allium cepa*, ulcerative colitis, molecular docking, inflammation.

ABSTRACT-49

INNOVATION VS AFFORDABILITY: THE GLOBAL DRUG ACCESS CRISIS

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The pharmaceutical industry continues to drive medical advancements, yet the affordability and accessibility of essential medicines remain a global challenge. High drug prices, driven by research and development (R&D) costs, patent protections, and market monopolies, disproportionately impact low- and middle-income countries (LMICs), limiting access to life saving treatments. This will explore the delicate balance between pharmaceutical innovation and drug affordability, addressing key barriers such as intellectual property rights, regulatory policies, and pricing strategies.

Discussions will focus on sustainable solutions to enhance global drug access, including compulsory licensing, generic drug manufacturing, differential pricing, and public-private partnerships. The role of governments, healthcare systems, and international organizations in promoting equitable access will also be examined. Case studies from various regions will highlight successful policies and strategies that have improved drug affordability without compromising innovation.

By bringing together researchers, healthcare professionals, policymakers, and industry leaders, this conference aims to foster dialogue on creating a more inclusive pharmaceutical landscape. The goal is to develop innovative frameworks that support both groundbreaking drug development and equitable healthcare access.

KEYWORDS: Drug affordability, accessibility, pharmaceutical innovation, R&D costs, intellectual property rights, patent protections, healthcare policies, generic medicines, compulsory licensing, global health equity.

ABSTRACT-50

GENE THERAPY FOR CANCER TREATMENT

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Introduction: Cancer treatment has been the major goal of the gene therapy studies over the decades. Although there is no cancer gene therapy drug in the market yet, substantial progress has been made in defining potential targets and in developing viral and nonviral gene delivery systems recently. Numerous genes have been studied as the targets for cancer gene therapy so far. Various gene therapy strategies, including suicide gene therapy, oncolytic viral therapies, antiangiogenesis, and gene therapy vaccines have been developed. The combination of gene therapy with conventional methods, such as chemotherapy, radiotherapy, and immunotherapy, has further improved the therapeutic efficacy. Although the preclinical and experimental studies have yielded highly encouraging results, there are still few gene therapy agents at phase III trials. A transformed cell usually gains some important biological properties to establish a malignant disease. Those properties, including uncontrolled proliferation, evasion of growth suppressors, inhibition of apoptosis, replicative immortality, angiogenesis, proliferative signals, invasion, and metastasis. Gene therapy can be defined as the delivery of genetic elements to the cancer cell or to the cells of the immune response in order to correct the abnormalities in the cancer tissue or to induce an immune response against the cancer cells.

Method of treatment: The corrective strategies can involve replacing missing or defective genes, i.e., tumour suppressor genes suppressing the action of cancer promoting oncogenes or programming normal or cancer cells to release into the systemic circulation molecules which suppress the growth of cancer cells or their vasculature. First step involves identification of suitable gene and second step is to introduce vehicle or carrier into the cancer cell. Different vehicles (vectors) have been used to introduce the genes into the cells, such as viral vectors, nonviral vectors, and cell-based carriers.

Conclusion: Introduction of vectors to activate the immune response against the tumour tissue is still in phase III trials. Continued testing of these strategies in the context of clinical trials may lead to new opportunities for individuals engaged in a personal struggle with cancer to control their disease.

KEYWORDS: cancer genes, carriers of gene therapy, apoptosis, metastasis.

ABSTRACT-51

RP-HPLC-PDA METHOD FOR THE SIMULTANEOUS DETERMINATION OF PHENYLEPHERINE, CHLORPHENERAMINE, PARACETAMOL AND DEXTROMETHORPHAN IN BULK AND MARKETED FORMULATION.

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Objective: A New method has been developed for simultaneous estimation of phenylephrine, chlorpheniramine, paracetamol and dextromethorphan in bulk and marketed formulations.

Method: Chromatography was performed using C8 column of dimension 250*4.6mm and particle size 5µ. The best results were obtained by phosphate buffer (20 Mm) pH 6.6 adjusted with diluted orthophosphoric acid and Acetonitrile (70:30) taken in Gradient Programme at flow rate of 1ml/m with detection at 225nm. Retention time was less than 6mins for all the four drugs. According to ICH guidelines the method was proven to be linear, precise and accurate.

Results: The linearity ranges from 0.5487.5 µg/ml. LOQ was found to be 0.02,0.01, 3.92 and 0.06. The sample solution injected after 24 hr did not show any appreciable change. Recovery was found to be 100.38-100.53.

Conclusion: The development method was simple, specific and sensitive as the excipients have no interference in the determination of main components. The proposed method can be used for routine analysis of phenylephrine, chlorpheniramine, paracetamol and dextromethorphan in combined dosage form which are present in variable concentrations.

ABSTRACT-52

"ZEA MAYS L.: NATURE'S PHARMACY HIDDEN IN A CEREAL CROP"

Zea mays L. (Maize) is a widely cultivated cereal agricultural crop with numerous nutritional and medicinal significance. It is distinguished for its extensive bioactive phytochemicals, including polyphenols, phenolic acids, flavonoids, carotenoids, sterols, and tannins, contributing to its diverse pharmacological actions. Among its constituents, Prominent secondary metabolites, particularly polyphenols such as ferulic acid and p-coumaric acid, are ubiquitously found in all plant parts. Ferulic acid is biosynthesized through phenylalanine and tyrosine metabolic pathways and is well-documented for its multifaceted pharmacological activities. Ferulic acid and *p*-coumaric acid are particularly noteworthy for their antioxidant, anti-inflammatory, antidiabetic, and anticancer activities. Notably, corn silk extract comprises 0.1-3% flavonoids, which demonstrate significant antioxidant, antibacterial, antidiabetic, and anti-fatigue activities. Other By-products of maize including roots, bracts, and cobs, exhibit diverse pharmacological properties, including diuretic, hepatoprotective, antidiabetic, neuroprotective, cardiovascular benefits, anti-inflammatory, and anticancer effects. Recent development in extraction techniques have improved the efficacy of these compounds, enhancing their therapeutic potency. Further, emerging research utilizing network pharmacology and molecular docking has identified key metabolic pathways influenced by *Zea mays* phytoconstituents, paving the way for novel nutraceutical applications

This review intends to investigate the Exploring the remarkable compelling therapeutic potential of ferulic acid and its derivatives. This can result in major improvements in healthcare, across various pharmacological contexts. An enhanced understanding of maize-derived compounds could lead to the development of functional foods and nutrient rich food, ultimately promoting improved health outcomes globally.

KEYWORDS: *Zea Mays,* Cereal crop, Phytochemicals, Carotenoids, Phenolic acids.

ABSTRACT-53

GLOBALCHALLENGESINDRUGDEVELOPMENT: AFFORD ABILITY AND ACCESSIBILITY

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The development of new drugs is a complex, lengthy, and costly process, often taking over a decade and billions of dollars to bring a single drug to market. While scientific advancements continue to produce groundbreaking treatments, the benefits are unevenly distributed due to two major barriers: affordability and accessibility. High research and development costs, Patent protections and market-driven pricing models contribute to unaffordable medications, particularly in low- and middle-income countries. Simultaneously, accessibility is hindered by inadequate healthcare infrastructure, regulatory delays, and economic inequalities, leaving vulnerable populations without essential treatments. Addressing these challenges requires a multifaceted approach: promoting generic and bio similar alternatives, fostering public-private partnerships, encouraging local manufacturing, and advocating for equitable pricing models. Ensuring life-saving medications are both affordable and accessible is not just a medical necessity it is a moral imperative. This abstract explores the root causes of these global challenges and outlines actionable solutions to create a more inclusive and equitable Health care system for all.

ABSTRACT-54

INSILICO SCREENING OF BIOACTIVE COMPOUNDS FROM SALVINIA SPECIES FOR THEIR POTENTIAL THERAPEUTIC APPLICATIONS

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The *Salvinia* genus has been recognized for its diverse phytochemical composition and potential therapeutic properties. Previous studies have identified bioactive compounds such as phytol, patchoulane, squalene, diazoprogesterone, neophytadiene, and vitamin E, which exhibit significant antioxidant and antibacterial activities. However, their molecular interactions with biological targets remain unexplored. This study aims to bridge this gap by employing an in-silicon approach to evaluate the therapeutic potential of these compounds through molecular docking and computational screening.

By analyzing their interactions with key protein targets associated with oxidative stress and bacterial infections, this research will provide insights in to the possible mechanisms of action and drug-likeness. The findings could contribute to identifying promising lead molecules for further pharmacological studies. This computational investigation enhances the understanding of *Salvinia spp*. as a source of bioactive compounds and highlights their relevance in drug discovery.

KEYWORDS: Salvinia Sp, Phytochemicals, Bioactive Compounds, Molecular Docking, In Silico Screening

ABSTRACT-55

REVIEW ON: SALICYLIC ACID ETHOSOMAL GEL

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The Ethosomes are soft, malleable vesicles that are used to deliver drug and other substances through the skin. they are made up of phospholipid, ethanol, and water and are the other type of liposomes. ethosomes are used to deliver a wide range of substances, including antiviral, and antibiotics.

Salicylic acid ethosomal gel was prepared using cold method and the effect of varying concentration of ethanol was considered for obtaining an optimized formulation. Lecithin was used as the phospholipid to provide the structure to the vesicles and propylene glycol was used as the permeating agent Liposomal formulation was also prepared by that thin film hydration method. The techniques used were simple and reproducible. The prepared ethosomes were spherical and discrete in shape. The size of vesicles was found to be in the range of 3.26-5.79µm, 0.716-1.301µm and 5.32 µm for unsonicated ethosomes, sonicated ethosomes and liposomes respectively. However, ethosomes prepared by sonication method were more uniform and smaller in size, which is essential for skin permeation. While comparing the entrapment efficiency, ethosomes containing 30% w/w ethanol and prepared by sonication showed highest value with respect to all other formulation, so it is concluded ethosomes prepared by sonication and containing 30% w/w ethanol as the best formulation considering all other aspects.

KEYWORDS: ethosomes, lecithin, sonication.

ABSTRACT-56

AVOCADO AND ITS ANTIOXIDANTS

Neha*, T Jhanavi

Avocado has a lot of benefits not only in biomedical but also in cosmetics. It neutralizes free radicals' action, improves skin elasticity, and protects the skin, and it has many properties like anti-inflammatory, antioxidant, moistening agent, keeps skin moist, and prevents irritation and dryness. Compared to the natural herbal products, avocado is formulated for psoriasis management because of its skin elasticity and presence of fatty acids like oleic acid. Psoriasis is a persistent autoimmune skin disorder marked by Inflammation, scaling, and thickness. This study looks into the potential of avocado-based topical formulations as a natural and effective treatment for psoriasis control. We created and tested the effectiveness of three avocado-based topical formulations: a cream, an ointment, and a gel, each including avocado oil, avocado extract, and other natural components. Avocado-based formulations dramatically reduced psoriasis symptoms like inflammation, scaling, and skin thickness. The formulas also increased skin moisture and elasticity. Avocados contain a variety of bioactive substances including vitamins, minerals, and poly phenols which may aid with psoriasis treatment. Avocado extracts have anti-inflammatory and antioxidant effects, particularly persin and poly hydroxylated fatty.

KEYWORDS- Avocado, Anti-inflammatory, Anti-oxidant, Psoriasis, Topical formulation

ABSTRACT-57

STATINS AS IMMUNO MODULATORSIN AUTO IMMUNE DISEASES: MECHANISMS, CHALLENGES, AND CLINICAL POTENTIAL

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Statins, widely known for their lipid-lowering effects, have emerged as potential immune modulators in the treatment of autoimmune diseases. Beyond inhibiting cholesterol synthesis, they suppress pro-inflammatory cytokines; alter antigen presentation, and modulate T- cell activity.

These properties make them promising candidates for conditions such as multiple sclerosis and rheumatoid arthritis, where chronic inflammation and immune dysregulation drive disease progression. One notable clinical study on multiple sclerosis (MS) demonstrated that high-dose simvastatin (80 mg daily) reduced brain atrophy rates by 43% in patients with secondary progressive MS, suggesting potential neuro protective effects. Similarly, preliminary findings in auto immune pulmonary alveolar proteinosis (aPAP) indicate that statins may improve lung function, although further studies are needed to confirm their efficacy. These findings highlight statins potential beyond cardiovascular health, positioning them as viable candidates for repurposing in immunology. Despite these promising results, challenges remain. Variability in patient response, concerns over long-term safety, and the risk of statin-associated autoimmune myopathy necessitate further large. Additionally, optimal dosing strategies and patient selection criteria must be established to maximize benefits while minimizing risks. As research continues to explore the intersection of lipid metabolism and immune regulation, statins represent a compelling case for drug repurposing in autoimmune diseases. Understanding their full therapeutic potential could open new avenues for more accessible and cost-effective treatment options in immunology.

KEYWORDS: Statins, Auto immune diseases, Lipid metabolism, Brain atrophy, Drug repurposing.

ABSTRACT-58

ABRIEFREVIEWONANALYTICALMETHODVALIDATION

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Chromatography is the backbone of separation science and is being used in all research laboratories and pharmaceutical industries universally. The present presentation focuses on the method validation of the HPLC. HPLC is the most commonly used separation technique for detecting, separating, and quantifying drugs. To optimize the method, several chromatographic parameters were investigated, including sample pretreatment, mobile phase selection, column selection, and detector selection. It is important for to understand the parameters or characteristics involved in the validation process. Validation is an applied approach to verify that a method is suitable to function as a quality control tool. The process of validating an analytical method is the process of establishing, through laboratory studies, that the method's performance characteristics meet the requirements for the intended analytical application. HPLC (High-Performance Liquid Chromatography) method validation ensures the method is fit for purpose by evaluating key parameters like accuracy, precision, linearity, range, specificity, limit of detection (LOD), limit of quantification (LOQ), and robustness. Method validation results can be used to assess the quality, reliability, and consistency of analytical results; it is an essential component of any good analytical practice. The use of equipment that is within specification, working properly, and properly calibrated is critical to the method validation process. Validation or revalidation of analytical methods is required. To meet GMP requirements, pharmaceutical industries should have an overall validation policy that details how validation will be carried out. Essential to the validation process is the use of equipment that meets specifications, is correctly calibrated, and is operating and functional.

KEYWORDS: HPLC, Method Development & Method Validation

ABSTRACT-59

THE HIDDEN COST OF WEAK COSMETIC REGULATIONS : LAWSUITS AND HEALTH HAZARDS

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Abstract: The United states cosmetics industry, a multi-billion -dollar sector, is under inspection due to insistent regulatory gaps, recurrently in ingredient safety, post-market investigation, and transparency. While regulatory contexts like the **Federal Food, Drug, and Cosmetic Act (FDCA)** and the **Modernization of Cosmetics Regulation Act (MoCRA)** exist, they prove in adequate in ensuring full compliance and consume protection. This article judgmentally inspects these regulations, presenting compelling case studies, legal guides, and industry challenges while proposing innovative solutions for improved error. With increasing consumer alertness and global harmonization efforts, addressing these **regulatory gaps** is imperative for maintaining trust and safety in the cosmetics industry.

KEYWORDS: Cosmetic Regulations, FDA, MoCRA, Ingredient Safety, Post-Market Surveillance, Consumer Protection

ABSTRACT-60

GO CARB: A DIGITAL SOLUTION FOR PERSONALIZED DIABETES MANAGEMENT

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The management of blood glucose levels is critical for people with diabetes, especially those who require insulin therapy. Counting carbohydrate is an important step in the calculation of insulin doses, but counting too many carbohydrates can be time consuming and inaccurate. Go Carb is an innovative digital platform, offering accurate and real-time carbohydrate counting using computer vision and machine learning techniques. This study is to explore the usability, accuracy and clinical worthiness of the GoCarb mobile application to assist with carbohydrate counting in people with diabetes. Hence aim to assess the responsiveness of Go Carb in accurately representing carbohydrate content; to assess the impact on glycemic control in terms of improved insulin dose calculation; and to assess user experience and satisfaction. A controlled study of type 1 diabetes included participant observation. Participants of the study used the Go Carb app to estimate the carbohydrate content of their meals. Image recognition algorithms used for the app accurately estimate food portion size, identify types of food, and estimate carbohydrate content. Blood glucose levels were determined following the three-month use of the app. User feedback was collected through structured questionnaires to assess usability of the app. The Go Carb app made accurate estimates of carbohydrate content compared to manual techniques. Participants reported improvements in their glycemic control; particularly, high post prandial fluctuations in blood glucose were reduced. Users reported ease of use of the app, real-time glucose feedback, and convenience in tracking daily meals. Go Carb the Go Carb app is a promising solution to help people manage diabetes that enhances accuracy of carbohydrate counting and insulin administration. By leveraging advanced AI-based technologies, the app offers a highly user-friendly approach to improving the glycemic outcome. Further research is needed to further refine its features and extend its usage in clinical practice.

KEYWORDS: Go Carb, carbohydrate counting, diabetes management, insulin therapy, digital health.

ABSTRACT-61

IN VIVO EVALUATIONOF2,4-THIAZOLIDINEDIONEANALOGUES FOR THEIR WOUND HEALING PROPERTIESAND ANTI-INFLAMMATORY POTENTIAL IN EXPERIMENTAL RAT MODEL

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Background Wound healing involves complex phases like in Flammarion and re -epithelialization. Thiazolidinediones are anti diabetic drugs with additional pharmacological effects, including anticancer and antimicrobial properties, and show anti-inflammatory potential through PPAR-γ regulation. Aim and objectives Aim: In vivo evaluation of 2, 4-thiazolidinedione analogues for their wound healing properties and anti-inflammatory potential in experimental rat model

Objectives: Preparation and characterization of ointment formulations of thiazolidinedione analogues (NCE-01 and NCE -02)

1. Evaluationofwoundhealingactivitiesanti-inflammatoryactivitiesofthiazolidinedione analogues (NCE-01 and NCE -02) in excision and incision models in experimental rats.

Methodology: Sprague-Dawley rats were randomly divided into 9groups: control, vehicle control, standard (Povidone Iodine ointment), and treatment groups (NCE-01 and NCE -02) Incision model, ointments were used topically daily for 9 days whereas for the excision model, it was for 21 days. Tensile strength measurements for 10 days. Rats were sacrificed, and done. Histopathological studies. Percent wound contraction and period of re-epithelialization were determined. Molecular docking studies were carried out to evaluate the anti-inflammatory potential of our analogs.

Result: The standard and both tests demonstrated a statistically significant increase in ensile strength in incision and outperformed in excision wounds as compared to control. Histopathological studies increased the wound contraction rate, shorter epithelialization time, and skin breaking strength with that of standard.

Conclusion: Our research findings indicate that 2,4-thiazolidinedioneanaloguesNCE-01andNCE-02exhibit enhanced safety and efficacy in wound healing models, along with notable anti-inflammatory activity.

KEYWORDS: Wound healing, anti-inflammatory

ABSTRACT-62

GLOBALCHALLENGESINDRUGDEVELOPMENT: AFFORDABILITY AND ACCESSIBILITY

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The development of new drugs is a complex, lengthy, and costly process, often taking over a decade and billions of dollars to bring a single drug to market. While scientific advancements continue to produce groundbreaking treatments, the benefits are unevenly distributed due to two major barriers: affordability and accessibility. High research and development costs, Patent protections and market-driven pricing models contribute to unaffordable medications, particularly in low- and middle-income countries. Simultaneously, accessibility is hindered by inadequate healthcare infrastructure, regulatory delays, and economic inequalities, leaving vulnerable populations without essential treatments. Addressing these challenges requires a multifaceted approach: promoting generic a bio similar alternative, fostering public-private partnerships, encouraging local manufacturing, and advocating for equitable pricing models. Ensuring life-saving medications are both affordable and accessible is not just a medical necessity—it is a moral imperative. This abstract explores the root causes of these global challenges and outlines actionable solutions to create a more inclusive and equitable Health care system for all.

ABSTRACT-63

ENSEMBLE PHARMACOPHORE MEETS MOLECULAR DOCKING: A NOVEL SCREENING APPROACH FOR THE IDENTIFICATION OF B-RAF KINASE INHIBITORS

Mahathi Jyothirmaye*.

Based on four well known B- Raf kinase inhibitors employing Pharma Gist open-source software an optimal 3DQSAR model was developed. Four potent B-Rafkinase inhibitors i.e., Sorafenib, Regorafenib, N-desmethyl sorafenib & Donafenib were opted to build 3D QSAR model. Five pharmacophore features with one hydrogen bond acceptor (A), two hydrogen bond donors (D) and two aromatic rings(R)are considered to develop a pharmacophore model by using Gist web server. The best pharmacophore hypothesis having the score of 27.780 was taken to screen on the Zinc Pharmer database to obtain potential B-Raf kinase inhibitors. The selected pharmacophore hypothesis has various pharmaco phorictraits including total features of five, i.e., aromatic rings two, hydrogen bond donors two & hydrogen bond acceptors one. The best pharmacophore models were identified by Pharma Gist which employs an algorithm that computes multiple flexible alignments in between the specified input ligands. Among the four selected B-Raf inhibitors, one is taken as the standard or Pivot molecule and the other three as ligands. Multiple alignments are generated by the combination of pair wise alignment between the above-mentioned pivot and input ligands. By utilizing both multiple and pair wise alignment methods, best QSAR model has been derived. Finally, screening was performed on the Zinc Pharmer database in order to identify potential compounds that match with the best pharmacophore model. The Zinc database of Zinc pharmer web server has been matched with several thousands of ligand hits. These were further screened through applying filters. The obtained hits were subjected for docking on two B-Raf kinase protein targets and finally their Glide score, ADME and Binding energy values were noted. In the current research work, we have identified three ligand hits for PDB id 3IDP (mutated) and seven ligand hits for PDB id 1UWT, (wild-type) which have docking scores, binding energies in the range near to the values of the pivot molecule i.e., sorafenib, utilizing the best pharmacophore model which has been determined. so, we can say that the above ligands may act as potential the B-Raf kinase inhibitors.

KEYWORDS: B-Raf kinase inhibitors, Pharmacophore modelling, PharmaGist, Zincpharmer, ADME and Binding energy.

ABSTRACT-64

COMPARATIVE STUDY ON PLANT *DRIMIAINDICA*AND*URGINEA INDICA FOR* THEIR ANTIMICROBIALACTIVITY

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Plant *Drimia Indica* and *Urginea Indica* belongs to Asparagaceae family. They are very popular for their traditional medicinal values. *Drimiaindica*is also known as Indian squilland*UrgineaIndica*iscommonlyknownastruesquill.Previousphytochemicalstudies on plant *Drimia Indica* revealed that it contains alkaloids, flavonoids, phenols, tannins, Saponins, glycosides, steroids, quinones, resins etc. Plant has exhibited potent anti-diabetic, anti-helminthic, anticancer and antimicrobial effects. Previous phyto chemical studies on plant *Urginea Indica* revealed that it contains phytosterols, saponin, tannins, flavonoids, alkaloids, resins, quinones and glycosides and plant has exhibited potent cardiac stimulant activity, anti-rheumatism, anti-asthmatic, anti-cancer, and antimicrobial activity. By analyzing and evaluating their individual anti-microbial potential, their review will Provide insights to design a molecule as a combination of the set wo plant results in enhanced antimicrobial activity.

KEYWORDS: Drimia Indica, Urginea Indica, Phyto chemicals, Antimicrobial activity, Comparative study.

ABSTRACT-65

FROM PLANTS TO PATIENTS: AFFORDABLE GLP-1 AGONISTS

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Any person, irrespective of age or gender, can develop diabetes, a chronic metabolic disease that impairs the body's ability to control blood sugar levels. Given its efficacy in reducing blood glucose and enhancing insulin sensitivity, metformin is still the first-line treatment; nevertheless, it might not be enough for all patients over time. As diabetes worsens over time, more drugs such insulin, SGLT2 inhibitors, or GLP-1 receptor agonists might become necessary to keep blood sugar under control thereby avoiding complications. Metformin's potent allies, GLP-1 receptor agonists (GLP-1RAs), improve blood sugar regulation, promote weight loss, while offering heart-protective benefits. GLP-1RAs slow down digestion while alleviating hunger by mimicking natural gut hormones, in contrast to metformin, which increases insulin sensitivity. Nevertheless, they are costly to manufacture and purchase due to the complicated peptide synthesis, recombinant DNA technology, and strict storage requirements. As a result, particularly in low-income areas, they continue to be less accessible and economical.

This is where GLP-1RAs derived from plants become revolutionary. Originating from genetically modified plants or bioactive substances derived from plants, they provide a viable, inexpensive, and scalable substitute for synthetic neighbors. Costs can be greatly decreased by producing these GLP-1RAs using plant expression methods rather than costly peptide synthesis or cold-chain storage. They are a ground-breaking step in ensuring that everyone has access to advanced diabetic treatment because of their promise to offer widely accessible, reasonably priced, highly effective diabetes management.

KEYWORDS: Diabetes, GLP 1 receptor agonists, insulin sensitivity, weight loss, disease progression, gut hormones, genetically modified plants, cost effective alternative.

ABSTRACT-66

ADVANCEMENTS IN CONTINUOUS BIOPROCESSING FOR BIOPHARMACEUTICAL DEVELOPMENT

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Continuous bioprocessing represents a revolutionary method in the development of biopharmaceuticals, providing notable advantages in efficiency, scalability, and cost-effectiveness compared to conventional batch processing. By sustaining an ongoing flow of raw materials and products, this technique minimizes downtime, improves product uniformity, and accelerates the timeline for production. It facilitates real-time monitoring and control, leading to optimized process parameters and enhanced product quality. In the realm of biopharmaceutical development, continuous bioprocessing can streamline the manufacturing of biologics such as monoclonal antibodies and vaccines, while achieving higher yields and lowering the risk of contamination. approach for arthritis treatment. It ensures localized, sustained drug release, potentially enhancing patient comfort and compliance while reducing the gastrointestinal side effects associated with oral NSAID administration. The incorporation of cutting-edge automation, process analytical technologies (PAT), and data-informed decision-making further enhances its capabilities. As the sector moves toward this innovative methodology, continuous bioprocessing is set to transform the biopharmaceutical manufacturing landscape, supporting more sustainable and efficient drug production.

KEYWORDS: Continuous bioprocessing, Revolutionary method, Biopharmaceuticals, Efficiency, Cost-effectiveness, Conventional batch processing, Minimizes downtime, Product uniformity, Production timeline, Real-time monitoring and control, Optimized process parameters, Enhanced product quality.

ABSTRACT-67

STEM CELL THERAPY – A PARADIGM SHIFT IN REGENERATIVE MEDICINE

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Introduction: Stem cell therapy is revolutionizing *regenerative medicine, offering new hope for treating previously incurable diseases. With their ability to *self-renew and differentiate into specialized cells, stem cells hold immense potential for restoring neurological function, repairing cardiac tissue, and regenerating pancreatic cells.

Types of Stem Cells

- Embryonic Stem Cells (ESCs): Pluripotent cells with broad differentiation potential.
- Adult Stem Cells (ASCs): Found in specific tissues, aiding repair.
- Induced Pluripotent Stem Cells (iPSCs): Reprogrammed adult cells mimicking ESCs.
- Mesenchymal Stem Cells (MSCs): Multipotent cells commonly used in therapy.

Recent Advances

Breakthroughs like CRISPR gene editing and 3D bioprinting are enhancing stem cell applications. Clinical successes include:

- Spinal cord repair, restoring mobility in paralyzed patients.
- Cardiac regeneration, reducing heart failure risks.
- Diabetes treatment, restoring insulin production.

Challenges & Future Prospects

Ethical concerns, tumor risks, and immune rejection remain key challenges. However, advancements in personalized medicine, lab-grown organs, and precision therapies are paving the way for safer, more effective treatments.

Conclusion: Stem cell therapy is shifting medicine toward *regenerative solutions. As research progresses, it promises to redefine treatment paradigms, bridging the gap between *disease and true biological restoration.

KEYWORDS: Stem Cell Therapy, Regenerative Medicine, CRISPR, 3D Bioprinting, Neurological Repair, Cardiovascular Regeneration, Diabetes Treatment, Personalized Medicine.

ABSTRACT-68

MAKING CANCER TREATMENT AFFORDABLE AND ACCESSIBLE: GLOBAL CHALLENGES AND STRATEGIES

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Introduction: Cancer continues to be a major global health issue, with 20 million new cases and 10 million deaths projected in 2023. Even with the progress of oncology, prohibitively expensive treatment and limited access are major impediments to patient outcomes, especially in low- and middle-income countries (LMICs). The cost of new therapies, limited availability of generics and biosimilars, and patient expenses worsen these challenges. These impediments need to be addressed to provide equitable cancer care globally. Cancer treatment is expensive, with CAR-T and immune checkpoint inhibitors unavailable to most patients. Patent monopolies, regulatory obstacles, and health inequities also limit access, particularly in LMICs. However, measures like generic and biosimilar uptake, government price regulation, compulsory licensing, and public-private collaborations have reduced costs. Effective models like Brazil's universal coverage and India's generic drug policies show that universal cancer treatment is possible through effectively implemented policies and healthcare reforms.

Conclusion: Making cancer therapy affordable and accessible involves a multi-pronged strategy such as price controls, increased use of generics and biosimilars, public intervention, and early detection programs. All these can bridge healthcare gaps and ensure equitable cancer care for everyone.

Keywords: Cancer treatment, affordability, accessibility, generics, biosimilars, healthcare policy, universal health coverage, compulsory licensing.

ABSTRACT-69

EMERGING DISEASES AND DRUG RESISTANCE: A GLOBAL CHALLENGE FOR DRUG DEVELOPMENT AND AFFORDABILITY

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Emerging infectious diseases and the increasing threat of antimicrobial resistance (AMR) pose considerable challenges to global healthcare systems and drug development. The accelerated evolution of pathogens, combined with excessive use and misuse of antibiotics, has hastened resistance mechanisms, reducing treatment choices and driving up healthcare expenditure. The creation of new therapies to address these challenges is challenging, involving high investment, extended research timelines, and stringent clinical assessment. Moreover, affordability and equitable access to new drugs are a crucial issue, especially in low- and middle-income nations. This abstract emphasizes the need for creative drug development strategies, enhanced global surveillance systems, and policies balancing pharmaceutical innovation and cost-effective health solutions. Resolution of these challenges is essential to protect public health globally.

KEYWORDS: Infectious emerging diseases, Drug resistance, Antimicrobial resistance (AMR), Drug development, Affordability, Global health, New therapeutics, Pharmaceutical innovation.

ABSTRACT-70

DIGITAL TECHNOLOGY IN DRUG DEVELOPMENT: REDUCING R&D COSTS AMIDST PREDICTIVE MODEL LIMITATIONS

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The use of digital technologies in drug development has considerably enhanced efficiency, compressed timelines, and lowered costs. Technologies like artificial intelligence (AI), machine learning (ML), big data analytics, and digital twins have transformed drug discovery, preclinical testing, and clinical trial management. These technologies help with improved target identification, virtual screening of compounds, and improved data analysis, ultimately lowering resource-guzzling laboratory processes. In spite of all these developments, predictive models in drug development still have limitations like data quality, model interpretability, and how to translate results in silico into real-life outcomes. Ensuring the interplay between digital innovations' promise and predictive modeling's limitations can help optimize cost-effectiveness for pharmaceutical R&D. This abstract captures the effect of digital technology in lowering costs and coping with limitations of predictive models in the drug development pipeline.

KEYWORDS: Digital Technologies, Research and Development Expenditure, Predictive Models, Artificial Intelligence, Drug Discovery, Affordability, Big Data Analytics, Virtual Screening, Digital Twins.

ABSTRACT-71

PANDEMICS AND GLOBAL HEALTH SECURITY: A GLOBAL CHALLENGE FOR DRUG DEVELOPMENT AND AFFORDABILITY

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The COVID-19 pandemic has underscored the urgent need for robust drug development strategies to address emerging infectious diseases. Pandemics pose significant challenges to global health security, necessitating swift and coordinated responses from governments, industry, and academia. The development and distribution of effective treatments and vaccines must be timely, equitable, and accessible. However, antimicrobial resistance, regulatory frameworks, and access disparities hinder these efforts. To strengthen global health security, it is crucial to enhance international collaboration, invest in research and development, develop flexible regulatory frameworks, and prioritize equity and access. By adopting these strategies, we can improve our preparedness for pandemics, accelerate drug development, and protect global health. Effective solutions will require a multifaceted approach, leveraging technological innovations, data sharing, and global coordination to stay ahead of emerging threats.

KEYWORDS: Pandemics, Global Health Security, Drug Development, COVID-19, Regulatory Frameworks, Equity and Access, Technological and Innovation, Data Sharing, Global Coordination.

ABSTRACT-72

DIGITAL HEALTH AND TECHNOLOGY: A GLOBAL CHALLENGE FOR DRUG DEVELOPMENT AND AFFORDABILITY

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The convergence of digital health and technology is revolutionizing the pharmaceutical industry, offering innovative solutions to overcome global challenges in drug development. This abstract explores the transformative impact of digital technologies, such as artificial intelligence, blockchain, and the Internet of Things (IoT), on the drug development process. Digital health technologies enable real-time data collection, remote patient monitoring, and personalized medicine approaches, streamlining clinical trials and improving patient outcomes. However, challenges persist, including data standardization, interoperability, and regulatory frameworks. To harness the full potential of digital health and technology, collaboration among stakeholders, investment in infrastructure, and development of agile regulatory frameworks are essential. By embracing digital innovation, the pharmaceutical industry can accelerate drug development, enhance patient engagement, and improve global health outcomes.

KEYWORDS: Digital Health, Technology, Drug Development, Artificial Intelligence (AI), Internet of Things (IOT), Clinical Trails, Regulatory Frame Works, Digital Innovation, Patient Engagement, Global Health Outcomes.

ABSTRACT-73

SCREENING AND DETECTION OF CERVICAL CANCER WITH AI

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Cervical cancer remains a significant global health concern, especially in low-resource settings where screening accessibility and diagnostic resources are limited. Early detection is crucial for improving outcomes, but current screening methods, such as Pap smears and HPV testing, have limitations, including subjectivity in interpretation and limited reach. AI is emerging as transformative tool to enhance the accuracy, efficiency, and accessibility of cervical cancer screening and detection. This presentation examines the role of AI in cervical cancer screening, focusing on its application image-based cytology, HPV detection, and risk stratification.AI algorithms can analyze vast datasets of cervical cytology images, enabling automated detection of pre-cancerous lesions with high precision. This reduces human error, improves early detection rates, and aids clinicians in more accurate diagnoses. In addition, AI-powered mobile and point-of-care devices facilitate remote screening, bringing early detection capabilities to low-resource areas and supporting telemedicine applications. And also addresses ethical and practical considerations, including data privacy concerns, algorithmic biases, and challenges in integrating AI with current healthcare infrastructure. By reducing false negatives and enhancing access, AI has potential to significantly lower the global cervical cancer burden, especially in underserved communities. Looking ahead, the development of AI-based screening solutions can play a crucial role in advancing cervical cancer prevention within broader public health frameworks.

KEYWORDS: Cervical cancer, artificial intelligence, early detection, screening, HPV, cytology, point-of-care diagnostics.

ABSTRACT-74

IN SILICO DESIGN AND IDENTIFICATION OF DUAL HDAC AND PI3K INHIBITORS USING PHARMACOPHORE MAPPING AND MOLECULAR DOCKING APPROACHES FOR ANTICANCER THERAPY.

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Histone deacetylases (HDACs) and phosphoinositide 3-kinases (PI3Ks) are pivotal in

regulating cellular processes such as proliferation, differentiation, and survival. Dysregulation of these pathways is closely associated with cancer progression and resistance to therapy. Dual inhibition of HDAC and PI3K enzymes represents a promising therapeutic strategy, offering synergistic effects by targeting both epigenetic modifications and PI3K signaling pathways. Despite their potential, only two dual inhibitors, CUDC-907 and BEBT-908, are currently in clinical trials, with no FDA-approved drugs in this class. In this study, we identified and selected five reported HDAC and PI3K dual inhibitors from the ChEMBL database for ligand-based pharmacophore modeling using the Schrödinger software suite. The generated pharmacophores were used to screen for novel lead compounds via ZINCPharmer. Subsequent ligand-based virtual screening and molecular docking studies were performed against HDAC (PDB ID: 6XEB) and PI3K (PDB ID: 8EXV) using the Schrödinger software suite. The top-ranked compounds with the highest binding affinities were selected for lead optimization to enhance potency, selectivity, and pharmacokinetic (ADME) characteristics. Comparative docking studies revealed that our designed triazole derivatives exhibited superior binding affinities and docking scores compared to CUDC-907 and BEBT-908. These in silico findings suggest that the proposed compounds possess favorable pharmacokinetic and toxicity profiles, making them promising candidates for further development as anticancer agents targeting HDAC and PI3K pathways. Keywords: HDAC inhibitor, PI3K inhibitors, Pharmacophore mapping, and molecular docking.