NATIONAL CONFERENCE ON DRUG DELIVERY SYSTEM

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National Conference on Drug Delivery System

Editors

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MOONRAY INSTITUTE OF PHARMACY

National Conference on Drug Delivery System.

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A NEW DRUG DELIVERY SYSTEM USING NIOSOMES

PROFESSOR DR. KRISHNA SANKA

OF THE MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

Niosomes are vesicles composed of non-ionic surfactants and cholesterol that are formed during hydration. It can be employed to transport both lipophilic and amphiphilic drugs. Drug delivery using niosomes involves vesicles containing the medicament. Niosomes have a flexible structural characterization, are non-immunogenic, biodegradable, and biocompatible. The primary goal of this research project is to apply niosome technology to the treatment of various disorders. Niosomes offer promising research opportunities and are advantageous to both the pharmaceutical and research communities. Due to its stability and affordability, niosomes appear to be a favored drug delivery method over liposomes. They also offer excellent drug delivery potential for the targeted distribution of anti-infective and anti-cancer medicines. By utilizing cutting-edge drug delivery theories like proniosomes, discomes, and aspasomes, the drug delivery capacity of niosomes can be increased. Niosomes also work better as an adjuvant for vaccines and as a diagnostic imaging assistance. In recent years, there has been a radical change in the way infectious disease and immunization are treated. In addition to the fact that many biologicals tailored to certain diseases have been developed, emphasis has also been placed on how best to administer these biologicals. Niosomes are a new class of vesicular structures that are still developing. Niosomes are self-assembling vesicles mainly made of cholesterol and artificial surfactants. Niosomes as medication carriers have been thoroughly studied. Niosome surfactant vesicles are used to test and enlist a variety of medicines. Niosomes have shown to be a promising drug carrier with the potential to decrease medication side effects and boost therapeutic effectiveness in a number of disorders. As a result, more investigation and research are required in these areas in order to develop or produce niosomal preparation that is commercially available.

BIOGENOMICS AND BIOGENETICS

ASSOCIATE PROFESSOR SIKHAKOLLI CHANDRA SHEKHAR
OF THE MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

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The study of hereditary variations in drug response, a phenotype ranging from potentially fatal adverse drug reactions to an equally catastrophic lack of therapeutic efficacy, is at the heart of pharmacogenetics and pharmacogenomics. The tremendous advancements in genomics and molecular pharmacology came together to form this field. Pharmacogenetic research was first centred on monogenic features, which frequently involved genetic variation in drug metabolism. But modern research is increasingly involving entire "pathways" encoding proteins that affect pharmacokinetics (the parameters that determine how much of a medicine reaches its target or targets) and pharmacodynamics (the target of the drug itself), as well as genome-wide techniques. Additionally, pharmacogenomics is becoming more and more integrated into the drug development process and the regulatory framework that governs it, crossing the "translational interface" and entering the clinic. To fully realize its potential as a major medical application of genomic technology, pharmacogenetics-pharmacogenomics would need to overcome many fundamental difficulties. The approval of new drugs has slowed dramatically in recent years. Novel ways to drug development are needed to speed up the development of new molecules. By applying pharmacogenetics and pharmacogenomics, translational medicine/research, a new field at the intersection of basic science and medicine, may accelerate and improve the efficacy of the drug development process. Therefore, by using these techniques in the drug development process, patient subpopulations that show better responses to treatment and/or a better benefit-risk profile may be found.

DIABETIES AFTER COVID-19

PROFESSOR DR. B RAJKUMAR

AT MOONRAY INSTITUTE OF PHARMACY.

ABSTRACT:

Abstract: A new coronavirus known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) or coronavirus disease 2019 (COVID-19) is currently inflicting severe morbidity and mortality at a worldwide pandemic level. Individuals who have diabetes are especially vulnerable to this virus and are more prone to experience serious side effects. While more data is still being gathered, we offer our analysis of the early results seen in diabetic hospital patients as well as the possible contribution of these patients' proinflammatory metabolic states to the viral inflammatory surge that leads to severe insulin resistance and severe hyperglycemia. Their therapy is further complicated by their quickly growing renal failure, hypotension, usage of pressors and steroids, and inconsistent nutritional support. Therefore, it may significantly impact morbidity and mortality to promptly implement glucose control methods that meet these complex settings, while also monitoring trends related to COVID-19 in inflammatory biomarkers and being aware of the exposure of health care providers. Diabetes increases the chance of getting several infections. As a result, these diabetic patients may have a worse prognosis and be more susceptible to COVID-19. Critical involvement in the pathogenesis is still poorly understood. In addition to exploring the proposed processes, the clinical characteristics of COVID-19 patients with diabetes and secondary hyperglycemia are the focus of this investigation. Eighty confirmed COVID-19 cases were categorized as having euglycemia. group, diabetic group, and group with secondary hyperglycemia. The Chinese National Health Committee's SARS-CoV-2 diagnostic and treatment guidelines served as the basis for determining the COVID-19 severity. Patients of the common and mild types had low symptoms and negative CT results; patients of the critical and severe types had positive CT results and varied degrees of clinical manifestations; patients of the former group were enrolled as severe cases, based on the severity of the disease.

PRECISION MEDICINE: AN ERA OF THERAPEUTIC INNOVATION

RADHIKA PADARTHY, IS An ASSOC.PROFESSOR AT
MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

Abstract: Genome sequencing has enormous promise for improving patient care by enabling more precise treatment targeting and increased diagnostic sensitivity. Genomic techniques, such as DNA-sequencing tools and analytic algorithms, that have been created for genetic discovery must be modified to meet clinical demands in order to fully realize this promise. Optimizing alignment algorithms, paying attention to quality-coverage criteria, developing customized solutions for low-complexity or paralogous regions of the genome, and establishing agreed standards for variant calling and interpretation will all be necessary to achieve this. The determination of causality for novel genes or variations will proceed more quickly with the global sharing of these more precise genotypic and phenotypic data. Precision medicine describes the definition of disease at a higher resolution by genomic and other technologies to enable more precise targeting of disease subgroups with new therapies. As a result, a deeper understanding of disease will be realized that will allow its targeting with much greater therapeutic precision. Cystic fibrosis and cancer are two prominent examples. Clinical genomics represents the nexus of historical low-throughput techniques to genetic patient diagnosis and sequencing-led discovery genetics in population cohorts. The optimization of technologies and algorithms established for discovery genomics is necessary before applying them to clinical medicine due to the distinct objectives of these two undertakings. One area of need is the advancement of sequencing technology. Existing short-read methods are restricted to low-complexity genomic regions (e.g., repetitions), high-GC regions, highly polymorphic regions, or regions with large- or small-scale disruption of the open reading frame (e.g., structural variants).

EXAMINATION OF THE VETERINARY DRUG DELIVERY SYSTEM

ASSOCIATE PROFESSOR. REDDIPOGULA KIRAN KUMAR

MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

The small number of medications and dosage forms that are only available to this market presents a challenge to the effectiveness of veterinary pharmacotherapy because of the interspecies heterogeneity of animal anatomy, physiology, pharmacokinetics, and pharmacodynamics. Because of this, research in this field has gained prominence, even if it is still relatively small when compared to research on drug use in humans. Polymers-based drug delivery systems hold considerable promise for addressing numerous constraints concerning the safety, effectiveness, and bioavailability of pharmacotherapy in animals, particularly domestic and livestock animals. These methods should ensure lower dosage form toxicity and increased selectivity. Furthermore, these instruments could be designed taking into account the significant interspecies variation. This work presents an updated evaluation of the main polymer-based drug delivery technologies anticipated for application in veterinary medicine in an effort to contribute to these discussions. With a focus on films, microparticles, micelles, nanogels, tablets, implants, and hydrogel-based drug delivery systems, both conventional and novel polymer-based drug delivery systems are described. We go over key ideas about medication release mechanisms for veterinarians and the benefits of developing pharmaceutical formulations specifically for the animal population for chemists. In response to the interests of the pharmaceutical business, opportunities and problems in the field of pharmaceutical dosage forms for veterinary use are finally discussed.

FUNCTION-ENABLED GUM'S CONTRIBUTION TO THE SOLID DISPERSION OF AN ANTIBIOTIC DRUG

ASSOCIATE PROFESSOR HEMALATHA GIRIBOYINA
OF MOONRAY INSTITUTE OF PHARMACY.

ABSTRACT:

Abstract: Solid dispersions have garnered significant attention as a productive way to raise the rate of dissolution and, consequently, the bioavailability of a variety of medications that are poorly soluble in water. The occurrence of these issues has decreased and the dissolving of poorly water-soluble medications has been improved through solid dispersions with water-soluble carriers. Since a solid dispersion is essentially a two-component drug-polymer system, the drug-polymer interaction and performance are affected. One of the main problems with the different drug types is their poor water solubility, and numerous methods have been developed to improve their solubility. For formulation development, one of the most difficult factors is the solubility behavior of pharmaceuticals. One of the most promising methods for raising the oral bioavailability of poorly water-soluble pharmaceuticals is to use solid dispersions. By drastically lowering drug particle size, boosting surface area, and enhancing drug wettability, bioavailability may be greatly increased. Typically, a medication with low aqueous solubility is combined with a water-soluble hydrophilic carrier to create solid dispersions. In addition to reviewing the various methods of preparation for solid dispersion, this project effort gathers some of the most recent technological transfers. Highlighted are the various solid dispersions according to molecular organization. Along with an understanding of the molecular organization of pharmaceuticals in solid dispersions, several practical considerations for the manufacture of solid dispersions are also covered, including carrier selection and physicochemical characterization techniques. Finally, a thorough justification for the restricted commercialization of solid dispersions and their recent resurgence has been examined. The project's main focus is on the benefits, drawbacks, preparation and characterization process of the solid dispersion.

PART OF NANOSUSPENSION AND NANOCRYSTALS IN THE DRUG DELIVERY SYSTEM

MOONRAY INSTITUTE OF PHARMACY
ASSISTANT PROFESSOR SHAIK RUHEENA TARRANAM

ABSTRACT:

The swift progress in the drug development process is yielding several promising novel medication candidates with exceptional efficacy but restricted solubility in water. Because of its unique physicochemical characteristics and submicron particle size, nanosuspension has the potential to address a wide range of formulation and drug delivery challenges commonly associated with poorly soluble drugs in lipids and water. Approximately 40% of new drugs on the market today have problems related to poor solvency, and 70% of molecules in the discovery pipeline are essentially water insoluble. As demonstrated in the literature, nanocrystals are an evident tool for addressing the problem of low fluid solubility and for enhancing the bioavailability of a variety of medications. The occurrence of Ostwald ripening is caused by the lowering of particle size in a volatile nanocrystalline system. These methods pave the way for the development of nanoscale objects, which are capable of performing a variety of technological functions. A few notable advantages of nanocrystal formulations include enhanced oral bioavailability, better dose proportionality, decreased food effects, suitability for administration via all routes, and increased likelihood of sterile filtration due to reduced particle size range. One of the most suitable uses for nanocrystals is their broad range of application, including targeted administration, particularly for brain and tumors, pulmonary, transdermal, ocular, and intravenous delivery. The increasing market share of nanocrystal products and their increasing economic worth are being increasingly explored as potential strategies for gaining commercial benefits. The present effort aims to provide a concise and precise overview of nanosuspensions, emphasizing their preparation techniques, advantages, and key applications.

STEM-CELL INTERVENTIONS

ASSISTANT PROFESSOR SANTOSH CHARY

AT MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

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Abstract: Regenerative medicine has seen a recent surge in the use of stem cell-based therapy, which includes the use of human pluripotent stem cells (hPSCs) and multipotent mesenchymal stem cells (MSCs). Human pluripotent stem cells (hPSCs) are characterized by their capacity to develop into multiple cellular phenotypes within the human body, including the three germ layers. The International Society for Cell and Gene Therapy (ISCT) defines MSCs as multipotent progenitor cells with the capacity to differentiate into mesenchymal lineages and the ability to self-renew (restricted in vitro). An update on current clinical applications utilizing hPSCs or MSCs from bone marrow (BM), adipose tissue (AT), or the umbilical cord (UC) for the treatment of human diseases, such as respiratory disorders, skin burns, neurological disorders, pulmonary dysfunctions, metabolic/endocrine-related diseases, and cardiovascular conditions, is given in this review. With the ultimate goal of assisting translational research in regenerative medicine into clinical applications, we also propose and discuss the MSC tissue origin concept and how MSC origin may contribute to the role of MSCs in downstream applications. Finally, we discuss our personal clinical trial experiences on targeted therapies using MSCs in a clinical setting. The proposed hypothesis that BM-MSCs are potential good candidates for treating brain and spinal cord injuries, AT-MSCs for treating reproductive disorders and skin regeneration, and UC-MSCs for treating pulmonary disease and acute respiratory distress syndrome is supported by the mechanisms discussed here.

VERIFIED SPECTROPHOTOMETRIC ACYCLOVIR DETERMINATION USING ADERATIVE METHOD

DONTHULA SATEESH BABU ASSOCIATE PROFESSOR AT MOONRAY INSTITUTE OF PHARMACY.

ABSTRACT:

For the purpose of quantifying acyclovir in poly (n-butyl cyanoacrylate) (PBCA) nanoparticles, a derivative spectrophotometric approach was validated. For the purpose of method validation, limits for specificity, linearity, precision, accuracy, recovery, detection (LOD), and quantification (LOQ) were defined. At 252 nm, the first derivative removed interferences from the components of the nanoparticles and demonstrated linearity for acyclovir doses ranging from 5 to 30.0 μg/mL (r = 0.9982). Data with precision and accuracy showed strong repeatability. The range of recovery was 99.1–100.01. Consequently, the suggested approach demonstrated ease of use, affordability, and precision, making it a valuable substitute for measuring acyclovir in nanoparticles. First or higher derivatives of absorbance with respect to wavelength are used in derivative spectroscopy for both qualitative and quantitative analysis. Derivative UV-spectrophotometry is an analytical technique of great significance that is frequently used in obtaining mutually qualitative and quantitative in order from spectra that are of unresolved bands. Derivatizing spectral data was first proposed in the 1950s and was found to have numerous benefits. However, the difficulty of producing derivative spectra with early UV-visible spectrophotometers meant that the technique was not given much attention. With the advent of microcomputers in the late 1970s, it became generally feasible to construct derivative spectra fast, simply, and consistently using mathematical techniques. The application of the derivative technique rose dramatically as a result. We provide a quick overview of derivative spectroscopy's generation techniques and mathematics in this application note. We use examples generated by the computer to demonstrate the features and applications.

A SYNOPSIS OF POST-COVID DIAGNOSIS

ASSISTANT PROFESSOR SINGA RAJULA SWAMY
OF MOONRAY INSTITUTE OF PHARMACY.

ABSTRACT:

The third year of the COVID-19 pandemic's widespread effects is upon the world. In those with predisposing risk characteristics, the SARS CoV 2 virus has a high rate of transmission, variable symptoms, and a high morbidity and fatality rate. Increased systemic inflammation, cardiometabolic disturbances, and different degrees of glucose intolerance are the pathophysiologic processes. The latter may manifest as severe hyperglycemia that aggravates pre-existing conditions or causes new-onset diabetes. Sadly, the illness's clinical course may continue after the acute phase, manifesting as a range of symptoms collectively referred to as "Long COVID" or "Post-COVID Syndrome." During this phase, which can extend for weeks or months, it is believed that a chronic, low-grade inflammatory and immunologic condition endures. Despite the fact that a great deal of knowledge has been acquired on COVID-associated hyperglycemia and diabetes, its prognosis, progression, and treatment are still unclear.

ASSESSMENT OF PRELIMINARY PHYSICAL CHEMISTRY AND THE CARICA PAPAYA LEAF AND SEED EXTRACT'S ANTIMICROBIAL ACTIVITY.

AMBICA GUBBA
MOONRAY INSTITUTE OF PHARMACY, ASSISTANT PROFESSOR

ABSTRACT:

The Carica papaya plant was harvested, its leaves, fruit, and seeds allowed to dry in a dark area before being pulverized in an electric blender. Using a Soxhlet extractor filled with distilled water, acetone, chloroform, and ethanal, the powdered plant materials were extracted one at a time. To check for the presence of phytochemical constituents, a thorough phytochemical screening process was applied to each extract. This signifies the existence of alkaloids, flavonoids, steroids, protein, carbs, vitamin C, tannin, and saponin. All of the extracts' antimicrobial properties were identified using the well diffusion method. According to this discovery, ethanol extracts had the highest level of activity across the board in all plant material, and the Carica papaya leaf shown considerable inhibitory action against all test pathogens.

ANALYSING THE ANTI-DIABETIC ACTIVITY AND BIOCHEMICAL PARAMETERS OF THE WHOLE PLANT OF MURRAYA KOENIGII IN DIABETIC-INDUCED RATS

ASSISTANT PROFESSOR MYADAM NAGARANI
TEACHES AT MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

The goal of the current study was to assess Murray a Koenigii's antidiabetic efficacy and histological markers in albino rats with diabetes that had been caused by alloxan. Alloxan was given once to the 200–250 gramme experimental rats to develop diabetes (120 mg/kg body weight). When oral Murraya leaf chloroform extracts (250 and 500 mg/kg body weight) were administered for 30 days, there was a significant drop in blood glucose levels (from 296.62±20.12 to 80.22 ± 03.63) and a decrease in liver enzyme activity. The pancreas, spleen, liver, and kidney tissues of diabetic and normal rats were sampled and stained in order to examine the histology of Murraya Koenigii in albino rats produced by Alloxan. The results demonstrated a significant antigenicity in the beta-cells of the islets in control. The diabetic-induced group showed degenerative and necrotic alterations as well as shrinking tissues in the islets of Langerhans. When exposed to 25 and 50 ml/kg/bw of Murraya, the majority of the cells are shielded from light-induced degeneration, and the beta-cells in the pancreatic tissue's islets of Langerhans were found to exhibit moderate antigenicity. The histopathology of the spleen improved in diabetic rats administered with murraya (25 ml/kg/bw), while rats treated with 50 ml/kg/bw showed results comparable to those of non-diabetic controls. In an experimental model of diabetes mellitus, the results not only demonstrated a strong anti-hyperglycemic impact of Murraya extracts, but they also suggested that the extracts' action was dose dependent.

TRIGONELLA FOENUM-GRAECUM-CONTAINED HERBAL SHAMPOO: FORMULATION AND EVALUATION

ASSISTANT PROFESSOR RAVIKUMAR GOUD REVALLY

AT MOONRAY INSTITUTE OF PHARMACY.

ABSTRACT:

Although hair dandruff is not a life-threatening condition, it can seriously disturb your emotional well-being. You don't want to feel embarrassed by flaky, white dandruff powder all over your shoulders. "Dandruff" refers to the mild variation of seborrhoeic dermatitis, an inflammatory disorder marked by an unusually high rate of dead scalp shedding and flaking. Natural herbs, such as "Fenugreek," are effective treatments for dandruff. Trigonella foenum-graecum is a naturally occurring herb that aids in the destruction of a particular kind of fungus. Malassezia furfur and bacteria, e.g. That which causes dandruff is Staphylococcus. Numerous scientists have verified that fenugreek has a significant amount of lecithin, a naturally occurring emollient that gives hair strength. According to a study, fenugreek germinated seed extract, at a concentration of 0.35g/ml (one milliliter of extract plus three milliliters of water (1:4)), shown superior anti-fungal action in inhibiting the growth of the fungus that causes dandruff. coming to the conclusion that using fenugreek seed extract effectively stopped the growth of microorganisms. Hence, Trigonella foenum-graecum L.-containing anti-dandruff shampoo. It has been discovered that seed extract works well to cure dandruff.

MOLECULAR RESEARCH AND IN VITRO SYNTHESIS OF ANTI-INFLAMMATORY ACTIVITY AND SOME NOVEL 2-SUBSTITUTED BENZIMIDAZOLE DERIVATIVES

ASSISTANT PROFESSOR SATTUR SWETHA
OF MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

This work involved the synthesis of a series of benzimidazole derivatives, HW1–HW7, and an in vitro investigation of their anti-inflammatory properties using in silico. In an in vitro and an in silico assay, the synthesized compounds all shown moderate to good anti-inflammatory efficacy, respectively. In both in vitro and in silico studies, diclofenac sodium is utilized as the benchmark compound for comparison. When compared to diclofenac sodium (0.5 µg/ml), compounds HW6 and HW5 were shown to exhibit very good anti-inflammatory action (1.0 µg/ml and 1.2 µg/ml). Compound HW5 exhibits a maximum binding energy of - 10.36 kcal/mol in an analogous in silico research.

EVALUATION OF ANTI-OBESITY PROPERTIES OF THE EXTRACT FROM THE TERMINALIA CHEBULA FRUITS OF HIGH-FAT-INDUCED RATS

ASSOCIATE PROFESSOR OMKAR SWAROOP ASWA
AT MOONRAY INSTITUTE OF PHARMACY.

ABSTRACT:

The purpose of this study was to look at Terminalia bellerica's potential to prevent obesity and hyperlipidemia caused by a high-fat diet. Commonly referred to as Baheda, Terminalia bellerica has long been used in Indian medicine for a variety of ailments. It is a prominent constituent in herbal remedies for cardiac conditions, such as Triphala. P.O. was given an ethanolic extract of the Terminalia bellerica fruit at 250 mg/kg and 500 mg/kg body weight. 20 days were spent testing the anti-hyperlipidemic effect. Physical measurements and biochemical estimations are the parameters used to assess anti-hyperlipidemic activity. The physical measures included liver weight, atherogenic index, basal metabolic index, heart weight and body weight ratio, and a thorough examination of the heart. Several cardiac enzymes, including lactate dehydrogenase, and the lipid profile were tested for biochemical estimates. In comparison to clinically used drugs, atorvastatin (10 mg/kg) and orlistat (pure drug, 10 mg/kg), the results of this study demonstrate that the alcoholic extract of Terminalia bellerica (500 mg/Kg) has a significant reduction in various lipid levels as well as the elevated physical parameters like heart weight, body weight ratio, body weight gain, and BMI against high fat diet induced hyperlipidemia and obesity.

EXAMINING THE ANTI-ULCER PROPERTIES OF AN EXTRACT FROM ANACARDIUM INCIDENTALIS LEAVES IN ALBINO RATS

JONNALAGADDA SUNITHA SUNITHA ASSOCIATE PROFESSOR
MOONRAY INSTITUTE OF PHARMACY.

ABSTRACT:

Ethiopian traditional medicine has utilized Anacardium occidentale (AO) to treat peptic ulcer illness, yet its effectiveness has not been proven. Thus, the goal of the current investigation was to assess the anti-ulcer properties of AO's 80% methanol leaf extract in rats. The impact of AO extract on pylorus ligation-induced and ethanol-induced stomach ulcers in rats was investigated using single dose administration (100, 200, 400 mg/kg) and recurrent dosage (200 mg/kg for 10 and 20 days) methods. The usual medications were ranitidine (50 mg/kg) and sucralfate (100 mg/kg). The volume and pH of stomach fluid, overall acidity, ulcer score, percent inhibition of ulcer score, ulcer index, and percent inhibition of ulcer index were among the outcome measures that varied based on the model. One-way analysis of variance and Tukey's post hoc test were used to analyses the data, with $P<0.05$ being regarded as statistically significant. In pylorus ligation-induced and ethanol-induced ulcer models, AO dramatically ($P<0.001$) reduced stomach ulcer index by 55.82% and 62.11%, respectively, at a 400 mg/kg dose, which is equivalent to conventional medications. Significant ($P<0.001$) ulcer inhibition was observed ten and twenty days prior to treatment with AO 200, by 66.48% and 68.36% in the case of the pylorus ligation-induced model and 71.48% and 85.35% in the case of the ethanol-induced model, respectively. In the two models, AO exhibits a dose-dependent and time-dependent anti-ulcer effect. Secondary metabolites such flavonoids, tannins, and saponins were found, and the crude hydroalcoholic extract's oral median lethal dose (LD50) is estimated to be greater than 2000 mg/kg. The results of this investigation demonstrated that AO's anti-ulcer pharmacologic effect can be attributed to one or more of its secondary metabolites. Thus, this investigation supports Ethiopian traditional medicine's use of it as an anti-ulcer. It is necessary to conduct additional research to isolate particular phytochemicals and clarify their mechanisms of action.

ANALYZING THE ANTI-CANCER POTENTIAL OF METHYL EXTRACT AND THE FRACTION OF ANTI-OXIDANT PROPERTIES OF AZADIRACHTA INDIA STEM BARK

BEGUM SABIHA, ASSISTANT PROFESSOR
MOONRAY INSTITUTE OF PHARMACYOF PHARMACY

ABSTRACT:

The total phenolic (TP), total flavonoid (TF), and antioxidant activity of bark extracts from four different trees (Azadirachta indica, Terminalia arjuna, Acacia nilotica, and Eugenia jambolana Lam.) in three different solvents (80% methanol, 80% ethanol, and 80% acetone; solvent: water, 80:20 v/v) were assessed. The linoleic acid system was used to suppress peroxidation, and the 2,2′-diphenyl-1-picrylhydrazyl radical (DPPH) scavenging activity was used to measure antioxidant activity (AA). The TP, TF, inhibition of linoleic acid oxidation, and DPPH· scavenging activity of several bark extracts were shown to differ significantly ($P < 0.05$). However, there was a slight fluctuation in power reduction. The overall flavonoid concentrations, 1.59–4.93 catechin equivalents, and total phenolic contents, 7.8–16.5 gallic acid equivalents, were found to vary widely across all bark extracts. At extract concentrations of 10 mg/mL, reducing power varied between 1.34 and 1.87. The oxidation of linoleic acid was decreased by various bark extracts by 44-90%, while the DPPH radical scavenging activity varied between 49% and 87%. The following order of components with antioxidative capabilities showed a decrease in extraction efficacy: ethanol, methanol, then acetone. The extracts' TP and DPPH scavenging activities showed a strong connection. A. Bark from nilotica had the greatest TP levels, ranging from 9.2 to 16.5 g/100 g, while bark from E provided the highest AA as measured by prevention of linoleic acid oxidation. jambolana Lam. The maximum DPPH scavenging activity and lowering power were displayed by the same tree. Although the findings of several antioxidant assays showed a good association with one another, a variety of approaches could be required to accurately evaluate the in vitro antioxidant activity of a particular plant material.

COMPILATION AND ASSESSMENT OF BUCCAL PATCHES INCLUDING METOPROLOL TARTRATE.

ASSISTANT PROFESSOR BOLGARI KUMARI AT
MOONRAY INSTITUTE OF PHARMACY.

ABSTRACT:

The purpose of the study was to create and characterize metoprolol tartrate buccoadhesive tablets utilizing a variety of mucoadhesive polymers, including a mixture of Carbopol 934, sodium alginate, and HPMC K4M. Using a combination of two polymers in each formulation, ten formulations were created with different polymer concentrations. Sodium alginate and HPMC K4M mixture were combined in formulations F1 through F5, with drug:polmer mixture ratios ranging from 1:0.75 to 1:1.75. In contrast, formulations F6 through F10 combined Carbopol 934 and HPMC K4M mixture in the same ratios. Physical and chemical characteristics of the produced tablets were assessed, including hardness, homogeneity of thickness, weight fluctuation, pH of the surface, duration of in vivo residency, and moisture absorption investigations. Additionally, the bio adhesive strength and in vitro drug release of the produced tablets were assessed. Studies on the strength of in vitro bio adhesive and in vitro drug release revealed that formulation F8, with a drug and polymer combination ratio of 1:1.25, demonstrated the best bio adhesive and drug release (77.33±0.23). The medication and polymers did not appear to interact, according to the FTIR measurements.

FORMULATION AND EVALUATION OF HERBAL SHAMPO INCLUDING EXTRACT OF RAMBUTAN LEAVES

ASSISTANT PROFESSOR PUPPANIGUDA MOUNIKA AT
MOONRAY INSTITUTE OF PHARMACY.

ABSTRACT:

The family Sapindaceae includes the rambutan (Nephelium lappaceum Linn.), which is extensively distributed throughout Malaysia. Traditional hair care uses of rambutan leaves include noticeable improvements in hair quality in as little as a few weeks for many users. Nevertheless, no research on the use of rambutan leaf extract in herbal shampoo preparations has been published. The goal of the current study was to create a herbal shampoo with extract from rambutan leaves and assess its physicochemical characteristics. The methanolic extract of rambutan leaves was added to the herbal shampoo formulation. To ascertain the physicochemical characteristics of the herbal shampoo formulation, a number of tests were carried out, including stability studies, visual inspection, pH, percentage of solid contents, and foam ability. Eleven individuals took a blind test to assess their conditioning performance. The majority of volunteers gave the hair that had been shampooed with a specially prepared shampoo a rating of 2.18 ± 0.40. The outcomes unequivocally show that the shampoo's formulation is providing a conditioning performance level that is sufficient. Although the physicochemical study of the shampoo's formulation revealed perfect findings and all of the chemicals were safer, more research is needed to enhance the product's quality and pinpoint the components that give it its desired performance.

COMPILATION AND ANALYZATION OF HERBAL SHAMPOO INCLUDING EXTRACT OF OLIVE LEAVES

ASSISTANT PROFESSOR SWATHI MOLGARA TEACHES AT MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

The goal of the study was to create an herbal shampoo with extract from olive leaves and assess its physiochemical characteristics. Although olive leaf extract is sold commercially in Palestine, the majority of those products are copies of goods made in industrialized nations due to the underfunding of R&D departments in both the public and private sectors. Furthermore, there are currently scant literature-based data on their stability. Oleuropein, an antioxidant, anti-inflammatory, and hair-protective compound, was standardized in the ethanolic extract of olive leaves used to create the herbal shampoo. Numerous tests were carried out, including visual examination, pH, active component proportion, and foam ability. Additionally, stability tests were carried out to ascertain the physiochemical characteristics of the herbal shampoo formulation. Three formulae (F1, F2, and F3) with an identical olive leaf extract content of 1.0% w/w were created. Every component that went into making the shampoo was determined to be safe, and the physiochemical analysis produced excellent outcomes. During six months of storage at various temperatures (4–8 oC, 40 oC, and ambient temperature), stability investigations revealed a stable homogenous look. Formula 3, however, provided the best sta

QSAR, MOLECULAR DOCKING, AND MICROWAVE ASSISTED SYNTHESIS OF 2,4-THIAZOLIDINEDIONE DERIVATIVES

CHANDRAKANTH NALLAGANTI ASSOCIATE PROFESSOR

MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

In synthetic organic chemistry, lead is chosen and optimized, and work is synthesized and characterized for useful applications. With the aid of a microwave, a number of novel thiazolidinedione derivatives have been created and synthesized. Using Insilico techniques such as molecular docking and QSAR investigations to investigate their anti-diabetic properties, the synthesized compounds were evaluated for their synthetic assess ability against the peroxisome proliferator-activated receptor (PPARγ). Microwaves were used to synthesize compounds that displayed a higher glide score than the industry standard (Pioglitazone). Utilizing FT Infrared spectroscopy, Proton NMR, C-13 NMR spectroscopic investigations, and Lc-Ms, compounds were characterized.

Keywords: Molecular docking, pioglitazone, 2, 4-thiazolidinedione derivatives, Peroxisome proliferator-activated receptor (PPARγ), anti-diabetic action.

ARTEMETHER AND LUMEFANTRINE SIMULTANEOUS ESTIMATION AND VALIDATION USING UV SPECTROPHOTOMETRY IN A TABLET

ASSOCIATE PROFESSOR GEETHAREDDY KONDAMPALLI OF MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

Artemether and Lumefantrine can now be determined simultaneously thanks to the development of a UV spectrophotometric technique. The area under the curve approach was used in conjunction with ethanol as the solvent in the spectroscopic method for estimating artemether and lumefantrine. Both Artemether and Lumefantrine exhibit absorbance maxima of 253.2 nm and 235.2 nm, respectively. These medications comply with Beer's law within the concentration range of 4.24 - 67.84 µg/ml for Artemether and 4.68 - 28.08 µg/ml for Lumefantrine. The recovery studies determined if the intended approach was accurate, and the outcomes were validated in accordance with ICH recommendations. Reproducible and good outcomes were found. Without the intervention of common excipients, the method was successfully employed for the estimation of Artemether and Lumefantrine in tablet dosage form.

THE RETROSPECTIVE STUDY EXAMINE THE FACTORS THAT CONTRIBUTE TO THE FAILURE OF FIRST-LINE ANTIRETROVIRAL THERAPY (ART) IN INDIAN TERTIARY CARE GOVERNMENT SETTINGS.

ARESH KUMAR REDDY RAGHURAM, ASSOCIATE PROFESSOR
MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

Background: HIV is a lentivirus that infects humans, causing a gradual immune system breakdown that makes it easier for cancer and other potentially fatal opportunistic infections to spread. Therefore, it is crucial to research the causes of first-line ART failure.

Aims and Objectives: To determine the factors that contribute to first-line ART failure, such as clinical, immunological, virological, and sociodemographic factors; to measure CD4 count in participants receiving first- and second-line ART. to evaluate each subject's viral burden after they failed first-line ART.

Methodology: To determine the causes of first-line ART failure, a retrospective cohort observational analysis was carried out. HIV patients who satisfied the study's eligibility requirements gave their informed consent and were included after pertinent data was gathered using a previously created data collection form.

Findings: Our study indicated that the controls were primarily between the ages of 30 and 40. In both the cases and controls, the distribution of males and females was equal. There were more widowed female cases. There were more illiterates among the patients than the controls. More youngsters in the case group than in the control group were HIV positive. Compared to controls, there were higher cases in WHO stage-4 clinical staging. Compared to controls, cases had higher rates of medication adherence, drug replacements, side effects, LFUS, and hospitalizations. There were more cases who travelled more than 60 minutes, there was a longer interval between the diagnosis and the start of ART, and the patients' lipid profiles, RFTS, and LFTS were elevated at the point of treatment failure. Compared to controls, cases had more severe opportunistic infections.

INVESTIGATION OF DIPEPTIDYL PEPTIDASE-4 INHIBITORS VIA MOLECULAR DOCKING

ALURI MADHAVI ASSOCIATE PROFESSOR
AT MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

Inhibitors of dipeptidyl peptidase (DPP)-IV represent a novel therapeutic strategy for type-2 diabetes. DPP-IV belongs to a family of serine peptidases that also contains DPP8, DPP9, and quiescent cell proline dipeptidase (QPP). Incretin hormones are primarily regulated by DPP-IV, while the roles of other members of the family are unclear. We performed molecular docking experiments on clinical inhibitors of DPP-IV to ascertain the significance of selective DPP-IV inhibition for the treatment of diabetes.

EVALUATING HEALTH-RELATED LIFE QUALITY IN HYPERTENSIVE PATIENTS IN THE RURAL POPULATION OF GAUTUR DISTRICT, SOUTH INDIA BY HAND

GUNTI RAGHAVENDHAR ASSOCIATE PROFESSOR
MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

Context: One of the main causes of death and disability is hypertension, which is becoming more and more common in developing nations. The risk of cardiovascular disease and associated consequences, such as vascular disease and chronic kidney disease, is reduced when high blood pressure is adequately treated. However, treatment compliance is the main issue when it comes to managing hypertension.

The purpose of this study is to evaluate the quality of life in hypertension patients.

Methodology: Over the course of six months, a prospective observational cohort study was carried out in a rural Guntur area. A total of three years' worth of hypertensive patients, either freshly diagnosed or long-term sufferers, were enlisted. A sphygmomanometer was used to assess blood pressure, and further demographic data was gathered. The 36-item Short Form (SF-36) was used to measure health-related quality of life, and corresponding scores were computed.

Results: Using the SF-36 questionnaire, it was shown that among hypertension patients, physical health (49.4) was the component most affected, followed by vitality (61.75), emotional aspects (69.06), pain (67.3), and social functioning (78.54), which seemed to be least affected.

In conclusion, improving a patient's quality of life requires appropriate hypertension treatment and education. Good adherence not only leads to better clinical results but also significantly enhances quality of life and lowers medical expenses associated with complications and co-morbidities of hypertension.

INDIA'S NEED FOR INNOVATION IN PHARMACY EDUCATION: METHODS FOR A HIGHER DESTINY

ARIGELA VENKATESH ASSISTANT PROFESSOR OF THE MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

A doctoral degree in pharmacy that is highly regarded is the Doctor of Pharmacy (PharmD; Neo-Latin Pharmaciae Doctor). In some nations, obtaining a first professional degree is required in order to obtain a license to practice pharmacy or become a clinical drug expert. One of the newest subfields of pharmacy to emerge in the twenty-first century is clinical pharmacy. The field of clinical pharmacy has to prepare its graduates for direct patient care because the role of clinical pharmacists in patient care is growing. PharmDs have the chance to expand their clinical expertise, which could enhance society's total health care, as a result of India's increased medical workload, which leaves doctors unable to attend to routine patient care. In order to determine cutting-edge research in the pharmaceutical, social, and clinical sciences, PharmD students should be trained to create, disseminate, and apply new knowledge. They should also be trained to collaborate with other health professionals and to improve the health of both the global community and the members of our society. In light of the rapidly evolving pharmaceutical sector's ambition to become a global hub for the examination and assembly of unique medications, this article focuses on the potential for creative or inventive ecosystems and trademark organization. PharmD graduates possessing the necessary training and knowledge have the potential to significantly fuel the growth of clinical pharmacy in India.

THE RP-HPLC METHOD WAS DEVELOPED AND VALIDATED TO QUANTITATIVELY ESTIMATE THE AMOUNT OF VINPOCETINE IN BOTH PURE AND PHARMACEUTICAL DOSAGE FORMS.

RAJU VANKADAVATH ASSISTANT PROFESSOR TEACHES AT MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

Vinpocetine in pure and pharmaceutical dosage forms was determined using a straightforward, exact, specific, and accurate reversed phase high performance liquid chromatography (RP-HPLC) approach that was developed and validated. In accordance with the International Conference on Harmonization's ICH Q2 (R1) guidelines, the various analytical performance characteristics, including linearity, accuracy, specificity, precision, and sensitivity (limit of detection and limit of quantitation), were established. Zorbax C18 (150 mm length × 4.6 mm ID, 5 μm) column was used for RP-HPLC. The buffer, which contained 1.54% w/v ammonium acetate solution, and acetonitrile in a 40:60 v/v ratio made up the mobile phase. The flow rate was kept constant at 1.0 mLmin−1. Agilent 1200 series equipped with a light diode array detector (λ = 280 nm) was used to monitor vinpocetine. In the concentration range of 160–240 μgmL−1, linearity was seen, and a strong correlation coefficient (R2 = 0.999) was obtained. Every system appropriateness metric was discovered to be within the range. The suggested technique is quick, affordable, and suitable for routine quantitative analysis of vinpocetine in pharmaceutical and pure dose forms as a quality-control tool.

COMPILATION AND ASSESSMENT OF OPHTHALMIC FLUCONAZOLE DELIVERY FROM ION-ACTIVATED SITU GELLING SYSTEM

GANASALA DEEPIKA ASSISTANT PROFESSOR
MOONRAY INSTITUTE OF PHARMACYOF PHARMACY

ABSTRACT:

Fungal keratitis is a potentially blinding eye infection that usually arises from a candida species infection. This study outlines the development and assessment of an ocular delivery system for the antifungal drug fluconazole, which is based on the idea of ion-activated in situ gelation. Ocular in situ gels have the potential to extend the duration of drug residence, hence augmenting bioavailability. In addition to HPMC E-50 (Hydroxy Propyl Methyl Cellulose), which served as a viscosity-enhancing ingredient, Gelrite was utilized as the gelling agent. Physical parameters such as clarity, pH, drug content, sterility tests, rheological investigations, and in vitro drug release studies were assessed for formulations. The medicine was released gradually over the course of eight hours by the formulations, which were also stable and therapeutically effective. These outcomes show that the created technique is the most effective substitute for traditional eye drops.

AN INTERVENTIONAL STUDY ASSESSING SLEEP DISTURBANCES IN INDIVIDUALS WITH TYPE 2 DIABETES MELLITUS

MAHESH SANGEPAGA ASSISTANT PROFESSOR
MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

Background: Diabetes mellitus is a common disease that is linked to quick social and cultural changes, including population ageing, urbanization, dietary modifications, decreased physical activity, and unhealthy behaviors. These changes diminish the quality of life and shorten the survival rate of those who have the disease. The purpose of this study is to determine the impact of additional factors on sleep quality as well as to measure the quality of sleep-in individuals with type 2 diabetes mellitus (T2DM).

Methods: From December 2020 to May 2021, a cross-sectional study was conducted at the Government General Hospital in Ananthapuramu. 384 T2DM individuals in all were enrolled. With a cutoff point of PSQI > 8, data were gathered using the Pittsburgh Sleep Quality Index (PSQI) and ESS to evaluate the quality of sleep. Data on the demographic background of the participants were also documented. Graph Pad Prism was used for statistical analysis.

Results and Discussion: Based on the global PSQI cutoff point of 8, which we used to evaluate sleep, we found that 77.6% of T2DM patients had poor sleep quality. Additionally, we found that employed diabetic patients were more likely than unemployed patients to report having poor sleep quality. Finally, we found that diabetic patients receiving insulin treatment were 2.17 times more likely to report having poor sleep quality than patients receiving OHA alone.

Conclusions: The effectiveness of clinical pharmacist-led patient counselling in enhancing the quality of sleep. Therefore, people who report having trouble sleeping should get a diabetic screening. Patients with type 2 diabetes who have poor glycemic control should have their sleep disturbances evaluated, and if they are found, they should be treated in order to obtain the best possible blood sugar control.

THE IMPACT OF MEDICATION ADHERENCE IN HYPERTENSIVE PATIENTS IN THE RURAL GUNTUR DISTRICT OF SOUTH INDIA POPULATION.

ASSISTANT PROFESSOR BOLLU SAI KIRAN AT
MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

The purpose of this study is to evaluate the effects of medication adherence in hypertension patients. Methodology: Over the course of six months, a prospective observational cohort study was carried out in a rural Guntur area. A sample of 300 individuals with hypertension, either recently diagnosed or having the condition for three years, were enlisted. A sphygmomanometer was used to assess blood pressure, and further demographic data was gathered. The HILL-BONE compliance to high blood pressure therapy scale (HILL-BONE CHBPTS) was used to measure medication adherence.

Results: A small improvement was noted in all areas of Hill-Bone scores, with an average of 8.49, when the aspects of medication compliance, salt usage, and appointment keeping were analyzed.

In conclusion, better medication adherence can be achieved by appropriate care and education on medications and how to use them. In addition to improving clinical results, good medication adherence also significantly enhances quality of life and lowers medical expenses associated with comorbidities and co-morbidities of hypertension. By offering regular guidance, clinical chemists play a critical role in enhancing adherence and lowering the cost of sickness.

COMPILATION AND ASSESSMENT OF OPHTHALMIC FLUCONAZOLE DELIVERY FROM ION-ACTIVATED SITU GELLING SYSTEM

ASSISTANT PROFESSOR A NEERAJA

MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

Fungal keratitis is a potentially blinding eye infection that usually arises from a candida species infection. This study outlines the development and assessment of an ocular delivery system for the antifungal drug fluconazole, which is based on the idea of ion-activated in situ gelation. Ocular in situ gels have the potential to extend the duration of drug residence, hence augmenting bioavailability. In addition to HPMC E-50 (Hydroxy Propyl Methyl Cellulose), which served as a viscosity-enhancing ingredient, Gelrite was utilized as the gelling agent. Physical parameters such as clarity, pH, drug content, sterility tests, rheological investigations, and in vitro drug release studies were evaluated for formulations. The medicine was released gradually over the course of eight hours by the formulations, which were also stable and therapeutically effective. These outcomes show that the created technique is the most effective substitute for traditional eye drops.

DEVELOPMENT AND VALIDATION OF THE RP-HPLC METHOD FOR RIVAROXABAN QUANTIFICATION IN PHARMACEUTICAL DOSAGE FORMS

SWATHI KAVALI ASSISTANT PROFESSOR
MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

The anti-clotting drug rivaroxaban works at a critical stage in the blood-clotting process to prevent blood clots from forming. The RP-HPLC method was created in this work to determine the amount of rivaroxaban in tablets (Xarelto® (10 mg)). An LC column (250 x 4.6 mm) with a Phenomenex Luna 5 µm C18 100 Å was utilized at 40 ºC. Isocratic elution was carried out using a combination of ACN and water (55:45 v/v). UV detection was detected at 249 nm, and the flow rate was 1.2 mL min-1. Rivaroxaban and the internal standard, caffeine, were eluted in 2.21 and 3.37 minutes, respectively. The devised method was found to be linear within the range of 0.005 - 40.0 µg mL-1 after validation in accordance with the ICH recommendations. The process was fast, reliable, accurate, and precise. As a result, it was effectively used for the rivaroxaban tablet dosage form quality control test.

A CASE REPORT ON SPIRONOLACTONE-INDUCED GYNECOMASTIA

ASSISTANT PROFESSOR VADLA MOUNICA AT
MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

Increased free circulating estrogen/androgen ratios or changes in these hormones' effects on their corresponding intracellular receptors in the breast tissue are the usual causes of gynecomastia. Medical history plays a fundamental role in the diagnosis of drug-induced gynecomastia. A large variety of drugs have been implicated in its pathogenesis and can induce gynecomastia by decreasing testosterone production, increasing peripheral conversion of testosterone to estradiol, and displacing estradiol from sex hormone binding globulin. We present a case report of 41 old male patients affected by spironolactone induced gynecomastia. The pathologies influencing the levels of circulating sexual hormones (i.e. testicular or adrenal neoplasias, hepatic cirrhosis, hyperthyroidism, hypogonadism, obesity, and refeeding syndrome). The active principles known for most frequently causing gynecomastia are exogenous oestrogens, antiandrogens, cimetidine, and spironolactone.

A PRACTICAL APPROACH TO THE DEVELOPMENT OF RP HPLC ANALYTICAL METHOD

HARSHINI KOTICHINTHALA ASSISTANT PROFESSOR AT
MOONRAY INSTITUTE OF PHARMACY,

ABSTRACT:

This article focuses on a step-by-step practical approach towards developing an RP HPLC assay method. The various contributing parameters and their effect on the performance of the RP HPLC analytical method being developed are described simply, so that a new chromatographer can develop a method with the understanding of the RP HPLC method development process and its parameters. One of the most widely used tools to identify and quantify potency in drug substances and drug products is high performance liquid chromatography. Analytical method development and validation are two very important processes performed before releasing a method for use in a Quality Control department.

USE OF SIMULTANEOUS EQUATION METHOD IN TABLET FORMULATION TO DETERMINE AZITHROMYCIN AND CEFIXIME TRIHYDRATE

RAJESH KATTELA ASSISTANT PROFESSOR
MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

A straightforward, precise, and accurate uv-spectrophotometric technique has been created to estimate azithromycin (AZI) and cefixime trihydrate (CEFI) in tablet formulation simultaneously. The simultaneous equation method constituted the foundation of the approach, which was used to analyses both medications. In methanol, absorbance maxima have been seen by AZI and CEFI at 222 and 289 nm, respectively. For both medications, the linearity was maintained within the concentration range of 10–50µg/ml, and the correlation coefficient (r2 = 0.999) was noticeably high. For AZI and CEFI, the limits of quantitation were 2.40 and 4.60 µg/ml, respectively, while the limits of detection were 0.81 and 1.52 µg/ml, respectively. Validation demonstrated the suggested method's suitability for quantitative drug determination. A pill formulation was successfully analyzed using this technology.

"A REVIEW: POLYHYDROQUINOLINE ACT AS BIOLOGICAL ACTIVE MOLECULES"

ASSISTANT PROFESSOR NAHIYA TABASSUM NAHIYA TABASSUM

MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

The aromatic rings of polyhydroquinoline and 1,4-dihydropyridine (1,4-DHP) have six members. The primary class of nitrogen heterocycles is represented by the pyridine ring system, and its analogues have a variety of physiological and biological properties. Another significant class of nitrogen-containing heterocycles that have garnered a lot of interest are polyhydroquinolines, which are structurally linked to DHPS and have a variety of pharmacological and therapeutic uses, including the modulation of calcium channels. Mild circumstances have been used to synthesize polyhydroquinolines, with the addition of ultrasound, microwave irradiation, and conventional heating. The production of several polyhydroquinoline derivatives was investigated by the use of distinct catalysts in the reaction between dimedone, ethyl acetoacetate, substituted salicylaldehyde, and ammonium acetate in ethanol. The synthetic compounds that were assessed all exhibited biological activity; they demonstrated anticoagulant, antibacterial, antifungal, antimalarial, antituberculosis, and antihypertensive properties. The one-pot MCR approach, which has several advantages over standard bimolecular reactions, was used to carry out multicomponent reactions in order to manufacture a specific product.

COMPUTATIONAL IMPRINTING

MAHENDER BEERLA ASSISTANT PROFESSOR

MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

Molecularly imprinted polymers have found application in immunoassay, liquid chromatography, capillary electro-chromatography and capillary electrophoresis, as well as elective sorbent in chemical sensors, among other analytical techniques in analytical separation science. One advantage of imprinted polymers is the capacity to generate sorbents with predetermined selectivity for a particular chemical or group of structural analogues of biological and environmental components. The higher selectivity of imprinted polymers compared to conventional sorbents could lead to more lucid chromatographic traces in later analytical processes. Furthermore, in the solid phase extraction application, issues such as peak broadening and tailing—which are frequently associated with imprinted polymers in chromatography—are absent. Most liquid chromatographic experiments have used imprinted polymers as chiral stationary phases for enantiomer separations. It has also been shown that imprinted polymers can be used as selective sorbents in capillary electro-chromatography. Molecular imprinting is a technique for creating synthetic recognition sites on polymer matrices that match the template in terms of functional group size, shape, and spatial arrangement. Molecularly imprinted polymers (MIPs) are perfect for use with molecular imprinting procedures because they have a high affinity and selectivity for the target molecules used in the molding process.

STEREOCHEMISTRY

ASSISTANT PROFESSOR UKKISALA RAVITEJA AT

MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

Stereochemistry is the study of the static and dynamic properties of the three-dimensional shapes of molecules. It has long provided a foundation for understanding both reactivity and structure. Stereochemistry, however, is a legitimately fascinating field of study by itself. To put it simply, many scientists are fascinated by the visual beauty of chemical structures and the fascinating manner that this field of study integrates chemistry, geometry, and topology to analyses three-dimensional patterns. Furthermore, stereochemistry has several very important practical applications. Nature is fundamentally chiral since its constituents, sugars, nucleotides, and amino acids, are chiral and appear in enantiomerically pure forms. Consequently, a chiral environment interacts with any materials created by people in order to interact with or modify nature. This is an important topic for bioorganic chemists and a useful one for pharmaceutical chemists. The Food and Drug Administration (FDA) now requires medicines to be produced in enantiomerically pure versions or to undergo rigorous testing in order to guarantee the safety of both enantiomers. Thus, the different facets of stereochemistry that can alter and enhance chemical activities and reactivity are the main focus of this study.

INVESTIGATION OF NOVEL SYNTHESISED PYRAZOLES RADHIKA VALLI

MOONRAY INSTITUTE OF PHARMACY

KAKARLA MAHESH ASSISTANT PROFESSOR

ABSTRACT:

Pyrazoles, which are heterocyclic compounds with five members, have made a substantial contribution to the theory of heterocyclic chemistry. These compounds have essential pharmacological and agrochemical qualities and are frequently utilized as the main structural component of a wide range of chemicals with biological features like antifungal, anticancer, antiviral, antibacterial, anti-tubercular, and antiphrastic. A straightforward and useful procedure for synthesizing substituted pyrazolines was attempted to be developed by reacting 4-methoxy cinnamonitrile with aromatic aldehyde phenyl hydrazones in the presence of chloramine-T. This could work as a process for the production of derivatives of glucosyl pyrazoles starting with D-glucose. Good reaction rates and yields were obtained from the suggested solvent-free microwave-mediated methods, suggesting that these procedures can be considered as easy, effective, and environmentally friendly synthetic methods for the synthesis of pyrazole derivatives. In contrast to the traditional method, this one offers a productive means of producing sugar-heterocyclic derivatives without using extremely hazardous materials. This was confirmed by the EATOS software, especially with regard to the new "one-pot" method.

INVESTIGATION OF LATE-SYNTHESIZED QUINOLINE DERIVATIVE

PROFESSOR DR. VENKANNA BAYYA OF THE MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

A vital family of chemicals for the synthesis of novel pharmaceuticals are quinolines and their fused heterocyclic derivatives, which have been investigated for a range of pharmacological functional groups. Consequently, a plethora of studies have synthesized these compounds as target structures and evaluated their biological activities, encompassing anti-inflammatory, anti-malarial, anti-convulsant, anti-cancer, and anti-bacterial properties. Quinolines are a class of synthetic, widely acting antibacterial drugs. While derivative compounds function against germs by preventing bacterial DNA from unwinding and multiplying within bacterial cells, fluoroquinolones make up the majority of quinolones used in medicine. For the synthesis of quinoline and its derivatives by microwave-assisted, ultrasound-promoted, or heterogeneous acid-catalyzed methods, numerous techniques have been developed periodically because of their wide range of pharmacological activities and their use as ligands in various biologically-modeled transition metal complexes. Others, in situations without solvents or UV light. Here, we have listed the majority of these methods that have been documented in the literature. This review will be very helpful to the researcher working on this area. Additionally, it would help them come up with a novel, economical, and successful solution.

INVESTIGATION OF NOVEL SYNTHESISED PYRAZOLE DERIVATIVES

KONDA PRANEETH ASSISTANT PROFESSOR OF THE MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

The key components of heterocyclic compounds are pyrazoles, a five-membered ring structure. Antimicrobial, analgesic, antitubercular, anticancer, anti-inflammatory, antidepressant, anticonvulsant, ant hyperglycemic, antipyretic, antihelmintic, antioxidant, and herbicidal qualities have all been reported for pyrazole analogues. The synthesis and manufacture of substituted pyrazoles have been accomplished by a variety of techniques, including the reaction of hydrazine with 1,3-diketones, the 1,3-dipolar cycloaddition of diazole compounds with alkynes, and the reaction of hydrazine with -unsaturated aldehydes and ketones. A simple and practical method of creating substituted pyrazolines has been devised, which involves reacting aromatic aldehyde phenyl hydrazones with 4-methoxy cinnamonitrile while Chloramine-T is present. A protocol for the synthesis of glucosyl pyrazole derivatives was developed using D-glucose as the starting material. The suggested solvent-free, microwave-mediated techniques produced good reaction rates and yields, suggesting that these steps can be considered as straightforward, effective, and environmentally friendly synthetic methods to produce pyrazole derivatives. In contrast to the traditional method, this one offers a productive means of producing sugar-heterocyclic derivatives without the need for extremely hazardous materials. The EATOS programme attests to this, particularly in relation to the novel "one-pot" technique.

INSULIN AS A FIRST DRUG FOR DIABETES TREATMENT

RAJEEV KOTLA ASSISTANT PROFESSOR AT
MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

The metabolic conditions hyperglycemia, glycosuria, and hyperlipidemia are signs of diabetes mellitus. India is currently regarded as the global hub for diabetes. In India, there are currently 3.5 crore diabetics, and by 2025, that number is predicted to rise to 5.2 crore. Diabetes mellitus comes in two main forms: IDDM and NIDDM. One hormone is insulin. Insulin is a protein, just like many other hormones. Islet cells are a type of group of cells that produce insulin from the pancreas. Insulin's discovery is rightfully credited to Banting and Best. It consists of 51 double-chained amino acids. There are 21 amino acids in Chain A and 30 in Chain B. Insulin glargine, insulin detemir, short-acting (normal insulin), long-acting (ultralente insulin), and rapid-acting (aspart or Lispro) are the more often used forms of the drug. Pens, jet injectors, syringes, and insulin infusion pumps are the current insulin delivery devices available for insulin administration. The most widely utilized and cost-effective delivery method is the insulin syringe. Continuous subcutaneous insulin infusion therapy is another name for insulin pumps. A jet injector is a kind of medical injectable syringe that penetrates the epidermis using a high-pressure, narrow jet of injection liquid rather than a hypodermic needle. Pen is a prefilled, reusable tool. There are numerous insulin delivery devices under development. This review aims to provide additional light on insulin's role as a leading medication for the treatment of diabetes, both historically and currently.

NEW SUBSTITUTED ALDEHYDEDERIVATIVES' SYNTHESIS

MUDAVATH RAMESH NAYAK ASSISTANT PROFFESOR AT
MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

The purpose of this study is to demonstrate that benzimidazole is a good bioactive molecule and that, as a result, it is worthwhile to synthesis some novel derivatives of benzimidazole to improve anti-microbial activity by preventing the manufacture of proteins and nucleic acids in bacteria. The structural resemblance of benzimidazole to purines accounts for this capacity. The exceptional biological features of the benzimidazole moiety, including their antibacterial, anti-inflammatory, antitubercular, anthelmintic, and antitumor actions, have garnered significant interest in recent times. In this study, O-phenylenediamine, benzaldehyde, ammonium chloride, ethyacetate, hexane, ethanol, and silica gel-254 are the chemicals used. A benzimidazole is an important class of biologically active compounds, such as antimicrobial, antiviral, and anti-inflammatory agents. It contains nitrogen and is a heterocyclic important compound. O-phenylenediamine and benzaldehyde react in the proposed reaction scheme to produce two phenyl 1-H benzimidazoles. When 4-hydroxybenzaldehyde was purified using the TLC method in a solvent mixture of ethyacetate and hexane (1:2), the Rf value was determined to be 0.65. It is possible to synthesize and test a number of different derivatives of substituted benzimidazole for antimalarial activity. The same compounds may also be assessed for other purposes, such as anticonvulsant and antitubercular effects. drug design using a structural approach to maximize pharmacological characteristics.

GREEN BENZIMIDAZOLE SYNTHESIS

MUBEENA SALAAR ASSISTANT PROFESSOR
MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

The new and quickly developing branch of chemistry is called "green chemistry." It entails applying a set of guidelines that minimizes or completely eradicates the creation or use of hazardous materials in the development, production, and use of chemical products. Due to the broad range of biological activities of these compounds, a significant number of papers pertaining to the synthesis of heterocyclic compounds combining nitrogen, oxygen, and Sulphur have surfaced in recent decades. The synthesis of heterocyclic aromatic organic compounds, such as benzomidazole, has been the subject of numerous reports in recent years. These reports have covered a wide range of conditions, including solvent-free synthesis, reactants immobilized on solid support, microwave irradiation, and the use of green catalysts and solvents. In medicinal chemistry, it is a privileged structure and an important pharmacophore. It has many sensible therapeutic properties, including anti-inflammatory, antiviral, antifungal, anticancer, and antihistaminic properties. It also plays a significant part in these processes. Because of its significance, synthetic organic chemists are now concentrating on the processes involved in their synthesis. As a result, I attempted to gather the chemistry of several derivatives of substituted benzimidazole as well as several significant synthesis techniques in the current review. In contrast to more cost-effective and environmentally acceptable green technologies, conventional synthetic reaction methods require lengthy heating times and complex, time-consuming apparatus setups.

CLOVE PHYTOCHEMICAL STUDIES

ASSISTANT PROFESSOR PEESAY PARIMALA OF
MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

The current study's objectives were to examine the antibacterial activity of cardamom and clove bud oils and look into phytochemical screening.

The clove bud was separated using dichloromethane after being extracted one at a time using steam distillation. Alkaloids, glycosides, steroids, carbohydrates, terpenoids, tannins, and phenolic compounds were found, according to the phytochemical examination.

Eleven fractions were obtained and labelled as f1, f2, f3 to f11. The dichloromethane extract was chromatographed over silica Gel (60-120) and eluted with pure toluene, toluene: Dichloromethane (9:1), toluene: Dichloromethane (8:2), and toluene: Dichloromethane (7:3). The fraction was monitored by T.L.C. similar fractions were combined and concentrated. Petroleum ether was used to extract the cardamom fruit one at a time. Alkaloids, glycosides, steroids, protein, carbohydrates, terpenoids, tannins, and phenolic compounds were found, according to the phytochemical examination. A silica gel (60–120) was used to chromatograph the petroleum ether extract. Pure benzene, benzene: chloroform (9:1), benzoene: chloroform (8:2), benzoene: chloroform (7:3), benzoene: chloroform (6:4), benzoene: chloroform (5:5), benzoene: chloroform (4:6), and pure chloroform were used to elute the mixture. T.L.C. monitored the fractions, and comparable fractions were mixed and concentrated.

Fourteen fractions, designated as fcd1, fcd2,... fcd14, were extracted. The disc diffusion method was utilized to assess the antimicrobial activity against Pseudomonas, Escherichia coli, and Staphylococcus aureus (+ve).

Pseudomonas aerugenosa (-ve) bacterium, and it was discovered that cardamom and clove extract both had comparable levels of activity, with cardamom being more active for

E. less than extracts from cloves.

MOLECULAR DOCKING STUDIES, PHARMACOLOGICAL EVALUATION, AND SYNTHESIS OF 1-ACETYL 5-SUBSTITUTED PHENYL-3-AMINO PHENYL-2 PHTHALAZOLINES

ASSISTANT PROFESSOR MUHAMMAD TABISU TANVEER HAYTH

MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

In the process of finding new drugs, the five-membered heteorocyclic group of pyrazoles and pyrazolines is crucial. Phosphorylamides (pyrazoles and pyrazolines) have diverse biological actions. By condensing the proper substituted aldehydes and aceto phenones, appropriate chalcones, and hydrazine hydrate in 100% ethanol with drops of glacial acetic acid, the pyrazoles/pyrazolines derivatives were synthesized. The compounds were produced in good yields (68.99%), and elemental analysis, IR, Hl-NMR, and C13-NMR were used to confirm the compounds' structure. Research and reports on molecular docking studies were done for pyrazoline derivatives.

Molecular docking experiments have no negative environmental effects and speed up and lower the cost of the drug discovery process. Recently, pyrazoles have been the focus of many diverse approaches, primarily because they are commonly used as scaffolds in the synthesis of bioactive chemicals and reactions in various media. An attempt is made to present current advancements in synthetic techniques and biological activities related to these types of chemicals in this review. It was talked about how the pyrazolin analogues' recent chemical and biological uses

A STUDY USING SEED METHONALIC EXTRACT COMBINATION TO INVESTIGATE THE PHYTOCHEMICAL AND ANTIMICROBIAL ACTIVITY OF ECLIPTA ALBA (LEAF) SOLANUM ZANTHOCARBUM

ASSOCIATE PROFESSOR MALOTH RAVIAT MOONRAY INSTITUTE OF PHARMACY

ABSTRACT:

The purpose of this work is to investigate Eclipta alba's phytochemical and antibacterial properties.
Supplies and Procedures:
Eclipta Alba L. flavonoids, both free and bound, have antimicrobial properties. was ascertained by the disc diffusion assay against four fungus (Aspergillus flavus, Aspergillus niger, Trichophyton mentagrophytes, and Candida albicans) and four bacteria (Escherichia coli, Pseudomonas aeruginosa, Proteus mirabilis, and Staphylococcus aureus).
While the minimum bactericidal/fungicidal concentration was ascertained by subculturing the pertinent samples, the minimum inhibitory concentration (MIC) of the extract was assessed using the micro broth dilution method. The extracts' total activity (TA) against every susceptible pathogen was also assessed.
Findings: Among fungi, A. flavus, A. niger, together with T. It was discovered that mentagrophytes were resistant, and none of the tested extracts had any effect on them. The root's bound flavonoid extract had the strongest effect against C. albicans (minimum fungicidal concentration (MFC) 0.039, inhibition zone (IZ) 27.66, and MIC 0.039). It was discovered that the TA of the root's free flavonoid extract for S. and P. mirabilis was the same. aureus (192.30 ml/g). Two flavonoids quercetin and kaempferol were found in the bound flavonoids of stem extract which demonstrated action against all the bacteria.
Conclusion: Results of the present analysis reveal that Eclipta Alba has good antibacterial activity with low range of MIC, hence can be used for future plant- based antimicrobial medicines.

DEVELOPMENT AND STANDARDIZATION OF POLY HERBAL OIL AND CLINICAL SIGNIFICANCE OF ITS HAIR GROWTH STIMULATION

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ABSTRACT:

Background: Oil formulation is a one of the topical formulations and it gives better absorption on the skin and less adverse effect comparable to other formulation. When the plant formulated a soil it enables higher absorption via skin and gives optimum therapeutic. Their view of Murray akoenigii, Phyllanthus emblica, Azadira chtaindica, and Mentha spicata plants indicates good medicinal value. All the plants provide hair growth activity. Among topical formulation, the oil formulation is more suitable for topical application and produce cooling effects.

Aim & objectives: To develop and standardization of Poly Herbal Oil and clinical evaluation of its hair growth stimulation.

Materials and methods: The Phytochemical investigation of a plant involves authentication and extraction of plant material; qualitative and quantitative evaluations; separation and parallel to this may be the assessment of pharmacological activity.

Results and discussion: Preliminary phytochemical screening was carried out for all the plants and its extracts to determine the presence of active principle in plants. Fluorescence analysis was carried out to detect the presence of chromophore present in the powder and extracts. Qualitative estimation of total flavonoid contend and total Phenolic content were determined by spectro photometrically all the extract showed significant amount of flavonoid and phenolic compounds.

Conclusion: It is concluded that the prepared poly herbal oil containing Murrayakoenigi.i, Phyllathusemblica, Azadirachtaindica and Menthaspicata proved hair growth activity.

SYNTHESIS CHARACTERIZATION AND ANTI MICROBIAL SCREENING OF 1,3,4-THIADAZOLE PHENOL DERIVATIVES

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ABSTRACT:

Objectives: Pathogenic microbes are causal agents for various types of severe and even lethal infectious diseases. Despite of development in medication, bacterial and fungal infections still persist to be a vital problem in health care. Bacteria and several fungal species have shown resistance to antibiotics used in treatment to current medications. Therefore, it is a considerable field of interest in the design and development of novel compounds with antimicrobial activity.

Methods: The compounds bearing a heterocyclic ring play an imperative role among other organic compounds with pharmacological activity used as drugs in human for control and cure of various infections. Thiadiazoles containing nitrogen–sulfur atom as part of their cyclic structure which shown wide-ranging application as structural units of biologically active molecules and are very useful intermediates in Medicinal Chemistry.

Results: The effectiveness of the thiadiazole nucleus was established by the drugs currently used for the treatment of various infections. 1,3,4-Thiadiazoles and some of their derivatives are widely studied because of their broad spectrum of pharmacological activities.

Conclusion: In the present work, a series of 1,3,4-Thiadiazole derivatives were synthesized by cyclization of a group of various benzaldehyde with thiosemicarbazide in the presence of various reagent like FeCl3, HCHO by losing a molecule of water. These derivatives were found to possess prominent antimicrobial activity.

DESIGN, SYNTHESIS AND INVITRO ANTI MICROBIAL ACTIVITY OF BENZIMIDAZOLE DERIVATIVES.

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ABSTRACT:

Benzimidazoles possess one of the most, useful biological activities. Benzimidazoles are utilized in many therapeutic applications such as anti-inflammatory, anti-anxiety and anti-microbial compounds. We have developed a simple methodology for the preparation of substituted Benzimidazoles derivatives (HW1 –HW7). The direct condensation of 0- phenylenediamine (1 mole) and appropriates aliphatic aromatic carboxylic acid (1 mmol) gave the required 2-substituted 1H Benzimidazoles (HW1 –HW7) in 60 to 85% yields. All the synthesized compounds were characterized by using spectral techniques such as IR HNMR13CNMR and MS. The advantages of this method are extremely mild technique and compliance with green chemistry protocols.

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