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OMEGA COLLEGE OF PHARMACY

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A NEW NIOSOME-BASED DRUG DELIVERY SYSTEM

Dr. A.V. Jithan, Principal/Professor, Omega College of Pharmacy

Abstract:

During hydration, non-ionic surfactants and cholesterol combine to produce vesicles called niosomes. Drugs that are both lipophilic and amphiphilic can be transported using it. Niosome-based drug delivery uses vesicles that hold the medication. Niosomes are biocompatible, biodegradable, non-immunogenic, and have a flexible structural characterisation. This research project's main objective is to treat several illnesses using niosome technology. Niosomes are beneficial to the pharmaceutical and research fields and present exciting research opportunities. Over liposomes, niosomes seem to be the preferred drug delivery route because of its stability and price. Additionally, they present a great opportunity for the targeted delivery of anti-infective and anti-cancer medications. The drug delivery potential of niosomes can be enhanced by applying state-of-the-art drug delivery theories such as aspasomes, discomes, and periosomes. Additionally, niosomes are more effective when used as a vaccination adjuvant and to aid in diagnostic imaging. The treatment of vaccinations and infectious diseases has drastically changed in the last few years. Aside from the fact that numerous biologicals specifically designed to treat particular diseases have been created, there has also been a focus on the most effective ways to deliver these biologicals. A novel class of vesicular structures that is still in development are called niosomes. Niosomes are artificial surfactants and cholesterol-based self-assembling vesicles. The use of niosomes as drug carriers has been extensively researched. A range of medications are tested and recruited using niosome surfactant vesicles. Niosomes have demonstrated themselves to be a promising drug carrier with the ability to improve therapeutic efficacy in a variety of conditions and lessen negative effects from medications. Therefore, additional study and research are needed in these areas to create or develop niosomal preparation that can be sold commercially.

DIAGNOMS AND BIOGENETICS

Dr.S. Venkata Ramana Reddy, Associate Professor, Omega College of Pharmacy

Abstract:

The fundamental subject of pharmacogenetics and pharmacogenomics is the study of genetic differences in drug responsiveness, a phenotype that can range from potentially lethal adverse drug reactions to an equally catastrophic lack of therapeutic efficacy. This discipline was formed by the remarkable developments in both genomes and molecular pharmacology. Primarily, pharmacogenetic studies focused on monogenic characteristics, often involving genetic differences in drug metabolism. However, in contemporary research, complete "pathways" encoding proteins that influence pharmacokinetics—the factors that dictate how much of a medication reaches its target or targets—and pharmacodynamics—the target of the drug itself—as well as genome-wide methodologies, are being used. Furthermore, pharmacogenomics is passing the "translational interface" and making its way into the clinic, becoming more and more incorporated into the regulatory framework and the drug development process. In order to reach its full potential as a significant medical use of genomic technology, pharmacogenomics would need to get beyond a number of important roadblocks. The recent years have seen a sharp slowdown in the approval of new medications. To expedite the creation of novel compounds, innovative approaches to drug development are required. Translational medicine/research, a novel area at the nexus of basic science and medicine, may hasten and enhance the effectiveness of the drug development process by utilizing pharmacogenetics and pharmacogenomics. Consequently, by applying these strategies to the medication development process, patient subgroups that exhibit improved treatment responses and/or a betterA benefit-risk profile is available. Furthermore, pharmacogenomics is passing through the "translational interface" and into the clinic, becoming more and more incorporated into the regulatory framework and the drug development process. Pharmacogenomics would need to get beyond a number of fundamental obstacles before it could fully reach its potential as a significant medicinal use of genomic technology. The recent years have seen a sharp slowdown in the approval of new medications. To expedite the development of novel compounds, innovative approaches to drug development are required. Translational medicine/research, a novel area at the nexus of basic science and medicine, may hasten and

enhance the effectiveness of the drug development process by utilizing pharmacogenetics and pharmacogenomics. Consequently, by applying these methods during the medication development process, patient subgroups that exhibit improved treatment responses and a better benefit-risk profile may be found.

DIABETES SINCE COVID-19

Dr. V Rama Ramesh, Professor, Omega College of Pharmacy

Abstract:

At the moment, a novel coronavirus known as coronavirus disease 2019 (COVID-19) or severe acute respiratory syndrome coronavirus 2 (SARS-CoV2) is causing significant morbidity and mortality on a global pandemic scale. Diabetes patients are more susceptible to this virus and are more likely to have major adverse effects. We provide our analysis of the early results observed in diabetic hospital patients, while additional data is still being gathered. We also discuss the potential role of these patients' proinflammatory metabolic states in the viral inflammatory surge that results in severe insulin resistance and severe hyperglycemia. Their rapidly developing renal failure, hypotension, use of pressors and steroids, and uneven nutritional assistance further complicate their treatment. Consequently, it might have a big influence. Promptly implementing glycemic management strategies that suit these complex situations may therefore have a major influence on morbidity and mortality. Additionally, trends in inflammatory biomarkers associated to COVID-19 should be monitored, and healthcare providers' exposure should be considered. Diabetes raises the risk of developing several infections. These diabetes patients may therefore have a poorer prognosis and be more vulnerable to COVID-19. Critical role in the pathogenesis is not well known at this time. This inquiry focuses on the clinical features of COVID-19 patients with diabetes and secondary hyperglycemia in addition to investigating the suggested processes. Eighty confirmed instances of COVID-19 were divided into three groups: those with secondary hyperglycemia, those with diabetes, and those with euglycemia. The SARS-CoV-2 diagnostic and treatment recommendations provided by the Chinese National Health Committee 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.4

VETERINARY DRUG DELIVERY SYSTEM EXAMINATION

Dr. Kappala Ramesh, Professor, Omega College of Pharmacy

Abstract:

The interspecies heterogeneity of animal anatomy, physiology, pharmacokinetics, and pharmacodynamics poses a challenge to the effectiveness of veterinary pharmacotherapy, given the limited number of drugs and dosage forms that are exclusive to this market. As a result, although if this field's research is still modest in comparison to that on drug use in humans, it has become more well-known. Drug delivery methods based on polymers have a lot of potential to address a number of issues related to the bioavailability, safety, and efficacy of medication in animals, including pets and cattle. These techniques need to guarantee enhanced selectivity and decreased dosage form toxicity. Moreover, the considerable interspecies variance could be considered when designing these instruments. In an attempt to contribute to these conversations, this paper gives an updated assessment of the primary polymer-based drug delivery methods expected to find use in veterinary medicine. Both traditional and innovative polymer-based drug delivery systems are covered, with an emphasis on films, microparticles, micelles, nanogels, tablets, implants, and hydrogel-based drug delivery systems. We go over important concepts regarding drug release mechanisms for veterinary professionals and the advantages chemists have when creating pharmaceutical formulations especially for the animal population. Finally, prospects and issues in the field of pharmaceutical dosage forms for veterinary use are examined in response to the interests of the pharmaceutical industry.

The contribution of function-enabled gum to the solid dispersion of an antibacterial drug

Dr. J.Vidya Sagar, Professor, Omega College of Pharmacy

Abstract:

A number of drugs that are poorly soluble in water can be made more bioavailable by using solid dispersions, which have attracted a lot of interest as an effective method of accelerating the rate of dissolution. These problems have become less common, and solid dispersions with water-soluble carriers have improved the dissolution of drugs that are poorly soluble in water. A solid dispersion affects the drug-polymer interaction and performance since it is effectively a two-component drug-polymer system. Numerous techniques have been developed to increase the solubility of various drug kinds, as one of their primary issues is their poor solubility in water. The solubility behavior of medications is one of the most challenging variables for formulation development. Numerous techniques have been developed to increase the solubility of various drug kinds, as one of their primary issues is their poor solubility in water. The solubility behavior of medications is one of the most challenging variables for formulation development. Solid dispersions represent one of the most promising approaches to improving the oral bioavailability of poorly water-soluble medicines. It is possible to significantly increase medication bioavailability by significantly reducing drug particle size, increasing drug surface area, and improving drug wettability. To make solid dispersions, a drug with low aqueous solubility is usually mixed with a hydrophilic carrier that dissolves in water. This project endeavor includes some of the most recent technical transfers and reviews the many ways to prepare for solid dispersion. The different solid dispersions based on molecular organization are highlighted. A number of useful factors for the production of solid dispersions are covered, such as carrier selection and physicochemical characterization methods, in addition to an understanding of the molecular organization of pharmaceuticals in solid dispersions. Lastly, a comprehensive defense of the limited commercialization of solid dispersions and their recent comeback has been looked at. The advantages, disadvantages, and methods for preparing and characterizing the solid dispersion are the primary areas of focus for this project.

A SECTION OF NANOCRYSTALS AND NANOSUSPENSION IN THE DRUG DELIVERY SYSTEM

Dr. Hanwathe Parameshwar, Professor, Omega College of Pharmacy

Abstract:

Rapid advancements in the field of drug research are producing several exciting new therapeutic candidates with remarkable efficacy but limited water solubility. Nanosuspension can address a wide range of formulation and drug delivery difficulties often associated with poorly soluble medicines in lipids and water because of its distinct physicochemical properties and submicron particle size. Poor solvency is an issue for about 40% of newly approved medications, and 70% of compounds in the discovery pipeline are almost insoluble in water. As the literature has shown, nanocrystals offer a clear solution for improving the bioavailability of many drugs and resolving the issue of low fluid solubility.

The reduction of particle size in a volatile nanocrystalline system is the reason behind Ostwald ripening. These techniques open the door to the creation of nanoscale devices that can carry out a wide range of technological tasks. Enhanced oral bioavailability, improved dose proportionality, reduced food effects, compatibility for administration via various routes, and greater possibility of sterile filtration due to reduced particle size range are only a few noteworthy benefits of nanocrystal formulations. The wide range of applications for nanocrystals, such as targeted administration (especially for brain and malignancies), pulmonary, transdermal, ophthalmic, and intravenous distribution, makes them one of the most appropriate materials. Growing attention is being paid to the growing market share of nanocrystal products as well as their rising economic value as possible means of achieving commercial advantages. The goal of the current endeavor is to offer a clear and simple review of nanosuspensions, highlighting their benefits, main uses, and preparation methods.

Interventions using STEM-Cells

Dr. Ramesh M, Professor,

Abstract:

Human pluripotent stem cells (hPSCs) and multipotent mesenchymal stem cells (MSCs) are two types of stem cell-based therapies that have experienced a recent upsurge in use in regenerative medicine. Capable of differentiating into several cellular phenotypes inside the human body, including the three germ layers, human pluripotent stem cells (hPSCs) possess this ability. Multipotent progenitor cells that can develop into mesenchymal lineages and have limited in vitro self-renewal capabilities are what the International Society for Cell and Gene Therapy (ISCT) refers to as MSCs. hPSCs or MSCs from bone marrow (BM), adipose tissue (AT), or the umbilical cord (UC) are being used in clinical applications right now to treat human diseases like respiratory conditions, skin burns, neurological disorders,

This review includes information on cardiovascular diseases, lung dysfunctions, and metabolic/endocrine-related illnesses. We also propose and discuss the MSC tissue origin idea and how MSC origin may contribute to the role of MSCs in downstream applications, all with the ultimate goal of supporting the translation of research in regenerative medicine into clinical applications. Lastly, we talk about our individual experiences participating in clinical trials for targeted treatments utilizing MSCs. The explanations covered here support the hypothesis that BM-MSCs could be useful in treating brain and spinal cord injuries, AT-MSCs in treating reproductive disorders and skin regeneration, and UC-MSCs in treating pulmonary disease and acute respiratory distress syndrome.

ADVANCED METHODS FOR VERIFIED SPECTROPHOTOMETRIC ACYCLOVIR DETERMINATION

A. Ashish Reddy, Assistant Professor, Omega College of Pharmacy

Abstract:

A derivative spectrophotometric method was verified to measure acyclovir in poly (n-butyl cyanoacrylate) (PBCA) nanoparticles. Limits for specificity, linearity, precision, accuracy, recovery, detection (LOD), and quantification (LOQ) were established in order to validate the method. The first derivative showed linearity for acyclovir dosages ranging from 5 to 30.0 µg/mL (r = 0.9982) at 252 nm by eliminating interferences from the nanoparticle components. Exact and precise data demonstrated good reproducibility. The recovery ranged from 99.1 to 100.01. As a result, the recommended method proved to be a cost-effective, precise, and user-friendly alternative for determining the amount of acyclovir in nanoparticles. In derivative spectroscopy, the first or higher derivatives of absorbance with respect to wavelength are utilized for quantitative as well as qualitative analysis. An extremely important analytical method for extracting mutually qualitative and quantitative information from spectra of unresolved bands is derivative UV spectrophotometry. When spectral data derivatization was first proposed in the 1950s, it was discovered to have many advantages. However, the technique received little attention due to the challenge of generating derivative spectra using early UV-visible spectrophotometers. With the introduction of microcomputers in the late 1970s, it became widely possible to use mathematical techniques to build derivative spectra quickly, easily, and reliably. As a result, the derivative technique was applied much more frequently. In this application note, we give a brief introduction to the concepts and generation techniques of derivative spectroscopy. We make advantage of instances produced by the computer to showcase the functions and uses.

A POST-COVID DIAGNOSIS SYNOPSIS

A.Madhava Reddy,

Abstract:

The world is currently experiencing the third year of the COVID-19 pandemic's extensive effects. The SARS CoV 2 virus has a high rate of transmission, varied symptoms, and a high rate of morbidity and death in individuals with predisposing risk features. The pathophysiologic mechanisms are increased systemic inflammation, cardiometabolic abnormalities, and varying degrees of glucose intolerance. The latter could show up as extremely high blood sugar, which could exacerbate pre-existing illnesses or lead to the establishment of diabetes. Unfortunately, the disease may still be exhibiting symptoms long after the acute phase has passed. These symptoms are referred to as "Long COVID" or "Post-COVID Syndrome." This phase, which can last for weeks or months, is thought to be the continuation of a low-grade, chronic inflammatory and immunologic disease. The prognosis, course, and therapy of COVID-associated hyperglycemia and diabetes remain uncertain despite a significant deal of research having been gained in this area.

Evaluation of the preliminary physical chemistry and the antimicrobial activity of the Carica papaya leaf and seed extract

Aksha Kumari Nagunoori,

Abstract:

After harvesting, the Carica papaya plant's leaves, fruit, and seeds were let to dry in a dark place before being ground into a powder using an electric blender. Plant powders were extracted one at a time using a Soxhlet extractor loaded with distilled water, acetone, chloroform, and ethanal. Every extract underwent a comprehensive phytochemical screening procedure to ensure the presence of phytochemical ingredients. Alkaloids, flavonoids, steroids, protein, carbohydrates, vitamin C, tannin, and saponin are all indicated by this. Using the well diffusion method, the antibacterial properties of all the extracts were determined. This finding showed that ethanol extracts had the highest level of activity overall in every plant material and the papaya leaf from Carica shown a significant amount of inhibitory activity against every test pathogen.

Analyzing the biochemical parameters and anti-diabetic activity of the entire plant of Murraya koenigii in rats with diabetes

Akula Ramesh, Associate Professor,

Abstract:

In albino rats with diabetes brought on by alloxan, the current study set out to evaluate the histological markers and antidiabetic activity of Murray a Koenigii. The 200–250 gramme experimental rats were given alloxan (120 mg/kg body weight) once to induce diabetes. Oral Murraya leaf chloroform extracts (250 and 500 mg/kg body weight) caused a considerable reduction in liver enzyme activity and blood glucose levels (from 296.62±20.12 to 80.22 ± 03.63) after 30 days of administration. To investigate the histology of Murraya, samples of the pancreas, spleen, liver, and kidney tissues from diabetic and normal rats were taken and stained. Koenigii in Alloxan-produced albino rats. The beta-cells of the control islets exhibited a noteworthy degree of antigenicity, as per the findings. The group that was induced with diabetes displayed necrotic and degenerative changes along with diminishing tissues in the islets of Langerhans. The bulk of the cells are protected against light-induced degeneration when exposed to 25 and 50 ml/kg/bw of Murraya, and the beta-cells in the islets of Langerhans in the pancreatic tissue were shown to have mild antigenicity. When rats with diabetes were given murraya (25 ml/kg/bw), their spleen histology improved; rats given 50 ml/kg/bw showed outcomes similar to those of non-diabetic controls. The outcomes of an experimental model of diabetes mellitus not only showed that Murraya extracts had a potent anti-hyperglycemic effect, but they also suggested that the extracts' effectiveness varied with dosage.

TRIGONELLA FOENUM-GRAECUM-HERBAL SHAMPOO CONTAINED: APPLICATION AND ASSESSMENT

Ananthula Santhosh Reddy,

Abstract:

Dandruff on your hair can cause major emotional disruption even though it's not a life-threatening ailment. The last thing you want is to have flaky, white dandruff powder all over your shoulders and feel self-conscious. The term "dandruff" describes a mild form of seborrheic dermatitis, an inflammatory condition characterized by an abnormally high rate of flaking and shedding of dead scalp cells. Natural herbs, such "Fenugreek," work well to treat dandruff. An plant found naturally called Trigonella foenum-graecum helps to kill a specific type of fungus. Malassezia furfur and bacteria, such as Staphylococcus, are the culprits behind dandruff. Fenugreek has a substantial amount of lecithin, a naturally occurring emollient that offers hair strength, as confirmed by numerous scientists.

A study found that fenugreek germinated seed extract had better anti-fungal activity in preventing the growth of the fungus that causes dandruff at a dosage of 0.35g/ml (one milliliter of extract plus three milliliters of water, 1:4). concluding that the proliferation of bacteria was effectively prevented by fenugreek seed extract. Hence, anti-dandruff shampoo containing Trigonella foenum-graecum L. It has been found that treating dandruff using seed extract is effective.

ANTI-INFLAMMATORY ACTIVITY SYNTHESIS IN VITRO, MOLECULAR RESEARCH, AND SOME NEW 2-SUBSTITUTED BENZIMIDAZOLE DERIVATIVES

Ashok Baelde, Associate Professor

ABSTRACT: Using in silico, a series of benzimidazole derivatives, HW1–HW7, were synthesized for this work, and their anti-inflammatory characteristics were investigated in vitro. The produced compounds all shown moderate to good anti-inflammatory activity in an in vitro and an in silico assay, respectively. Diclofenac sodium is used as the reference material for comparison in both in vitro and in silico investigations. Compounds HW6 and HW5 were demonstrated to provide very good anti-inflammatory effect (1.0 µg/ml and 1.2 µg/ml) when compared to diclofenac sodium (0.5 µg/ml). In a similar in silico study, compound HW5 shows a maximum binding energy of - 10.36 kcal/mol.

Evaluating the anti-obesity characteristics of the extract derived from the terminalia chebula fruits of rats with elevated fat intake

Bathula Venkatesham, Assistant Professor, Omega College of Pharmacy

Abstract:

This study examined the possibility of Terminalia bellerica to prevent obesity and hyperlipidemia brought on by a diet high in fat. Terminalia bellerica, often known as Baheda, has traditionally been utilized for a number of illnesses in Indian medicine. It is a key component of herbal treatments for heart problems like triphala. An ethanolic extract of the fruit Terminalia bellerica was administered to P.O. at doses of 250 mg and 500 mg per kilogram of body weight. We tested the anti-hyperlipidemic impact for twenty days. The metrics utilized to evaluate anti-hyperlipidemic activity include biochemical estimations and physical measurements. The physical measurements comprised heart weight, basal metabolic index, liver weight, atherogenic index, and body-to-weight ratio as well as a comprehensive cardiac evaluation. For biochemical estimates, a number of cardiac enzymes, such as lactate dehydrogenase, and the lipid profile were examined. The results of this study show 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 in comparison to clinically used drugs, atorvastatin (10 mg/kg) and orlistat (pure drug, 10 mg/kg).

Examining an extract from Anacardium incidentalis leaves' anti-ulcer properties in albino rats

C.A. Sri Ranjani, Assistant Professor, Omega College of Pharmacy

Abstract:

Anacardium occidentale (AO) has been used in Ethiopian traditional medicine to treat peptic ulcer disease, however its efficacy has not been established. Therefore, evaluating the anti-ulcer qualities of AO's 80% methanol leaf extract in rats was the aim of the current study. Rats with stomach ulcers caused by ethanol and pylorus ligation were used to test the effects of AO extract. Single doses of 100, 200, and 400 mg/kg as well as recurring dosages of 200 mg/kg for 10 and 20 days were used. Typically, patients were prescribed 50 mg/kg of ranitidine and 100 mg/kg of sucralfate. The amount and pH of stomach contents, general acidity, ulcer score, percentage of ulcer inhibition, ulcer index, and percentage of ulcer inhibition. index was one of the result metrics that changed according to the model. Tukey's post hoc test and one-way analysis of variance were utilized to analyze the data, with $P<0.05$ being deemed statistically significant. At a dose of 400 mg/kg, which is comparable to conventional treatments, AO significantly ($P<0.001$) reduced stomach ulcer index in models of pylorus ligation-induced ulcers as well as ethanol-induced ulcers by 55.82% and 62.11%, respectively. Ten and twenty days prior to treatment with AO 200, there was significant ($P<0.001$) suppression of ulcer formation 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. AO shows an anti-ulcer action that is both time- and dose-dependent in the two models. There were discovered secondary metabolites include flavonoids, tannins, and saponins. , and the estimated oral median lethal dose (LD50) of the crude hydroalcoholic extract is higher than 2000 mg/kg. The investigation's findings showed that one or more of AO's secondary metabolites are responsible for the drug's anti-ulcer pharmacologic activity. Therefore, the use of it as an anti-ulcer in Ethiopian traditional medicine is supported by this inquiry. Further investigation is required to identify specific phytochemicals and elucidate their mechanisms of action.

Analyzing the fraction of anti-oxidant properties in Azadirachta India STEM Bark and the anti-cancer potential of methyl extract

Ch. Sai Tharun, Assistant Professor, Omega College of Pharmacy

Abstract:

Bark extracts from four different trees (Azadirachta indica, Terminalia arjuna, Acacia nilotica, and Eugenia jambolana Lam.) were evaluated for total phenolic (TP), total flavonoid (TF), and antioxidant activity in three different solvents (80% methanol, 80% ethanol, and 80% acetone; solvent: water, 80:20 v/v). The 2,2′-diphenyl-1-picrylhydrazyl radical (DPPH) scavenging activity was used to quantify antioxidant activity (AA), and the linoleic acid system was employed to decrease peroxidation. Significant differences were observed in the TP, TF, prevention of linoleic acid oxidation, and DPPH· scavenging activity of several bark extracts ($P < 0.05$). Nonetheless, there was a small variation in the power decrease. The total amounts of flavonoids, 1.59–4.93 catechin

It was discovered that there were significant differences in the total phenolic contents (7.8–16.5 gallic acid equivalents) and overall flavonoid concentrations (1.59–4.93 catechin equivalents) among all bark extracts. The range of the reduction power at 10 mg/mL extract concentration was 1.34 to 1.87. Different bark extracts reduced the oxidation of linoleic acid by 44–90%, although their ability to scavenge DPPH radicals varied from 49% to 87%. Ethanol, methanol, and acetone were the components with the lowest extraction efficacy in that order of their antioxidant capacity. There was a significant correlation between the extracts' TP and DPPH scavenging abilities. A. The highest TP levels were found in the bark of nilotica, which ranged from 9.2 to 16.5 g/100 g. On the other hand, the highest AA was found in the bark of E, as shown by the inhibition of linoleic acid oxidation. jambolana Lam. The same tree had the highest DPPH scavenging activity and the lowest power. While there was a strong correlation between the results of multiple antioxidant assays, different methods may be needed to adequately assess the in vitro antioxidant activity of a given plant material.

aggregation and evaluation of buccal patches, encompassing metaprolol tartrate

Ch. Suman, Assistant Professor, Omega College of Pharmacy

Abstract:

The goal of the study was to use a range of mucoadhesive polymers, such as a combination of carbopol 934, sodium alginate, and HPMC K4M, to construct and characterize metoprolol tartrate buccoadhesive tablets. Ten formulations with various polymer concentrations were made, each containing a mixture of two polymers. Formulations F1 through F5 included sodium alginate and HPMC K4M combination, with drug:polmer mixture ratios varying from 1:0.75 to 1:1.75. In contrast, the identical percentages of Carbopol 934 and HPMC K4M mixture were blended in formulations F6 through F10. The manufactured tablets' physical and chemical properties, such as their hardness, thickness homogeneity, weight variation, surface pH, length of in vivo residence, and moisture content, were evaluated studies on absorption. The generated tablets' bio adhesive strength and in vitro drug release were also evaluated. Based on research conducted on the efficacy of in vitro bioadhesive and in vitro drug release, formulation F8, which exhibited the best bio adhesive and drug release (77.33±0.23), had a drug and polymer combination ratio of 1:1.25. The FTIR studies showed no evidence of interaction between the polymers and medicine.

Herbal soap compilation and analysis, incorporating an extract of olive leaves

Dharani Priyanka B, Assistant Professor, Omega College of Pharmacy

Abstract:

The objective of the research was to evaluate the physiochemical properties of a herbal shampoo made using olive leaf extract. Even though olive leaf extract is offered commercially in Palestine, the underfunding of R&D departments in both the public and private sectors means that most of these products are duplicates of things created in industrialized nations. Moreover, there aren't much literature-based statistics on their stability at the moment. Olive leaf ethanolic extract, which was used to make the herbal shampoo, was standardized to contain oleeuropein, an antioxidant, anti-inflammatory, and hairprotective molecule. Various tests were conducted, such as visual inspection, pH, amount of active component, and foam ability. Furthermore, stability tests were conducted to determine the

herbal shampoo formulation's physiochemical properties. Three formulas (F1, F2, and F3) were developed having a 1.0% w/w olive leaf extract content in common. All of the ingredients used to make the shampoo were found to be safe, and the results of the physiochemical study were quite good. Stability tests over six months of storage at several temperatures (-4–8 oC, 40 oC, and room temperature) showed a stable uniform appearance.

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

Dr. Kappala Ramesh, Professor, Omega College of Pharmacy

Abstract:

Work is synthesized and characterized for practical applications, and lead is selected and optimized in synthetic organic chemistry. Many new thiazolidinedione compounds have been synthesized and produced with the use of a microwave. Utilizing insilico methods including QSAR analyses and molecular docking to explore their anti-diabetic characteristics, the synthesized compounds were assessed for their capacity to bind to the peroxisome proliferator-activated receptor (PPARγ). Compounds with a higher glide score than the industry standard (Pioglitazone) were synthesized using microwaves. Compounds were evaluated by means of FT Infrared spectroscopy, Proton NMR, C-13 NMR spectroscopic studies, and Lc-Ms. Keywords: Peroxisome proliferator-activated receptor (PPARγ), 2, 4-thiazolidinedione derivatives, pioglitazone, molecular docking, and anti-diabetic effect.

COMPOSITION AND ANALYZATION OF HERBAL SHAMPO, INCLUDING RAMBUTAN LEAF EXTRACT

Dr. Sravanthi CH, Assistant Professor, Omega College of Pharmacy

Abstract:

The rambutan (Nephelium lappaceum Linn.), which is widely spread throughout Malaysia, is a member of the Sapindaceae family. Many people report noticeable improvements in hair quality in as little as a few weeks when using rambutan leaves for hair care. However, there hasn't been any published research on the usage of rambutan leaf extract in herbal shampoo formulations. The current study set out to develop a herbal shampoo using rambutan leaf extract and evaluate its phytochemical properties. The herbal shampoo composition was enhanced with rambutan leaf methanolic extract. Various tests were conducted to determine the physicochemical properties of the herbal shampoo formulation. These testing included stability studies, visual inspection, pH, and proportion of solid materials and foam capacity. A blind test was administered to eleven people in order to evaluate their conditioning abilities. The majority of volunteers rated the shampooed hair (2.18 ± 0.40) after using a specially designed shampoo. The results categorically demonstrate that the formulation of the shampoo is offering a conditioning performance level that is adequate. Even if the shampoo's formulation's physicochemical study produced flawless results and all of the ingredients were safer, additional investigation is still required to improve the product's quality and identify the elements that give it its intended functionality.

UV Spectrophotometry in a Tablet for the Simultaneous Estimation and Validation of Artemether and Lumefantrine

Dravin Kaaniganti, Assistant Professor, Omega College of Pharmacy

Abstract:

The simultaneous determination of Artemether and Lumefantrine is now possible due to the advancement of a UV spectrophotometric method. The spectroscopic method for calculating lumefantrine and artemether involved the use of the area under the curve approach in combination with ethanol as the solvent. The absorbance maxima of Artemether and Lumefantrine are 253.2 nm and 235.2 nm, respectively. The concentration ranges for Artemether and Lumefantrine, which are 4.24 - 67.84 µg/ml and 4.68 - 28.08 µg/ml, respectively, comply with Beer's legislation. The results were validated in compliance with ICH guidelines, and the recovery studies assessed the accuracy of the planned methodology. Positive and repeatable results were discovered. In the absence of common excipients, the technique was effectively used to estimate the dosage of Artemether and Lumefantrine in tablet form.

In Indian tertiary care government settings, the retrospective study examines the factors that lead to the failure of first-line antiretroviral therapy (ART)

Dunthoju Sravani, Assistant Professor, Omega College of Pharmacy

Abstract:

Background: Human infections with the lentivirus HIV lead to a progressive deterioration of the immune system, which facilitates the spread of cancer and other potentially lethal opportunistic infections. Consequently, investigating the reasons behind first-line ART failure is essential.

Goals & Aspirations: Measure the CD4 count in people receiving first- and second-line ART to identify the factors—clinical, immunological, virological, and sociodemographic—that lead to first-line ART failure. to assess each patient's viral load following a failure of first-line antiretroviral therapy.

Methodology: A retrospective cohort observational analysis was performed to ascertain the reasons behind first-line ART failure. HIV patients who met the study's eligibility criteria provided their informed consent and were added once relevant data was collected using a form that had already been made.

Results: The majority of the controls in our study were in the 30- to 40-year-old age range. The distribution of males and females was the same in the controls and cases. There were more cases of widowed women. Compared to the controls, there were more illiterates among the patients. Compared to the control group, a greater number of children in the case group had HIV. There were more incidences in WHO stage-4 clinical staging as compared to controls. The rates of medication adherence, drug substitutions, side effects, LFUS, and hospitalizations were greater in the cases than in the controls. At the point of treatment failure, the patients' lipid profiles, RFTS, and LFTS were raised, and there was a prolonged delay of 60 minutes between the diagnosis and the initiation of ART. Cases had more severe opportunistic infections than controls.

DIPEPTIDYL PEPTIDASE-4 INHIBITORS: A MOLECULAR DOCKING EXAMINATION

Etikala Srikanth, Assistant Professor, Omega College of Pharmacy

Abstract:

Dipeptidyl peptidase (DPP)-IV inhibitors offer a unique treatment approach for type-2 diabetes.

DPP-IV is a member of the serine peptidase family, which also includes quiescent cell proline dipeptidase (QPP), DPP8, and DPP9. DPP-IV is mainly responsible for controlling incretin hormones; the functions of the other family members are not entirely understood. To determine the importance of specific DPP-IV inhibition for the treatment of diabetes, we ran molecular docking experiments on clinical inhibitors of DPP-IV.

Evaluating hand-by-hand the health-related life quality of hypertensive patients in Gautur District, South India's rural population

G. Deepthi, Assistant Professor, Omega College of Pharmacy

Abstract:

Context: Hypertension is a major cause of death and disability, and its prevalence is rising in developing countries. When high blood pressure is appropriately managed, the risk of cardiovascular disease and its related consequences—such as vascular disease and chronic kidney disease—is decreased. But when it comes to controlling hypertension, the biggest problem is medication adherence.
This study aims to assess the quality of life in individuals with hypertension.
Techniques: A prospective observational cohort research was conducted in a rural Guntur area for a period of six months. Three years' worth of hypertensive patients in total, either recently. Diagnosed or chronic patients were recruited. Blood pressure was measured with a sphygmomanometer, and other demographic information was obtained. Health-related quality of life was measured using the 36-item Short Form (SF-36), and corresponding scores were calculated.

Results: Based on the SF-36 questionnaire, physical health (49.4) was the most affected component among patients with hypertension, followed by vitality (61.75), emotional aspects (69.06), pain (67.3), and social functioning (78.54), which appeared to be the least affected. In conclusion, proper hypertension treatment and education are necessary to improve a patient's quality of life. Good adherence not only improves clinical outcomes but also dramatically raises quality of life and reduces medical costs related to hypertension problems and co-morbidities.

The need for innovation in pharmacy education in India: strategies for a better future

G. Swarajaya Laxmi, Assistant Professor, Omega College of Pharmacy

Abstract:

The Doctor of Pharmacy (PharmD; Neo-Latin Pharmaciae Doctor) is a highly esteemed doctoral degree in pharmacy. A first professional degree may be necessary in some countries in order to become a clinical drug expert or to receive a license to practice pharmacy. Clinical pharmacy is one of the most recent pharmacy subfields to arise in the twenty-first century. Because clinical pharmacists are becoming more and more involved in patient care, the area of clinical pharmacy must prepare its graduates for direct patient care. Due to India's increasing medical burden, which prevents doctors from providing the necessary treatment, PharmDs have the opportunity to broaden their clinical experience, which could improve society's overall health care. to handle standard patient care. To identify innovative research in the fields of pharmaceutical, social, and clinical sciences, PharmD students ought to receive training in producing, sharing, and utilizing novel insights. They have to receive training on working in conjunction with different medical specialists and enhancing the general public's and the world's health. This article focuses on the possibility for creative or inventive ecosystems and trademark organization in light of the constantly changing pharmaceutical sector's goal to become a global hub for the investigation and assembly of unique treatments. PharmD graduates with the required education and experience could greatly contribute to the expansion of clinical pharmacy in India.

VINPOCETINE AMOUNTS IN PURE AND PHARMACEUTICAL DOSAGE FORMS WERE ASSESSED USING THE TESTIMONIALS AND DEVELOPMENT OF THE RP-HPLC METHOD

Ganaga Sravani, Assistant Professor, Omega College of Pharmacy

Abstract:

A simple, precise, targeted, and accurate reversed phase high performance liquid chromatography (RP-HPLC) method was designed and validated in order to detect the contents of vinpocetine in pure and pharmaceutical dosage forms. The many aspects of analytical performance, such as linearity, accuracy, specificity, precision, and sensitivity (limit of detection and limit of quantitation), were defined in compliance with the International Conference on Harmonization's ICH Q2 (R1) criteria. Zorbax C18 (150 mm length × 4.6 mm ID, 5 μm) column was employed in RP-HPLC. The buffer, including acetonitrile in a 40:60 v/v ratio and 1.54% w/v ammonium acetate solution, was the mobile phase. At 1.0 mLmin−1, the flow rate was maintained constant. Vinpocetine was monitored using an Agilent 1200 series light diode array detector (λ = 280 nm). Linearity was seen in the concentration range of 160–240 μgmL−1, and a robust correlation coefficient (R2 = 0.999) was found. It was found that all of the system suitability metrics fell inside the range. As a quality control tool, the recommended method is quick, inexpensive, and appropriate for routine quantitative measurement of vinpocetine in pharmaceutical and pure dosage forms.

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

Garela chandrakanth, Assistant Professor, Omega College of Pharmacy

Abstract:

A candida species infection is typically the cause of fungal keratitis, an illness that can cause blindness in the affected eye. This work describes the design and evaluation of an ocular delivery system based on the concept of ion-activated in situ gelation for the antifungal medication fluconazole. Ocular in-situ gels may increase the amount of time that a drug is present in the body, hence increasing its bioavailability.

Gelrite was used as the gelling agent in addition to HPMC E-50 (Hydroxy Propyl Methyl Cellulose), which functioned as a viscosity-enhancing component. For formulations, physical characteristics such clarity, pH, drug content, sterility tests, rheological analyses, and in vitro drug release studies were evaluated. The medication was progressively released over the formulations, which were also stable and therapeutically efficacious, throughout the course of eight hours. These results demonstrate that the developed method is the most successful replacement for conventional eye drops.

A RESEARCH THAT ANALYZES SLEEP DISTURBANCES IN PEOPLE WITH TYPE 2 DIABETES MELLITUS

K. Sindoora, Assistant Professor, Omega College of Pharmacy

Abstract:

Background: Diabetes mellitus is a prevalent illness associated with rapid social and cultural shifts, such as urbanization, population aging, dietary changes, reduced physical activity, and bad lifestyle choices. These modifications lower the quality of life and decrease the likelihood that persons with the illness will survive. This study aims to quantify the quality of sleep in people with type 2 diabetes mellitus (T2DM) and ascertain the effect of extra factors on sleep quality.

Techniques: A cross-sectional study was carried out at the Government General Hospital in Ananthapuramu between December 2020 and May 2021. A total of 384 T2DM patients were enrolled. Using a PSQI > 8 cutoff point The Pittsburgh Sleep Quality Index (PSQI) and ESS were used to collect data in order to assess the quality of sleep. Additionally, information on the participants' demographic background was recorded. For the statistical analysis, Graph Pad Prism was utilized. Findings and Discussion: Our evaluation of sleep quality using the global PSQI cutoff point of 8 revealed that 77.6% of T2DM patients had inadequate sleep quality. Furthermore, we discovered that diabetic patients who were employed had a higher likelihood of reporting poor sleep quality compared to those who were unemployed. Lastly, we discovered that compared to individuals receiving OHA alone, diabetic patients getting insulin treatment had a 2.17-fold higher likelihood of reporting poor sleep quality. In conclusion: The efficiency of patient counseling by a clinical pharmacist in improving sleep quality. As a result, those who complain of difficulty sleeping ought to get a diabetes screening. In order to achieve the greatest possible blood sugar control, patients with type 2 diabetes who have poor glycemic control should have their sleep disturbances investigated. If they are detected, they should be treated.

The impact that medication adherence has on hypertensive patients in the rural Gautur district in South India's population

K. Thirupathi Babu, Assistant Professor, Omega College of Pharmacy

Abstract:

This study aims to assess the impact of medication adherence in patients with hypertension. Methodology: A prospective observational cohort research was conducted in a rural Guntur area over a six-month period. A sample of 300 people who had been diagnosed with hypertension three years prior or more recently were recruited. Blood pressure was measured with a sphygmomanometer, and other demographic information was obtained. Medication adherence was measured using the HILL-BONE compliance to high blood pressure therapy scale (HILL-BONE CHBPTS).

Findings: All Hill-Bone score categories showed a slight improvement, with an average of 8.49, with the elements of three factors were examined: appointment keeping, salt consumption, and prescription compliance.

Ultimately, improved medication adherence can be attained by appropriate care and instruction on the usage of pharmaceuticals. Adherent to prescribed medicine reduces medical costs related to co-morbidities and comorbidities of hypertension, improves clinical outcomes, and considerably improves quality of life. Clinical chemists are crucial in improving adherence and reducing the expense of illness because they provide consistent recommendations.

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

K. Vaishnavi, Assistant Professor, Omega College of Pharmacy

Abstract:

A candida species infection is typically the cause of fungal keratitis, an illness that can cause blindness in the affected eye. This work describes the design and evaluation of an ocular delivery system based on the concept of ion-activated in situ gelation for the antifungal medication fluconazole. Ocular in-situ gels may increase the amount of time that a drug is present in the body, hence increasing its bioavailability. Gelrite was used as the gelling agent in addition to HPMC E-50 (Hydroxy Propyl Methyl Cellulose), which functioned as a viscosity-enhancing component. For formulations, physical characteristics such clarity, pH, drug content, sterility tests, rheological analyses, and in vitro drug release studies were assessed. The medication was progressively released over the the formulations, which were also stable and therapeutically efficacious, throughout the course of eight hours. These results demonstrate that the developed method is the most successful replacement for conventional eye drops.

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

Kalahasthi Prudvi Raj, Assistant Professor, Omega College of Pharmacy

Abstract:

Rivaroxaban, an anticoagulant medication, prevents blood clots from forming by acting at a crucial point in the blood-clotting process. This work developed the RP-HPLC method to measure the rivaroxaban content of tablets (Xarelto® (10 mg)). At 40 °C, a Phenomenex Luna 5 µm C18 100 Å LC column (250 x 4.6 mm) was used. ACN and water (55:45 v/v) were combined to perform isocratic elution. The flow rate was 1.2 mL min^1, and UV detection was detected at 249 nm. In 2.21 and 3.37 minutes, respectively, rivaroxaban and the internal standard, caffeine, were eluted. After validation using the ICH guidelines, the developed technique was confirmed to be linear within the range of 0.005 - 40.0 µg mL-1. The procedure was exact, accurate, dependable, and quick. Consequently, it worked well for the quality control test of the rivaroxaban tablet dosage form.

A CASE REPORT ON GYNECOMASTIA CAUSED BY SPIRONOLACTONE

Kalyankar Mamatha, Assistant Professor, Omega College of Pharmacy

Abstract:

Gynecomastia is typically caused by elevated free circulating estrogen/androgen ratios or modifications in these hormones' actions on their corresponding intracellular receptors in the breast tissue. A patient's medical history is crucial in diagnosing gynecomastia brought on by medication. Numerous medications have been linked to its pathophysiology and have the ability to cause gynecomastia through a number of mechanisms, including a decrease in testosterone synthesis, an increase in the peripheral conversion of testosterone to estradiol, and the displacement of estradiol from sex hormone binding globulin. We offer a case study of 41 elderly male patients who developed gynecomastia as a result of spironolactone. The diseases (such as testicular or adrenal neoplasias, hepatic cirrhosis, hyperthyroidism, hypogonadism, obesity, and refeeding syndrome) that affect the amounts of circulating sexual hormones. The active ingredients that are most usually responsible for gynecomastia are cimetidine, spironolactone, exogenous oestrogens, and antiandrogens.

A PRACTICAL APPROACH TO THE RP HPLC ANALYTICAL METHOD DEVELOPMENT

Kollu Lavanya, Assistant Professor, Omega College of Pharmacy

Abstract:

Creating an RP HPLC test technique using a practical, step-by-step methodology is the main topic of this article. A novice chromatographer can create a method by learning the RP HPLC method development process and its parameters by comprehending the many contributing parameters and their impact on the performance of the analytical method being produced. High performance liquid chromatography is one of the most often used methods for determining and measuring the potency of drug ingredients and drug finished goods. The creation and validation of analytical methods are crucial steps in the process of approving a method for usage in a quality control department.

The simultaneous equation method is used in the table formulation to calculate the trihydrate of cefixime and azothiocyanin

Meer Mudabbir Ali, Assistant Professor, Omega College of Pharmacy

Abstract:

A simple, accurate, and exact uv-spectrophotometric method has been developed to estimate cefixime trihydrate (CEFI) and azithromycin (AZI) in tablet formulation at the same time. The strategy that was utilized to analyze both drugs was based on the simultaneous equation method. AZI and CEFI have detected absorbance maxima in methanol at 222 and 289 nm, respectively. The linearity of both drugs was kept within the concentration range of 10–50μg/ml, and there was a notably strong correlation value (r2 = 0.999). The limits of quantification and detection for AZI and CEFI were 2.40 and 4.60 μg/ml, respectively, and 0.81 and 1.52 μg/ml, respectively. Validation proved that the recommended approach was appropriate for quantitative assessment of drugs. This method was successfully used to examine a pill composition.

POLYHYDROQUINOLINE AS BIOLOGICAL ACTIVE MOLECULES: A REVIEW

Mekala Sai Lakshmi, Assistant Professor, Omega College of Pharmacy

Abstract:

There are six members in the aromatic rings of polyhydroquinoline and 1,4-dihydropyridine (1,4-DHP). The pyridine ring system is the principal class of nitrogen heterocycles, and its analogues exhibit a range of physiological and biological characteristics. Polyhydroquinolines are another noteworthy class of nitrogen-containing heterocycles that have attracted a lot of attention. They are structurally related to DHPS and have a number of pharmacological and therapeutic applications, including the regulation of calcium channels. Polyhydroquinolines have been synthesized under mild conditions by combining ordinary heating, microwave irradiation, and ultrasound. Using various catalysts to study the reaction between dimedone, ethyl acetoacetate, substituted salicylaldehyde, and ammonium acetate in order to produce a variety of polyhydroquinoline derivatives ethanol. All of the synthesized compounds that were evaluated showed biological activity; they have qualities such as antihypertensive, anticoagulant, antibacterial, antifungal, and antimalarial activity. Multicomponent reactions were carried out using the one-pot MCR technique, which offers a number of benefits over conventional bimolecular reactions in order to produce a particular product.

IMPRINTING COMPUTATIONALLY

N. Sanjeevaiah, Assistant Professor, Omega College of Pharmacy

Abstract:

Among other analytical procedures in analytical separation science, molecularly imprinted polymers have found use in immunoassay, liquid chromatography, capillary electro-chromatography, and capillary electrophoresis. They have also been employed as an optional sorbent in chemical sensors. The ability to create sorbents with preset selectivity for a certain chemical or set of structural analogues of biological and environmental components is one benefit of imprinted polymers. Imprinted polymers have a better selectivity than traditional sorbents, which may result in more transparent chromatographic traces during subsequent analytical procedures. Moreover, problems like peak broadening and tailing—which are typically connected to imprinted polymers in chromatography—do not arise in the solid phase extraction application. Imprinted polymers have been used as chiral stationary phases for enantiomer separations in the majority of liquid chromatographic operations. Additionally, it has been demonstrated that selective sorbents such as imprinted polymers can be employed in capillary electro-chromatography. The process of molecular imprinting is used to create synthetic recognition sites on polymer matrices that have the same functional group size, shape, and spatial arrangement as the template. Because they have a strong affinity and selectivity for the target molecules utilized in the molding process, molecularly imprinted polymers, or MIPs, are ideal for use with molecular imprinting processes.

Stereochemistry: An Overview

P Mamatha, Assistant Professor, Omega College of Pharmacy

Abstract:

The static and dynamic features of molecules' three-dimensional forms are the subject of the study of stereochemistry. For a very long time, it served as a basis for comprehending behavior and organization. But even in its own right, stereochemistry is an extremely fascinating subject of research. In short, a lot of scientists are attracted to the way that this field of study combines chemistry, geometry, and topology to analyze three-dimensional patterns, as well as the stunning visual beauty of chemical structures. In addition, stereochemistry finds many significant real-world uses. Given that sugars, nucleotides, and amino acids are among its constituents and can exist in enantiomerically pure forms, nature is essentially chiral. As such, anything that humans have made to alter or interact with nature is subject to chiral environment interaction.

Pharmaceutical and bioorganic chemists will find this to be a valuable and significant topic. In order to ensure the safety of both enantiomers, the Food and Drug Administration (FDA) now mandates that medications be made in enantiomerically pure versions or go through extensive testing. Thus, the primary focus of this work is on the various aspects of stereochemistry that might modify and enhance chemical activities and reactivity.

Examining Newly Synthesized Pyrazoles

P Praneeth Nikhilson, Assistant Professor, Omega College of Pharmacy

Abstract:

The theory of heterocyclic chemistry has benefited greatly by the work of pyrazoles, which are heterocyclic compounds consisting of five members. These substances are widely used as the primary structural element of a broad variety of compounds with biological properties like antifungal, anticancer, antiviral, antibacterial, anti-tubercular, and antiphrastic properties. They also possess important pharmacological and agrochemical properties. It was attempted to create a simple and practical method for creating substituted pyrazolines by reacting 4-methoxycinnamonitrile with aromatic aldehyde phenyl hydrazones in the presence of chloramine-T. This could serve as a method for starting with glucose and producing derivatives of glucosyl pyrazoles. The suggested solvent-free microwavemediated approaches produced good reaction rates and yields, indicating that these processes can be regarded as simple, efficient, and eco-friendly synthetic processes for the production of derivatives of pyrazoles. Unlike the conventional approach, this one provides a fruitful way to make sugar-heterocyclic derivatives without utilizing very dangerous ingredients. The EATOS software verified this, particularly in relation to the recently introduced "one-pot" technique.

Examining Late-Synthesized Quinoline Derivatives

P. Priyanka, Assistant Professor, Omega College of Pharmacy

Abstract:

Quinolines and their fused heterocyclic derivatives, which have been explored for a variety of pharmacological functional groups, are an essential class of compounds for the synthesis of new medicines. As a result, a large number of studies have synthesized these compounds as target structures and assessed their biological activities, which include antibacterial, anti-inflammatory, anti-malarial, and anticonvulsant qualities. Quinolines are a synthetic class of antibacterial medications with broad spectrum action. The bulk of quinolones used in medicine are fluoroquinolones, however derivative chemicals work against germs by stopping bacterial DNA from unwinding and replicating within bacterial cells. Due to the extensive range of pharmacological applications of microwave-assisted, ultrasound-promoted, or heterogeneous acid-catalyzed procedures for the synthesis of quinoline and its derivatives, many strategies have been developed regularly. activities and their application as ligands in a range of transition metal complexes modeled after biological systems. Others, in conditions devoid of UV light or solvents. Most of these techniques that have been reported in the literature are enumerated here. The researcher working in this field will find this review to be of great use. It would also assist them in developing an original, cost-effective, and successful solution.

EXAMINATION OF NEW SYNTHESISED PYRAZOLE DERIVATIVES

P. Soujanya, Assistant Professor, Omega College of Pharmacy

Abstract:

Pyrazoles are rings with five members that are essential to heterocyclic compounds. Pyrazole analogues have been shown to have antimicrobial, analgesic, antitubercular, anticancer, anti-inflammatory, antidepressant, anticonvulsant, ant hyperglycemic, antipyretic, antihelmintic, antioxidant, and herbicidal properties. Numerous methods, such as 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, have been used to synthesize and manufacture substituted pyrazoles. It has been discovered that combining 4-methoxy cinnamonitrile with aromatic aldehyde phenylhydrazones while chloramine-T is present is a straightforward and useful way to produce substituted pyrazolines. D-glucose was used as the starting material in the development of a process for the synthesis of glucosyl pyrazole derivatives. Good reaction rates and yields were obtained from the suggested solvent-free, microwave-mediated procedures, indicating that these stages may be regarded as simple, efficient, and green synthetic processes for the synthesis of pyrazole derivatives. Unlike the conventional approach, this one provides a fruitful way to make sugar-heterocyclic derivatives without using any exceedingly dangerous ingredients. This is confirmed by the EATOS program, especially with regard to the innovative "one-pot" method.

INSULIN AS THE FIRST DRUG FOR THE TREATMENT OF DIABETES

P. Sushma, Assistant Professor, Omega College of Pharmacy

Abstract:

Hyperglycemia, glycosuria, and hyperlipidemia are metabolic abnormalities that indicate diabetes mellitus. At the moment, diabetes is thought to be concentrated in India. By 2025, there will likely be 5.2 crore diabetics in India, up from the present 3.5 crore. IDDM and NIDDM are the two primary types of diabetes mellitus. Insulin is one such hormone. Insulin, like many other hormones, is a protein. The cells in the pancreas that create insulin are known as islet cells. Banting and Best are duly acknowledged with the discovery of insulin. It is composed of fifty-one double-chained amino acids. Chain A has twenty-one amino acids, while Chain B has thirty. Insulin detemir, insulin glargine, and short-acting insulin (normal insulin), The two more commonly used types of the medication are long-acting (ultralente insulin) and rapid-acting (aspart or Lispro). The insulin delivery systems that are currently on the market for insulin administration are pens, jet injectors, syringes, and insulin infusion pumps. The insulin syringe is the most popular and economical delivery system. An alternative term for insulin pumps is continuous subcutaneous insulin infusion therapy. A jet injector is a type of medical injectable syringe that, as opposed to a hypodermic needle, punctures the epidermis with a narrow, high-pressure jet of injection liquid. Pens are reusable, prefilled instruments. Many insulin delivery systems are being developed. The purpose of this review is to shed more light on insulin's historical and contemporary significance as a top drug for the management of diabetes.

The Synthesis of Novel Substituted AldeHYde Derivatives

Pochi Reddy Sandeep Reddy, Associate Professor, Omega College of Pharmacy

Abstract:

The goal of this work is to show that benzimidazole is a promising bioactive compound. As such, it is worthwhile to synthesize some novel benzimidazole derivatives to enhance antimicrobial activity by inhibiting the bacterial synthesis of proteins and nucleic acids. This ability is explained by benzimidazole's structural similarity to purines. The remarkable biological properties of the benzimidazole moiety, such as their anticancer, antibacterial, anti-inflammatory, and antitubercular properties, have attracted a lot of attention lately. The chemicals utilized in this investigation are silica gel-254, benzaldehyde, ammonium chloride, ethyacetate, hexane, and o-phenylenediamine. Biologically active substances, including antibacterial, antiviral, and anti-inflammatory medicines, belong to the significant class of benzimidazoles. It is an essential heterocyclic molecule that contains nitrogen. In the suggested reaction pathway, O-phenylenediamine and benzaldehyde react to form two phenyl 1-H benzimidazoles. The Rf value was found to be 0.65 after 4-hydroxybenzaldehyde was purified using the TLC method in a solvent mixture of ethyacetate and hexane (1:2). Numerous derivatives of substituted benzimidazole can be synthesized and tested for antimalarial activity. The same substances could also be evaluated for potential anticonvulsant and antitubercular properties. medication design that maximizes pharmacological properties through the use of a structural approach

Synthesis of Green Benzimidazole

Ramyasree Andol, Assistant Professor, Omega College of Pharmacy

Abstract:

The field of chemistry that is currently gaining momentum is known as "green chemistry." It comprises putting into practice a set of rules that reduce or eliminate the use of hazardous compounds in the research, manufacturing, and use of chemical goods. A large number of studies about the synthesis of heterocyclic compounds containing nitrogen, oxygen, and sulfur have surfaced in recent decades, likely due to the broad spectrum of biological activity of these compounds.

The production of heterocyclic aromatic chemical compounds—like benzomidazole—has been the focus of a lot of research lately. A wide range of circumstances have been examined in these papers, including as the use of green solvents and catalysts, reactants immobilized on solid support, microwave irradiation, and solvent-free synthesis. It is a valued structure and significant pharmacophore in medicinal chemistry. Its anti-inflammatory, antiviral, antifungal, anticancer, and antihistaminic qualities are just a few of its numerous reasonable medicinal qualities. It contributes significantly to these processes as well. Synthetic organic chemists are now focusing on the steps involved in their synthesis because to their importance. Consequently, in the current review, I have tried to compile the chemistry of multiple substituted benzimidazole derivatives as well as various important synthesis strategies. Long heating durations and complicated, time-consuming apparatus setups are necessary for conventional synthetic reaction processes, in contrast to more affordable and environmentally acceptable green technologies.

CLOVE PHYTOCHEMICAL RESEARCH

S R Rahul, Assistant Professor, Omega College of Pharmacy

Abstract:

The present investigation looked into phytochemical screening as well as the antibacterial activity of clove bud and cardamom oils. The clove buds were extracted one at a time using steam distillation, and then they were separated using dichloromethane. The phytochemical analysis revealed the presence of alkaloids, glycosides, steroids, carbohydrates, terpenoids, tannins, and phenolic substances. We obtained eleven fractions, which we labeled f1, f2, f3, and f11. A silica Gel (60–120) was used to chromatograph the dichloromethane extract, and toluene: Dichloromethane (9:1), toluene: Dichloromethane (8:2), and toluene: Dichloromethane (7:3) were used to elute the mixture. TLC kept an eye on the fraction. Comparable fractions were consolidated and mixed together. One cardamom fruit at a time was extracted using petroleum ether. Terpenoids, alkaloids, glycosides, steroids, protein, and carbs The phytochemical analysis revealed the presence of tannins and phenolic chemicals. The petroleum ether extract was chromatographed on a silica gel (60–120). The mixture was eluted using the following methods: pure benzene, benzene: chloroform (9:1), benzene: chloroform (8:2), benzene: chloroform (7:3), benzene: chloroform (6:4), benzene: chloroform (5:5), benzene: chloroform (4:6), and pure chloroform. Comparable fractions were combined and focused while T.L.C. kept an eye on the fractions. The following fourteen fractions were extracted: fcd1, fcd2,... fcd14. The antibacterial activity against Pseudomonas, Escherichia coli, and Staphylococcus aureus (+ve) was evaluated using the disc diffusion method. Cardamom and clove extract were found to have similar levels of activity against the Pseudomonas aerugenosa (-ve) bacterium, with cardamom being more active than clove extracts.

Investigations into Molecular Docking, Pharmacological Assessment, and Synthesis of 1-ACETYL 5-SUBSTITUTED PHENYL-3-AMINO PHENYL-2 PHYTHALAZOLINES

S. Srugandhi, Assistant Professor, Omega College of Pharmacy

Abstract:

Pyrazoles and pyrazolines are a five-membered heteorocyclic group that plays a critical role in the search for novel medications. Pyrazoles and pyrazolines, which are phosphorylamides, have a variety of biological effects. The pyrazoles/pyrazolines derivatives were created by condensing the necessary substituted aldehydes and aceto phenones, suitable chalcones, and hydrazine hydrate in 100% ethanol with drops of glacial acetic acid. The compounds were synthesized in good yields (68.99%), and their structure was confirmed by elemental analysis, infrared spectroscopy, Hl-NMR, and C13-NMR. For pyrazoline derivatives, studies and reports on molecular docking were conducted. Molecular docking experiments accelerate and reduce the cost of the drug discovery process while having no adverse effects on the environment. Pyrazoles have lately been

the subject of numerous varied methods, mostly due to the fact that they are frequently employed as scaffolds in the synthesis of bioactive compounds and reactions in a variety of media. In this study, an attempt is made to highlight recent developments in synthetic methods and biological activity pertaining to these kinds of compounds. It was discussed how the recent chemical and biological uses of pyrazolin analogues.

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

Saidulu Abbagoni, Assistant Professor, Omega College of Pharmacy

Abstract:

This work aims to explore the phytochemical and antibacterial capabilities of Eclipta alba. Materials and Techniques: Both free and bound flavonoids from Eclipta Alba L. have antibacterial properties. was determined using the disc diffusion assay against four bacteria (Escherichia coli, Pseudomonas aeruginosa, Proteus mirabilis, and Staphylococcus aureus) and four fungi (Aspergillus flavus, Aspergillus niger, Trichophyton mentagrophytes, and Candida albicans).

The minimal inhibitory concentration (MIC) of the extract was measured using the micro broth dilution method, whilst the minimum bactericidal/fungicidal concentration was determined by subculturing the relevant samples. Total activity (TA) of the extracts against all susceptible pathogens was also evaluated.

Results: Fungi include A. flavus, A. niger in conjunction with T. Mentagrophytes were shown to be resistant, and none of the tested extracts had any kind of effect on them. The root's bound flavonoid extract (MIC 0.039, inhibition zone (IZ) 27.66, and minimum fungicidal concentration (MFC) 0.039) demonstrated the greatest anti-C. albicans activity. For S. and P. mirabilis, it was found that the free flavonoid extract from the root had the same TA (192.30 ml/g). The bound flavonoids of the stem extract contained two flavonoids that showed activity against every type of bacteria: quercetin and kaempferol.

In conclusion, the current analysis's findings show that Eclipta Alba possesses strong antibacterial activity with a narrow MIC range, making it a potential candidate for use in upcoming plant-based antimicrobial medications.

THE CLINICAL SIGNIFICANCE OF POLYHERBAL OIL'S HAIR GROWTH STIMULATION AS WELL AS ITS DEVELOPMENT AND STANDARDIZATION

Sana Yasmeen, Assistant Professor, Omega College of Pharmacy

Abstract:

The oil formulation is a topical medication that has been shown to have superior skin absorption and fewer side effects when compared to other formulations. Increased skin absorption and maximum therapeutic effects are provided by plant-formulated soil. Phyllanthus emblica, Mentha spicata, Azadira chtaindica, and Murray akoenigii plants are considered to have good therapeutic potential.

Hair growth activity is provided by all plants. The oil formulation is the most appropriate for topical administration and has cooling properties among topical formulations. The purpose and goals of this project are to create and standardize Poly Herbal Oil and assess its hair growth stimulation clinically.

Sources and techniques: An analysis of a plant's phytochemistry entails verifying and extracting plant material; assessing it both qualitatively and quantitatively; separating it; and maybe evaluating its pharmacological activity concurrently. Findings and discussion: To find out whether plants had active ingredients, a basic phytochemical screening was done on all the plants and their extracts. To find out if the powder and extracts included chromophores, fluorescence analysis was performed. Using spectrophotometric analysis, the total flavonoid content and total phenolic content were qualitatively estimated. A considerable amount of flavonoid and phenolic components were present in all of the extracts. In summary, the manufactured poly herbal oil containing Menthaspicata, Phyllathusemblica, Azadirachta indica, and Murrayakoenigi.i. demonstrated hair growth activity.

Characterization of Synthesis and Antimicrobial Screening of 1,3,4-thiadiazole Phenol Derivates

Sathya Raj. A, Associate Professor, Omega College of Pharmacy

Abstract:

PURPOSE: Pathogenic microorganisms are the cause of a wide range of serious and often fatal infectious diseases. Even with advancements in medicine, bacterial and fungal infections continue to be a major issue in healthcare. Antibiotics used in the treatment of current drugs have been found to cause resistance in bacteria and some fungus species. The design and development of new chemicals having antibacterial activity is therefore a very interesting field. Techniques: Among other organic compounds with pharmacological activity used as medications in humans for the treatment and control of various infections, compounds with a heterocyclic ring play a crucial role. Thiadiazoles with a nitrogen–sulfur atom in their cyclic structure have demonstrated a variety of function as physiologically active compounds' structural building blocks and serve as highly helpful mediators in medicinal chemistry. Results: The medications now used to treat different infections determined the thiadiazole nucleus's efficacy. Because of the vast range of pharmacological effects of 1,3,4-thiadiazoles and some of its derivatives, these compounds are extensively researched. In conclusion, a number of 1,3,4-thiadiazole derivatives were created in this work by cyclizing a variety of benzaldehydes with thiosemicarbazide while adding other reagents, such as FeCl3 and HCHO, and losing one water molecule in the process. It was discovered that these compounds had strong antibacterial action.

The design, synthesis, and in vitro antimicrobial activity of derivatives of benzimidazole

Srinivasa Chary Katroju, Assistant Professor, Omega College of Pharmacy

Abstract:

Among the most beneficial biological effects are those of benzomidazoles. Benzimidazoles are used as anti-inflammatory, anti-anxiety, and antimicrobial agents in a variety of medicinal applications.

For the production of derivatives of substituted benzoimidazoles, we have created a straightforward process (HW1–HW7). The necessary 2-substituted 1H Benzimidazoles (HW1–HW7) were obtained in 60–85% yields by direct condensation of 1 mole of 0-phenylenediamine and 1 mmol of suitable aliphatic aromatic carboxylic acid. Using spectrum techniques including IR HNMR13CNMR and MS, all of the produced compounds were analyzed. This method's very gentle procedure and adherence to green chemistry protocols are its advantages.

A NEW ERA OF THERAPEUTIC INNOVATION IN PRECISION MEDICINE

T. Susan Srujana, Assistant Professor, Omega College of Pharmacy

Abstract:

Summary: Because genome sequencing allows for more accurate treatment targeting and better diagnostic sensitivity, it holds great promise for enhancing patient care. To fully achieve this promise, genomic technology developed for genetic discovery—such as DNA sequencing equipment and analytic algorithms—must be adapted to satisfy clinical needs. To do this, it will be required to optimize alignment algorithms, pay attention to quality-coverage criteria, provide specialized solutions for low-complexity or paralogous genome areas, and establish consensus standards for variant calling and interpretation. The faster identification of novel genes or variants' causation will result from the worldwide exchange of these more accurate genotypic and phenotypic data. The definition of disease is described by precision medicine. By using genomic and other technologies to define disease at a higher resolution, precision medicine enables more exact targeting of disease subgroups with novel medicines. This will lead to a deeper understanding of disease and enable far more precise therapeutic targeting of it. Two well-known instances are cancer and cystic fibrosis. The intersection between sequencing-led discovery genetics in population cohorts andtraditional low-throughput methods for genetic patient identification is represented by clinical genomics. Because the goals of discovery genomics and clinical medicine are different, tools and algorithms developed for the former must first be optimized for the latter. The development of sequencing technology is one area that requires attention. Current short-read techniques are limited to high-GC, low-complexity genomic areas (such as repeats). high-GC, highly polymorphic, or areas that disrupt the open reading frame on a big or small scale (e.g., structural variations).

Pharmacogenomics: A Roadmap to Precision Medicine

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Abstract:

Pharmacogenomics is transforming medicine by revealing how genetic variations influence drug response. This review covers current advances in pharmacogenomic research, focusing on its potential to improve medicine selection and administration. Understanding individual genetic profiles enables personalized medicines, reducing adverse responses and improving treatment efficacy across a wide range of patient populations.

Furthermore, incorporating pharmacogenomic data into clinical decision-making procedures holds promise for precision medicine by enabling tailored treatment methods based on individuals' genetic composition. Furthermore, continuing research aims to broaden pharmacogenomic knowledge across races and populations in order to enable equal access to optimal medicines. Collaboration among academics, healthcare providers, and regulatory bodies is critical for incorporating pharmacogenomic principles into ordinary clinical practice, which will ultimately improve patient outcomes and efficiency.