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PRINCETON COLLEGE OF PHARMACY

(Affiliated to JNTUH & Approved by AICTE, PCI, New Delhi)
Chowdaryguda, Korremula (V), Ghatkesar (M), Medchal (Dist.)-500 088

Proceedings of International Conference on Innovations in Science, Engineering and Technology

April 04-06, 2021

ISBN: 978-81-952622-4-3

PRINCETONCOLLEGE OF PHARMACY

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(Affiliated to JNTUH, Hyderabad & Approved by PCI, New Delhi)

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REVIEW ON SEVERE ACUTE RESPIRATORY SYNDROME

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ABSTRACT

In early December 2019, an outbreak of coronavirus disease 2019 (COVID-19) due to a novel coronavirus 2 (SARS-CoV-2) with severe acute respiratory syndrome occurred in Wuhan City, Hubei Province, China. On January 30, 2020, the World Health Organization declared the occurrence of a public health emergency of international concern. As of February 14, 2020, 49,053 laboratories have been confirmed and 1,381 deaths have been reported worldwide. Recognizing the risk of getting sick, many governments are implementing a variety of controls. A literature review of publicly available information was conducted to summarize knowledge of pathogens and current epidemics. This literature review explores causal agents, causes and immune responses, epidemiology, diagnosis, disease treatment and management, control and prevention strategies.

OCULAR DRUG DELIVERY SYSTEM

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Princeton College of Pharmacy

ABSTRACT

Topical management for ocular therapeutics is good due to smaller doses required in comparison to the systemic use, its fast onset of movement and freedom from systemic toxicity Topically implemented ocular capsules should attain the internal partsof the attention and transcorneal penetration is thought to be the most important path for drug absorption. Corneal absorption is plenty slower system than elimination. The unique purpose of designing a healing machine is to obtain an greatest awareness of a drug on the energetic web website online for the precise duration. Ideal ophthalmic drug transport have to be capable of maintain the drug launch and to stay withinside the region of the front of the attention for extend duration of time. Consequently it's far vital to optimize ophthalmic drug transport; one of the manner to accomplish that is via way of means of addition of polymers of diverse grades, improvement of in situ gel or colloidal suspension or the usage of erodible or non erodible insert to extend the pre corneal drug retention. This overview centeredon managed and sustained drug transport has end up the usual in cutting-edge pharmaceutical layout and numerous viable routes of drug transport into the ocular tissues.

ISBN: 978-81-952622-4-3

COVID-19: DIFFERENT APPROACHES IN TREATMENT

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ABSTRACT

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the virus strain that caused coronavirus disease 2019 (COVID-19).SARS-CoV-2, an emerging zoonotic coronavirus, identified in December 2019 in Wuhan, Hubei province, China, has spread rapidly across the whole world, causing disproportionately high morbidity and mortality, along with unprecedented disruptions in the global economy and society functioning .The World Health Organization declared the outbreak of the novel coronavirus (COVID-19) as a global health emergency on January 30, 2020, and as a pandemic disease on March 11, 2020. Although exploration for a specific drug required for the COVID-19 treatment is under extensive research worldwide and some of them are in clinical trial now. Virtual drug library screening is one of the current techniques for repurposing accessible compounds .This review highlights the current and new therapeutically approaches, risk factors, and related protections to be taken as prerequisite measures and probable treatment options for the COVID-19-infected population in the current scenario.

A REVIEW ON - NOVEL DRUG DELIVERY SYSTEM

ThanduRajini
Princeton College of Pharmacy

ABSTRACT

In recent years, significant progress has been made in the development of new drug delivery systems (NDDS) for plant compounds and extracts. A variety of novel herbal formulations have been reported, including high molecular weight nanoparticles, nanocapsules, liposomes, phytosomes, nanoemulsions, microspheres, transferases, and etsomes using bioactive and plant extracts. The new formulations include plant active ingredients and extracts, including solubility, bioavailability, protection from toxicity, improved pharmacological activity, improved stability, and improved distribution of tissue macrophages, improved sustained delivery and protection. The current review highlights the current state of development of new herbal formulations and summarizes their manufacturing process, active ingredient types, sizes, capture efficiencies, routes of administration, bioactivity, and uses of the novel formulations.

ISBN: 978-81-952622-4-3

PHYTOCHEMICAL ANALYSIS AND ANTIMICROBIAL ACTIVITY OF SOME MEDICINAL PLANTS AGAINST SELECTED PATHOGENIC MICROORGANISMS

Pavani Mathangi
Princeton College of Pharmacy

ABSTRACT

The aim of the present study is to investigate the antimicrobial potency of leaves from various extracts of Cappariszeylanica, Streblusasper and Tribulusterrestris were evaluated. In addition, this is the first report on MIC, MBC/MFC antimicrobial activities of above mentioned plants and also identify the phytochemical, functional groups by GC-MS and FT-IR respectively. Soxhlet extraction method was used for preparation of different extracts viz., aqueous, petroleum ether, ethyl acetate and methanol. The extracts were examined against Staphylococcus epidermidis, Enterococcus faecallis, Salmonella paratyphi, Shigelladysenteriae, Candida albicans and Mycobacterium tuberculosis by agar well diffusion method, and Minimum Inhibitory Concentratioon (MIC), Minimum Bactericidal/Fungicidal Concentration (MBC/MFC) values were determined through micro dilution method. Phytochemical analysis of compounds was carried out by GC-MS analysis and functional groups were identified by FT-IR. Based on the outcome of our results, Ethyl acetate extract Showed significant antimicrobial activity against the tested pathogens especially, for C. albicans (40 mm) followed by ethyl acetate of S. asper against S. paratyphi (38 mm). While, the least inhibition was observed with aqueous extract of T. terrestris against S. paratyphi (10 mm). The MIC ranged from 3.21 mg/ml to 50 mg/ml and MBC/MFC 6.25 mg/ml to 50 mg/ml was recorded. Ethyl acetate extracts of almost all samples showed better activity than other extracts in inhibition growth of pathogens.

PHYTOCHEMICAL ANALYSIS OF CITRUS SINENSIS PEEL

Ujjwala Konduru
Princeton College of Pharmacy

ABSTRACT

Citrus Sinensis pulp was screened for its phytochemical composition. The aqueous as well as the ethanoic extracts of the pulp revealed the presence of carbohydrates, alkaloids, tannins, fixed oils and lipids, sugars, proteins, steroids, and amino acids whereas the terpenoids are present only in the ethanolic pulp extracts.

ISBN: 978-81-952622-4-3

ANTIMICROBIAL ACTIVITY AND PHYTOCHEMICAL ANALYSIS OF CITRUS SINENSIS LEAVES EXTRACTS

Shireesha Bandirala
Princeton College of Pharmacy

ABSTRACT

The leaf extract of Citrus sinesis were screened for its antimicrobial and phytochemical activities. The solvents used for the leaves and root extraction were benzene, acetone, aqueous. The extract was tested against infectious disease causing bacterial such as Escherichia coli, Pseudomonas aerginosa, staphylococcusaureus using the well diffusion method. The benzene, acetone, aqueous extract of leaf of Citrus sinensis inhibition against all the test microbe ranging from 8 to 16 mm diameter inhibitory zone. In present study, bacterial extract showed a varying zone of inhibition of growth of tested organism than benzene, acetone, aqueous. Phytochemical properties of leaf of Citrus sinesis obtain from benzene, acetone, aqueous extract were investigated. The result confirmed that presence of antibacterial activity and phytochemical in shade dried extract of Citrus sinensis against the human pathogenic bacteria.

A MINI-REVIEW OF THERAPEUTIC POTENTIAL OF Mangiferaindica L

Kasireddy Swetha Reddy
Princeton College of Pharmacy

ABSTRACT

Among known species of 69 Mangifera, Mangiferaindica L. is a medicinal plant being used in tropical regions by indigenous people. It has been a main plant species being used in Ayurvedic as well as indigenous medical systems form 4000 years. Components of M. indica are recurrently used as a traditional medicine system to cure numerous ailments. Active constituents are present in stem bark, leaves, heartwood, roots and fruit and have antioxidant, anti-inflammatory, radioprotective, antitumor, immune-modulatory, anti-allergic, anti-diabetic, anti-bone resorption, mono-amine oxidase inhibiting, anti-viral, anti-fungal, anti-bacterial, anti-spasmodic, antidiarrheal, anti-malarial, antiparasitic as well as lipolytic properties. In spite of essential progress in phyto-chemical and medicinal analysis of M. indica, more efforts are needed to explore M. indica active components and their application in pharmaceutical industry. In this review, we focus on recent information about chemical constituents and pharmacological uses of M. indica.

ISBN: 978-81-952622-4-3

ANTIFUNGAL ACTIVITY, PHYTOCHEMICAL ANALYSIS OF SOLANUM NIGRUM (L.) - AN IMPORTANT ANTIULCER MEDICINAL PLANT

Zareena Begum shaik
Princeton College of Pharmacy

ABSTRACT

Solanumnigrum (L.) is commonly known as "Blacknight shade" and is belongs to solanacae family. The herb is antiseptic, anti dysenteric, antidiuretic and it has very important gastric ulcerogenic activities. Three solvent extracts from leaf,seed and roots of Solanumnigrum were assayed for antifungal activity against fungal strains such as Penicilliumnotatum, Aspergillusniger, Fuseriumoxisporium and Trichodermaviridae. The zone of inhibitions was compared with the standard antibiotics. Phytochemical screening of the crude extracts reveals the presence of various secondary compounds such as alkaloids, flavonoids, steroids, tanins and phenols. The organic solvent extracts (ethanol, methanol and ethyl acetate) of seeds were exhibited strong antifungal activity against all the tested fungal strains compared to leaf and root extracts. Among all the extracts ethyl acetate seed extract showed high antifungal activity (8.0-16.0mm zone of inhibition) on all the tested fungal strains and relatively lowest MIC value in the range of (2.0-6.0µg/ml) were obtained with ethanol seed extracts.

AN EXAMPLE OF THE QUALITY BY DESIGN METHOD USED FOR THE DESIGN AND DEVELOPMENT OF ENTERIC-COATED TABLETS

Revuri Dinesh Reddy
Princeton College of Pharmacy

ABSTRACT

Quality of drug products has been a considerable issue in recent years. The paper is focused on presenting the Quality by Design (QbD) method as one of the possible methods of improving quality control. The first part of the paper deals with the description and analysis of the QbD method. The second part shows an application of the method for a particular drug product in a particular pharmaceutical company. QbD was used for enteric coated tablets with an active ingredient of KCl that is used to treat and prevent potassium deficiency. The paper presents a suggested QbD methodology for developing a new drug used in a pharmaceutical company.

ISBN: 978-81-952622-4-3

RAPID ASSAY DEVELOPMENT OF DICLOFENAC SODIUM COATED TABLET ASSAY USING FTIR COMPARED TO HPLC METHOD

Kurma Kirankumar
Princeton College of Pharmacy

ABSTRACT

A lot of coated tablet preparations of diclofenac have been marketed. This research aimed to develop and validate a quantitative analysis method for diclofenac sodium coated tablet using Fourier Transform Infrared (FTIR), which never reported. The quantification was done by measuring the sample spectra, which then was converted into its derivative. Areas under the curve (AUC) of the derivative spectrums were plotted against the concentrations; corresponding to the calibration graphic. Then, the validation method was carried out by evaluating the accuracy, precision, linearity, range, limit of detection (LOD), and limit of quantification (LOQ).

Review on Development and Validation of a Novel Analytical Method for the Determination of Dissolution Rate of Acetylsalicylic Acid in Enteric-Coated Tablet Dosage Form by Liquid Chromatography

Rabia Sadaf
Princeton College of Pharmacy

ABSTRACT

The aim of this study is to determine the applicability of UV detection method by the sensitive, simply, precise, specific, and low-cost High-Performance Liquid Chromatography (UHPLC) for acetylsalicylic acid in presence of its degradation product. Method development and determination of dissolution rate for acetylsalicylic acid, were achieved by using reversed-phase liquid chromatography with PDA (Photodiode Array Detector) and TUV (Tunable UV Detector) detection by HCLASS-UHPLC. The new proposed method utilized by the Waters Acquity UHPLC® TUV and PDA systems using a UHPLC column Waters Acquity, BEH, C18, 2.1mm x 50mm, 1.7µm particle size with a mixture of heptane-1-sulphonic acid sodium salt solution which was prepared in acetonitrile: deionized water (15%: 85% v/v) in isocritic mode at a flow rate of 0.5ml/ min, at 25°C with a load of 5µL. The detection for all eluted compounds was carried out at 280nm.

ISBN: 978-81-952622-4-3

Review on Nutraceuticals from Plant Sources

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ABSTRACT

In last few decades, due to modification in way of living the risk of human exposure to new diseases has been increased. The possibility of chronic diseases is increased like heart diseases, diabetes, asthma, cancer etc. So, to avoid this the best practice is to include the food that can improve and tone up the nutritional inadequacy in our everyday life. Nutraceuticals is a term derived from two words pharmaceutical and nutrition by Stephen Defelice in 1989. Nutraceuticals are food substances that confer health and medical benefits. It plays very significant role in treating and preventing many acute and chronic diseases. Due to nutrition and therapeutic potentials nutraceuticals are gaining substantial attention. The foodstuffs used as nutraceuticals can be classified as antioxidants, polyunsaturated fatty acids, fibres, probiotics, prebiotics, and other types mainly classified as natural and synthetic. Plants contains large number of bioactive compounds such as phytochemicals, lipids, flavours, pigments and fragrances. Plant extracts are extensively used in the pharmaceutical, cosmetics, and food industries. This review article presents an in sight into plants as nutriceuticals and the role in providing amino acids, other botanicals, vitamins and minerals etc; to human as functional food, dietary supplement and medicine to conquer hurry and worry leading to stress disorders.

A Review On Therapeutic Application Of Carica Papaya Leaf Extract In The Management Of Human Diseases

Alwala Sudhaker
Princeton College of Pharmacy

ABSTRACT

Papaya (*Carica papaya* Linn.) belongs to the family Caricaceae and is well known for its therapeutic and nutritional properties all over the world. The different parts of the papaya plant have been used since ancient times for its therapeutic applications. Herein, we aimed to review the anticancer, anti-inflammatory, antidiabetic and antiviral activities of papaya leaf.

ISBN: 978-81-952622-4-3

Antimicrobial Activities Of Leaf Extracts Of Guava (Psidiumguajava L.) On Two Gram-Negative And Gram-Positive Bacteria

U. Srilatha
Princeton College of Pharmacy

ABSTRACT

To determine the antimicrobial potential of guava (Psidiumguajava) leaf extracts against two gram-negative bacteria (Escherichia coli and Salmonella enteritidis) and two gram-positive bacteria (Staphylococcus aureus and Bacillus cereus) which are some of foodborne and spoilage bacteria. The guava leaves were extracted in four different solvents of increasing polarities (hexane, methanol, ethanol, and water). The efficacy of these extracts was tested against those bacteria through a well-diffusion method employing 50 µ L leaf-extract solution per well. According to the findings of the antibacterial assay, the methanol and ethanol extracts of the guava leaves showed inhibitory activity against gram-positive bacteria, whereas the gram-negative bacteria were resistant to all the solvent extracts. The methanol extract had an antibacterial activity with mean zones of inhibition of 8.27 and 12.3 mm, and the ethanol extract had a mean zone of inhibition of 6.11 and 11.0 mm against B. cereus and S. aureus, respectively. On the basis of the present finding, guava leaf-extract might be a good candidate in the search for a natural antimicrobial agent.

A REVIEW ON PHYTOCHEMICAL AND PHARMACOLOGICAL STUDY OF ANNONASQUAMOSA

Saritha Rasala
Princeton College of Pharmacy

ABSTRACT

Annonasquamosa Linn. (Family: Annonaceae). Phytochemical and pharmacological studies of medicinal plant were performed. The plant is highly used traditionally for curing diverse diseases and disorders. It is locally known as “Sitaphal" in Hindi. Macroscopical&microscopical studies of leaves have been studied. The phytochemical studies showed the presence of amino acids, terpenes, lipids, steroids, flavonoids, ascorbic acid, tannins, vitamins and alkaloids. The plant has various pharmacological actions such as insecticidal, purgative, laxatives, astringent, anti-inflammatory, antidiabetic, anti-ulcer, anti-oxidant, antimalarial and antibacterial. The reveiw specifically deals with the phytochemical and folkloric medicinal importance of plant.

ISBN: 978-81-952622-4-3

Development And Validation Of Liquid Chromatographic Method For Estimation Of Ibuprofen And Famotidine In Combined Dosage Form

Rabia Sadaf
Princeton College of Pharmacy

ABSTRACT

An isocratic, reversed phase-liquid-chromatographic assay method was developed for the quantitative determination of ibuprofen and famotidine in combined-dosage form. A Brownlee C18, 5 μm column with mobile phase containing water : methanol : acetonitrile (30 : 60 : 10, v/v/v) was used. The flow rate was 1.0 mL/min, and effluents were monitored at 264 nm. The retention times of ibuprofen and famotidine were 4.9 min and 6.8 min, respectively. The linearity for ibuprofen and famotidine was in the range of 2–20 μg/mL and 0.1–10 μg/mL, respectively. The proposed method was validated with respect to linearity, accuracy, precision, specificity, and robustness. The method was successfully applied to the estimation of ibuprofen and famotidine in combined dosage form.

Modifications of quinolones and fluoroquinolones: hybrid compounds and dual-action molecules

Upputuri Srikanth
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ABSTRACT

This review is aimed to provide extensive survey of quinolones and fluoroquinolones for a variety of applications ranging from metal complexes and nanoparticle development to hybrid conjugates with therapeutic uses. The review covers the literature from the past 10 years with emphasis placed on new applications and mechanisms of pharmacological action of quinolone derivatives. The following are considered: metal complexes, nanoparticles and nanodrugs, polymers, proteins and peptides, NO donors and analogs, anionic compounds, siderophores, phosphonates, and prodrugs with enhanced lipophilicity, phototherapeutics, fluorescent compounds, triazoles, hybrid drugs, bis-quinolones, and other modifications. This review provides a comprehensive resource, summarizing a broad range of important quinolone applications with great utility as a resource concerning both chemical modifications and also novel hybrid bifunctional therapeutic agents.

ISBN: 978-81-952622-4-3

REVIEW ON ANTIVIRAL PROPERTIES OF QUINOLONE-BASED DRUGS

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ABSTRACT

Quinolones represent an important class of broad-spectrum antibacterials, the main structural features of which are a 1,4 dihydro-4-oxo-quinolinyl moiety bearing an essential carboxyl group at position 3. Quinolones inhibit prokaryotic type II topoisomerases, namely DNA gyrase and, in a few cases, topoisomerase IV, through direct binding to the bacterial chromosome. Based on the hypothesis that these drugs could also bind to the viral nucleic acids or nucleoprotein-complexes, several quinolone derivatives were tested for their antiviral activity. Indeed, antibacterial fluoroquinolones were shown to be effective against vaccinia virus and papovaviruses; these preliminary results prompted the synthesis of modified quinolones to optimize antiviral action and improve selectivity index. The introduction of an aryl group at the piperazine moiety of the fluoroquinolone shifted the activity from antibacterial to antiviral, with a specific action against HIV. Substitution of the fluorine at position 6 with an amine group to give aryl-piperazinyl-6-amino-quinolones improved the activity and selectivity against HIV-1: the most potent compound of this series was shown to inhibit virus replication through interference with Tat-TAR interaction. A comprehensive SAR investigation was performed based on additional chemical intervention to the quinolone template moiety, such as the introduction of nucleoside derivative functions.

FORMULATION AND EVALUATION OF MICROSPHERE OF ANTIULCER DRUG USING ACACIA NILOTICA GUM

Sagar Gattuvelli
Princeton College of Pharmacy

ABSTRACT

This study was undertaken to evaluate the formulation of the microspheres for antiulcer drug using natural polymer *Acacia nilotica* gum. All parameters evaluated *A. nilotica* gum, aqueous solution of purified gum was used for chemical characterization, organoleptic character, flow properties, pH, particle size determination, solubility, viscosity, surface tension, infrared spectroscopy, etc. The microspheres of famotidine were prepared by ionotropic gelation technique using cross-linking solution of aluminum chloride, barium chloride, and calcium chloride.

ISBN: 978-81-952622-4-3

BIOACTIVE POTENTIAL OF BEETROOT (BETA VULGARIS)

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ABSTRACT

Beetroot (Beta vulgaris) is the most well-known and commonly cultivated fruit from the Chenopodiaceae family. Beetroot is a rich source of nutrients including vitamins (B complex and C), minerals, fibre, proteins, and a variety of bioactive phenolic substances, which are chiefly composed of betalains, and other components possessing antioxidant activity, such as coumarins, carotenoids, sesquiterpenoids, triterpenes, and flavonoids (astragalin, tiliroside, rhamnocitrin, kaempferol, rhamnetin). Beetroot and its value-added products provide a variety of health advantages and may help prevent and manage various ailments and diseases due to bioactive components. Beetroot's phytochemical diversity makes them potential sources of nutraceutical chemicals that can be used to build functional foods. Pharmacologically, beetroot has the potential to be an antioxidant, antimicrobial, anticancerous, hypocholesterolemic, and anti-inflammatory agent. In a comprehensive analysis, this review first provides an overview of the bioactive compounds present in beetroot and its parts, followed by a specific description of the current evidence on this bioactive potential of beetroot and its parts, highlighting the biochemical mechanisms involved.

PHYTOCHEMICALS SCREENING, ANTIOXIDANT ACTIVITIES OF GARLIC (ALLIUM SATIVUM) EXTRACTS

Surendar Angothu
Princeton College of Pharmacy

ABSTRACT

The objective of this study is to determine the phytochemicals of garlic, antioxidants activities of hot water, cold water and ethanol extracts of garlic (Allium Sativum). The results showed that garlic contains more than 80% total carbohydrates and proteins. Also, qualitative phytochemical analysis of garlic extracts indicated the presence of flavonoids, alkaloids, tannins, phenols, saponins, terpenoids, steroids and phytosterols in ethanol and hot water extracts, whereas alkaloids and saponins are absent in cold water extract. In addition, ethanol extract had higher reducing power, total flavonoids and total phenolics contents in comparison with hot water and cold water extracts. Finally, garlic extracts is useful as a rich antioxidant.

ISBN: 978-81-952622-4-3

QUANTITATIVE AND QUALITATIVE PHYTOCHEMICALS AND PROXIMATE ANALYSIS OF ALOE VERA (Aloe barbadensis miller)

Kadasi Sundeep

Princeton College of Pharmacy

ABSTRACT

The aim of this research study was to analyze qualitatively and quantitatively Proximate and Phytochemical composition of Aloe barbadensis. The Proximate composition involves the moisture content, crude protein, crude fibre, crude fat, ash content and carbohydrate. Phytochemicals determined were Saponins, Glycosides, Cardiac glycoside, Saponin glycoside, Alkaloids, Balsams, Volatile oil, Anthraquinone, Tannin, Steroid and Flavonoids. Aloe barbadensis was found to be rich in Carbohydrate (78.88%), so it can be used as a good source of Carborhydrate. The Protein and Lipid content were found to be relatively low (0.613 and 3.5% respectively). But Aloe barbadensis can still be used as a source of Protein and Fat. It was also discovered that Phytochemicals are present in quantities of 31.067 g/100 g, 10.67 g/100 g, 25.66 g/100 g and 0.060 g/100 g for Alkaloids, Saponins, Tannins and Glycosides respectively. This is an indication of cosmetic and medicinal value of Aloe barbadensis. The Sample was also found to be a rich source of minerals.

PHYTOCHEMICAL ANALYSIS AND ANTIBACTERIAL ACTIVITY OF AZADIRACHTAINDICA LEAF EXTRACTS AGAINST ESCHERICHIA COLI – A REVIEW

Sunitha Chintala

Princeton College of Pharmacy

ABSTRACT

Traditional medicine has employed Azadirachta indica to treat a variety of ailments. To evaluate the phytochemicals and antibacterial activity of Azadirachta indica leaf extracts against Escherichia coli. This was a laboratory-based experimental study in which ethanol and water were used for extraction by maceration. Phytochemical analysis was then done on the leaf extract. Using the disc diffusion method, varying concentrations of A. indica aqueous and ethanolic extracts were used to test the antibacterial activity of A. indica against Escherichia coli. The sensitivity of the tested microorganisms to aqueous and ethanolic leaf extracts was shown by zones of inhibition after incubation.

ISBN: 978-81-952622-4-3

Phytochemical screening and antibacterial activity of neem seed (azadirachta indica) and production of homemade soap

Kadasi Sundeep

Princeton College of Pharmacy

ABSTRACT

The different parts of neem tree contain various active compounds which are rich in antibacterial activity. The present study highlights the phytochemical analysis of neem seed. Various bioactive compounds like alkaloids, flavonoids, coumarin, leucoanthocyanin etc., were present in aqueous and acetone extract of neem seeds. A soap must cleanse the body properly without disturbing the pH level of the skin. So preparing the soap using neem seed destroys the microorganism which keeps our skin safe and healthy. The homemade neem soap can be replaced with other synthetic soaps for better results.

A Review on Current Perspective of Gastroretentive Drug Delivery Systems Prioritising Floating Dosage Forms

U. Srilatha

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ABSTRACT

Current pharmaceutical approaches continue to favour oral dosage delivery systems above all other routes. This is due to ease of administration and increase in patient complaisance. A common objective of a drug delivery systems is to achieve a drug that could be taken in a single dosage form. Floating drug delivery systems (FDDS) are systems that are a part of gastroretentive drug delivery systems (GRDDS) with low density that has floating ability over the gastric contents of the stomach. Floating dosage forms are taken orally and developed to increase the transit time of the active substance through the gastrointestinal tract and to achieve a systemic effect. The taken drug will remain at floating state in the stomach for an extended period without affecting the gastric emptying rate. FDDS provides an efficient method for improving the drug's bioavailability, reducing drug waste and providing controlled drug delivery systems. This review will generally focus on FDDS as a GRDDS and classify alternative systems, such as non-floating systems, and briefly mention excipients used in order to obtain an effective gastroretentive system.

ISBN: 978-81-952622-4-3

FORMULATION AND EVALUATION OF LEVODOPA EFFERVESCENT FLOATING TABLETS

Alwala Sudhaker

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ABSTRACT

Levodopa is an immediate precursor of dopamine used in treatment of Parkinsonism disorders. The Levodopa effervescent floating tablets were prepared by direct compression technique, using different low density polymers (POLYOX different grades) in various drug polymer ratios. The Levodopa effervescent floating tablets were prepared by direct compression method. The floating tablets were evaluated for friability, thickness, hardness, weight variation test, drug content, in vitro release and floating properties. The drug excipients compatibility was evaluated by DSC and FT-IR study.

Liposome formulation of poorly water soluble drugs: optimisation of drug loading and ESEM analysis of stability

Kadasi Sundeep
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ABSTRACT

Liposomes due to their biphasic characteristic and diversity in design, composition and construction, offer a dynamic and adaptable technology for enhancing drug solubility. Starting with equimolar egg-phosphatidylcholine (PC)/cholesterol liposomes, the influence of the liposomal composition and surface charge on the incorporation and retention of a model poorly water soluble drug, ibuprofen was investigated (PC:Chol - 16 micromol:4 micromol) increased ibuprofen incorporation efficiency by approximately 8%. However further increases of the SA content to 4 micromol and above reduced incorporation by almost 50% compared to liposome formulations excluding the cationic lipid. Environmental scanning electron microscopy (ESEM) was used to dynamically follow the changes in liposome morphology during dehydration to provide an alternative assay of liposome stability.Thepositive interaction between amphiphilic ibuprofen molecules and the bilayer structure of the liposome.

ISBN: 978-81-952622-4-3

Liposomal Formulations in Clinical Use: An Updated Review

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ABSTRACT

Liposomes are the first nano drug delivery systems that have been successfully translated into real-time clinical applications. These closed bilayer phospholipid vesicles have witnessed many technical advances in recent years since their first development in 1965. Extensive research is being carried out using these nano drug delivery systems in diverse areas including the delivery of anti-cancer, anti-fungal, anti-inflammatory drugs and therapeutic genes. The significant contribution of liposomes as drug delivery systems in the healthcare sector is known by many clinical products, e.g., Doxil®, Ambisome®, DepoDur™, etc. This review provides a detailed update on liposomal technologies e.g., DepoFoam™ Technology, Stealth technology, etc., the formulation aspects of clinically used products and ongoing clinical trials on liposomes.

Nutraceuticals as Functional Foods A Review

Jakkulaa srikanth

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ABSTRACT

Nutraceuticals are considered to be fortified or enriched foods providing all the essential nutrients required for maintaining the optimal health. A numerous studies have suggested the potential association of nutraceuticals with diet and health. This article gives a brief review on the classification of nutraceuticals on the basis of the availability of the nutraceutical from the natural sources which is further being processed and proving its medical health benefits in the market. The review also summarizes about the functional nutraceuticals acting as dietary supplements, suggested to have the capacity to significantly contribute to the modulation of the complex mechanisms of disease pathology with a view being that they may be essential in optimizing in vivo defences and help in maintaining wellness. Nonetheless, several more clinical and biological studies are needed to support guidelines for the intake of nutraceutical for the prevention and treatment in specific diseases and its medical benefits.

ISBN: 978-81-952622-4-3

Role of Nanotechnology in Cosmeceuticals: A Review of Recent Advances

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ABSTRACT

Nanotechnology manifests the progression in the arena of research and development, by increasing the efficacy of the product through delivery of innovative solutions. To overcome certain drawbacks associated with the traditional products, application of nanotechnology is escalating in the area of cosmeceuticals. Cosmeceuticals are regarded as the fastest growing segment of the personal care industry. Nanocosmeceuticals used for skin, hair, nail, and lip care, for conditions like wrinkles, photoaging, hyperpigmentation, dandruff, and hair damage, have come into widespread use. Novel nanocarriers like liposomes, niosomes, nanoemulsions, microemulsion, solid lipid nanoparticles, nanostructured lipid carrier, and nanospheres have replaced the usage of conventional delivery system. These novel nanocarriers have advantages of enhanced skin penetration, controlled and sustained drug release, higher stability, site specific targeting, and high entrapment efficiency. This review on nanotechnology used in cosmeceuticals highlights the various novel carriers used for the delivery of cosmeceuticals, their positive and negative aspects, marketed formulations, toxicity, and regulations of nanocosmeceuticals.

Formulation and Evaluation of Cold Cream

Miss Hema

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ABSTRACT

Creams were formulated based on the anti-oxidant potential of herbal extracts and its evaluation. Selected plant parts are dried and extracted using 70% alcohol by maceration. Quality evaluation of the product was assessed by susing different evaluation methods. No change of the physical properties was observed; the pH was in a proper range (approximately pH6). The marker Curcumin was present in the extract, formulation and the peak was comparable with standard Curcumin obtained by HPLC. The formulations showed good spreadability, no evidence of phase separation and good consistency during this study period. It was found that the viscosity of the cream increases when decreasing the rate of shear so the viscosity of cream inversely proportional to rate of shear (rpm). There is no sign of microbial growth after incubation period of 24hrs at 370C and it was comparable with the control.

ISBN: 978-81-952622-4-3

Formulation and Evaluation of Herbal Syrup

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ABSTRACT

Most of herbal syrup was originally derived from plant herbal medicine refers to use extract of fruit for medicinal purpose. Today syrup is used for treatment of many ailments.The antioxidant syrup is used to treat the cancer because of many stress condition and other oxidative reaction in body the free radical are generated, by using these syrup the condition is overcome. The extraction of kiwi is added into orange peel it gives flavored to syrup and basil leaves extract is added as antibacterial agent to inhibit the growth of bacteria and sugar and alcohol used as preservative. Four formulation viz. F1, F2, F3 and F4 were prepared with variation in quantity of ingredients like alcohol, sugar and final volume of syrup. All prepared formulation was by parameters like density, specific gravity, pH, organoleptic characteristics. The results shown that herbal syrup formulation number 4 (F4) is more stable and elegant as compared to other formulations.

RP-HPLC Method Development and Validation for Simultaneous Estimation of Atorvastatin Calcium and Pioglitazone Hydrochloride in Pharmaceutical Dosage Form

Surendar Angothu

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ABSTRACT

A simple, selective, rapid, precise and economical reversed-phase high-performance liquid chromatographic (RP-HPLC) method has been developed for simultaneous estimation of atorvastatin calcium (ATV) and pioglitazone hydrochloride (PIO) from pharmaceutical formulation. The method is carried out on a C_8 (25 cm × 4.6 mm i.d., 5 µm) column with a mobile phase consisting of acetonitrile (ACN): water (pH adjusted to 6.2 using *o*-phosphoric acid) in the ratio of 45:55 (v/v). The retention time of ATV and PIO is 4.1 and 8.1 min, respectively, with the flow rate of 1 mL/min with diode array detector detection at 232 nm. The linear regression analysis data from the linearity plot showed good linear relationship with a correlation coefficient (R^2) value for ATV and PIO of 0.9998 and 0.9997 in the concentration range of 10–80 µg mL^{-1}, respectively. The method is validated according to the ICH guidelines. The developed method is validated in terms of specificity, selectivity, accuracy, precision, linearity, limit of detection, limit of quantitation and solution stability.

ISBN: 978-81-952622-4-3

Glaucoma and the applications of carbonic anhydrase inhibitor – A Review

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ABSTRACT

Inhibition of carbonic anhydrase (CA) has pharmacologic applications in the treatment of glaucoma, a disease affecting a large number of people and characterized by an elevated intraocular pressure (IOP). At least three isoforms, CA II, IV and XII are targeted by the sulfonamide inhibitors, some of which are clinically used drugs. Acetazolamide, methazolamide and dichlorophenamide are first generation CA inhibitors (CAIs) still used as systemic drugs for the management of this disease. Third generation inhibitors have been developed by using the tail approach, but they did not reach the clinics yet. The most promising such derivatives are the sulfonamides incorporating either tails with nitric oxide releasing moieties or hybrid drugs possessing prostaglandin (PG) F agonist moieties in their molecules. Recently, the dithiocarbamates have also been described as CAIs possessing IOP lowering effects in animal models of glaucoma. CAIs are used alone or in combination with other drugs such as adrenergic agonist/antagonists, or PG analogs, being an important component of the antiglaucoma drugs armamentarium.

Simultaneous determination of pioglitazone and glimepiride in bulk drug and pharmaceutical dosage form by RP-HPLC method

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ABSTRACT

A simple, fast, and precise reverse phase, isocratic HPLC method was developed for the separation and quantification of pioglitazone and glimepiride in bulk drug and pharmaceutical dosage form. The quantification was carried out using Inertsil ODS (250 +/- 4.6 mm, 5 micro) column and mobile phase comprised of acetonitrile and ammonium acetate (pH 4.5; 20mM) in proportion of 60:40 (v/v). The flow rate was 1.0 ml/min and the effluent was monitored at 230 nm. The retention time of pioglitazone and glimepiride were 7.0+/-0.1 and 10.2+/-0.1 min respectively. The method was validated in terms of linearity, precision, accuracy, and specificity, limit of detection and limit of quantitation. Linearity of pioglitazone and glimepiride were in the range of 2.0 to 200.0 microg/ ml and 0.5-50microg/ ml respectively. The percentage recoveries of both the drugs were 99.85% and 102.06% for pioglitazone and glimepiride respectively from the tablet formulation.

ISBN: 978-81-952622-4-3

Pioglitazone: A review of analytical methods

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ABSTRACT

Pioglitazone is an oral anti-hyperglycemic agent. It is used for the treatment of diabetes mellitus type 2. It selectively stimulates nuclear receptor peroxisome proliferator-activated receptor gamma (PPAR-gamma). It was the tenth-best-selling drug in the U.S. in 2008. This article examines published analytical methods reported so far in the literature for the determination of pioglitazone in biological samples and pharmaceutical formulations. They include various techniques like electrochemical methods, spectrophotometry, capillary electrophoresis, high-performance liquid chromatography, liquid chromatography-electrospray ionization-tandem mass spectrometry and high-performance thin layer chromatography.

Metformin: A Review of Characteristics, Properties, Analytical Methods and Impact in the Green Chemistry

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ABSTRACT

Diabetes mellitus (DM) is considered a public health problem. The initial treatment consists of improving the lifestyle and making changes in the diet. When these changes are not enough, the use of medication becomes necessary. The metformin aims to reduce the hepatic production of glucose and is the preferred treatment for type 2. The objective is to survey the characteristics and properties of metformin, as well as hold a discussion on the existing analytical methods to green chemistry and their impacts for both the operator and the environment. For the survey, data searches were conducted by scientific papers in the literature as well as in official compendium. The characteristics and properties are shown, also, methods using liquid chromatography techniques, titration, absorption spectrophotometry in the ultraviolet and the infrared region. Most of the methods presented are not green chemistry oriented. It is necessary the awareness of everyone involved in the optimization of the methods applied through the implementation of green chemistry to determine the metformin.

ISBN: 978-81-952622-4-3

Preparation and evaluation of aceclofenac microemulsion for transdermal delivery system

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ABSTRACT

To develop novel transdermal formulation for aceclofenac, microemulsion was prepared for increasing its skin permeability. Based on solubility and phase studies, oil and surfactant was selected and composition was determined. Microemulsion was spontaneously prepared by mixing ingredients and the physicochemical properties such was investigated. The mean diameters of microemulsion were approximately 90 nm and the system was physically stable at room temperature at least for 3 months. In addition, the in vitro and in vivo performance of microemulsion formulation was evaluated. Aceclofenac was released from microemulsion in acidic aqueous medium, and dissolved amounts of aceclofenac was approximately 30% after 240 min. Skin permeation of aceclofenac from microemulsion formulation was higher than that of cream. Following transdermal application of aceclofenac preparation to delayed onset muscle soreness, serum creatine phosphokinase and lactate dehydrogenase activity was significantly reduced by aceclofenac. Therefore, the microemulsion formulation of aceclofenac appear to be a reasonable transdermal delivery system of the drug with enhanced skin permeability and efficacy for the treatment of muscle damage.

Formulation and Evaluation of Diclofenac Sodium Sustained Release Matrix Tablets Using AegleMarmelos Gum

Jakkulaa srikanth

Princeton College of Pharmacy

ABSTRACT

The aim of the study was undertaken to find out the potential of gum from the fruits of Aeglemarmelos to act as a release modifier in the formulation of diclofenac sodium sustained release matrix tablets. Purified isolated gum was subjected to physicochemical characterization. Four formulations containing Aeglemarmelos gum with each containing 100mg of Diclofenac sodium were prepared by wet granulation method using different drug: gum ratios viz. 1:0.25, 1:0.5, 1:1 and 1:2. Microcrystalline cellulose was used as diluent while magnesium stearate and talc were employed as lubricant and glidant respectively. The prepared formulations were evaluated for pre-compression parameters relevant to granules like angle of repose, bulk density, tapped density, hausner's index and carr's index while tablets were evaluated for various post-compression parameters like tablet thickness, hardness, weight variation, friability, content uniformity, disintegration time, swelling behaviour and in-vitro drug release study. All the formulations showed compliance with pharmacopoeial standards and found to be within the limits as per the standards. Among all the formulations, AM-4 showed a slow and complete drug release of 98.86% over a period of 12 hr and thereby exhibited a satisfactory sustained drug release phenomenon.

ISBN: 978-81-952622-4-3

Nanotechnology in ocular drug delivery

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ABSTRACT

Most ocular diseases are treated by topical drug application in the form of solutions, suspensions and ointment. These conventional dosage forms suffer from the problems of poor ocular bioavailability,various anatomical and pathophysiological barriers prevailing in the eye,various constraints associated with ocular drug delivery, summarizes recent findings and applications of various nanoparticulate systems like microemulsions, niosomes, in the field of ocular drug delivery and also depicts how the various upcoming of nanotechnology like nanodiagnostics, nanoimaging and nanomedicine can be utilized to explore the frontiers of ocular drug delivery and therapy.

Formulation and evaluation of herbal shampoo

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ABSTRACT

The aim of the article is to formulate a pure herbal shampoo and to evaluate its physicochemical properties. The shampoo is enriched with herbal extracts without any synthetic additives. The herbal extracts used in formulation are Sapindusmukorossi (reetha), Glycyrrhizaglabra (liquorice), Azadirachtaindica (neem), Nardostachysjatamansi (jatamansi), Ocimumtenuiflorum (tulsi), Lavendulaangustifolia (lavender oil), Musa acuminate (banana root). Small amount of marigold was added as a preservative and citric acid as pH adjuster. The herbal extracts used in formulation are Sapindusmukorossi (reetha), Glycyrrhizaglabra (liquorice), Azadirachtaindica (neem), Nardostachysjatamansi (jatamansi), Ocimumtenuiflorum (tulsi), Lavendulaangustifolia (lavender oil), Musa acuminate (banana root). Small amount of marigold was added as a preservative and citric acid as pH adjuster. Herbal shampoo was prepared by simple mixing process. The herbal shampoo was tested for physicochemical properties. Some of methods are visual inspection, pH determination, solubility check, cleansing action, determination of percentage solid content etc. The formulated shampoo was clean and qualitative. It showed good cleansing and detergency, low surface tension, good foam stability and antidandruff property. The pH of herbal shampoo was found to be around 6.2 which is good for scalp. The herbal extracts used in formulation are Sapindusmukorossi (reetha), Glycyrrhizaglabra (liquorice), Azadirachtaindica (neem), Nardostachysjatamansi (jatamansi), Ocimumtenuiflorum (tulsi), Lavendulaangustifolia (lavender oil), Musa acuminate (banana root). Small amount of marigold was added as a preservative and citric acid as pH adjuster. Herbal shampoo was prepared by simple mixing process. The herbal

ISBN: 978-81-952622-4-3

shampoo was tested for physicochemical properties. Some of methods are visual inspection, pH determination, solubility check, cleansing action, determination of percentage solid content etc.

ANALYTICAL TECHNIQUES USED IN QUALITY CONTROL OF DRUGS: REVIEW

Miss Hema

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ABSTRACT

Analytical chemistry has provided many of the tools and methods necessary for research in the other traditional areas of chemistry. An analytical technique is a method that is used to determine the concentration of a chemical compound or chemical element. There are a wide variety of techniques used for analysis, from simple weighing (gravimetric analysis) to titrations (titrimetric) to very advanced techniques using highly specialized instrumentation. .From the stages of drug development to marketing and post marketing, analytical techniques play a great role, be it understanding the physical and chemical stability of the drug, impact on the selection and design of the dosage form, assessing the stability of the drug molecules, quantization of the impurities and identification of those impurities. The pharmaceuticals would serve their intent only if they are free from impurities and are administered in an appropriate amount. To make drugs serve their purpose various chemical and instrumental methods were developed at regular intervals which are involved in the estimation of drugs. For this analytical instrumentation and methods play an important role. This review highlights the role of the analytical instrumentation and the analytical methods in assessing the quality of the drugs.

Current Prospects of Nutraceuticals: A Review

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ABSTRACT

Nutraceuticals are dietary supplements, utilized to ameliorate health, delay senescence, prevent diseases, and support the proper functioning of the human body. Currently, nutraceuticals are gaining substantial attention due to nutrition and therapeutic potentials. Based on their sources, they are categorized as dietary supplements and herbal bioactive compounds. The global market for nutraceutical is huge. Herbal nutraceutical helps in maintaining health and promoting optimal health, longevity, and quality of life. Studies have shown promising results of nutraceuticals to treat several diseases, such as cancer, neurodegenerative diseases, cardiovascular diseases, etc. In the present review, an overview of various bioactive ingredients that act as nutraceuticals and their role in health benefits, has been discussed.

ISBN: 978-81-952622-4-3

Phytochemical screening and antibacterial activity of neem seed (azadirachtaindica) and production of homemade soap

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ABSTRACT

The different parts of neem tree contain various active compounds which are rich in antibacterial activity. The present study highlights the phytochemical analysis of neem seed. Various bioactive compounds like alkaloids, flavonoids, coumarin, leucoanthocyanin etc., were present in aqueous and acetone extract of neem seeds. A soap must cleanse the body properly without disturbing the pH level of the skin. So preparing the soap using neem seed destroys the microorganism which keeps our skin safe and healthy. The homemade neem soap can be replaced with other synthetic soaps for better results.

A Review on Lawsoniainermis:APotential Medicinal Plant

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ABSTRACT

Lawsoniainermis (Family: Lythraceae) contained carbohydrates, phenolic, flavonoids, saponins, proteins, alkaloids, terpenoids, quinones, coumarins, xanthones, fat, resin and tannins. It also contained 2-hydroxy-1,4-naphthoquinone (lawsone). Many alkaloids, naphthoquinone derivatives, phenolics and flavonoids were isolated from different parts of Lawsoniainermis. The pharmacological studies showed that Lawsoniainermis showed antibacterial, antifungal, antiparasitic, molluscicidal, antioxidant, hepatoprotective, central nervous, analgesic, anti-inflammatory, antipyretic, wound and burn healing, immunomodulatory, antiurolithiatic, antidiabetic, hypolipidemic, antiulcer, antidiarrhoeal, diuretic, anticancer and many other pharmacological effects. The current review will highlight the chemical constituents and pharmacological effects of Lawsoniainermis.

ISBN: 978-81-952622-4-3

Phytochemical Analysis and Antioxidant Properties of Leaf Extracts of Carica Papay

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ABSTRACT

The objective of the present study aimed at investigating the phytochemical and antioxidant properties of Carica papaya leaf extracts as phytochemicals are biologically active compounds and a powerful group of plant chemicals, believed to stimulate the immune system along with antioxidants, the molecules which hinder oxidation of other molecules by the process of inhibiting or by generating the oxidizing chain reactions and preventing diseases. The total phenolic content (TPC) was determined by Folin-Ciocalteu method and total flavonoid contents (TFC) were determined aluminum chloride method and antioxidant by 2,2 1-diphenyl-1-picrylhydrazyl method.

Phytochemical analysis and radical scavenging profile of juices of Citrus sinensis, Citrus anrantifolia, and Citrus limonum

Kadasi Sundeep

Princeton College of Pharmacy

ABSTRACT

The aim of the current investigation was to identify bioactive secondary metabolites including phenols, tannins, flavonoids, terpinedes, and steroids and compare the phytochemical analysis and antioxidant profile of the juice extracted from the fruits of Citrus sinensis, Citrus anrantifolia, and Citrus limonum. Phytochemical screening is important for the isolation of new, novel, and rare secondary metabolites before bulk extraction.

ISBN: 978-81-952622-4-3

Hibiscus Rosa Sinensis Linn.: A phytochemical and pharmacological review

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ABSTRACT

Hibiscus Rosa Sinensis Linn. (Malvaceae) is a popular medicinal plant found in tropical and sub-tropical region of world. All plant parts of Hibiscus Rosa Sinensis Linn are most widely used to treat several ailments like anti-Tumor, anti-fertility, anti-ovultory, anti-implantation, anti-Inflammatory, analgesic, anti-estrogenic, antipyretic, anti-spasmodic, anti-viral, anti-fungal, anti-bacterial, hypoglycemic, spasmolytic, CNS depressant, hypertensive and juvenoid Activity. Due to its multidimensional pharmacological approach it is certain to emerge as aeffficient player in the flourising field of herbal supplements, medicines and health care system. This review aims to present recent details on botany, ethnomedicinal uses, photochemistry, pharmacological effects, toxic effects, with the purpose to find research gaps demanding for upcoming research and investigation of Hibiscus Rosa Sinensis Linn. Principal constituents reported in Hibiscus Rosa Sinensis Linn are flavones, containing quercetin-3-sophorotrioside, kaempferol-3-oxylosylglucoside, quercetin3-diglucoside, quercetin-3, 7-diglucoside,cyaniding-3, 5diglucoside, cyaniding-3-sophoroside, 5-glucoside and other constituent are cyanidin chloride, cyclopeptide alkaloid, ascorbic acid, riboflavin, thiamine, hentriacontane, taraxeryl acetate, ß-sitosterol, malvalic acids and cyclic acids sterculic. Complete literature was probed via websites,online databases, thesis and texts. The available reports was portray physicochemical parameters, nutritional aspects and phytochemical analysis of bioactive plant parts. Friendly holistic conservation approaches offered by plant biotechnology applications are also discussed. Nonetheless, further studies are needed to propose the mechanistic role of crude extracts and other bioactives, and even to explore the structure²function relationship of active components.

Antibacterial effect of mango (Mangiferaindica Linn.) leaf extract against antibiotic sensitive and multi-drug resistant Salmonella typhi- A Review

Korna Devamani

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ABSTRACT

Alternative herbal medicine has been used to treat various infections from centuries. Natural plants contain phytoconstituents having similar chemical properties as of synthetic antibiotics. Typhoid fever is a serious infection and failure of its treatment emerged multi-drug resistant (MDR) bugs of Salmonella typhi. Due to multiple and repeated issues with antibiotics efficacy, it became essential to evaluate biological properties of plants from different geographical origins. Mango leaves have been reported for various medicinal effects like antioxidant, antimicrobial, antihelminthic,

ISBN: 978-81-952622-4-3

antidiabetic and antiallergic etc. Objective of present study was to investigate anti-typhoid properties of acetone mango leaf extract (AMLE) against antibiotic sensitive and MDR S. typhi isolates. A total of 50 isolates of S. typhi including MDR (n=30) and antibiotic sensitive (n=20) were investigated. Staphylococcus aureus (ATCC 25923) and Salmonella typhimurium (ATCC14028) were used as quality control strains. AMLE was prepared and its antibacterial activity was evaluated by agar well diffusion screening method and minimum inhibitory concentration (MIC), by agar dilution technique. Zone of inhibition (mm) of AMLE against MDR and antibiotic sensitive isolates was 18±1.5mm (Mean±S.D). Zone of S. aureus (ATCC 25923) and S. typhimurium (ATCC14028) was 20±1.5mm (Mean±S.D). MIC of AMLE was reported in range from 10-50 mg/ml.

Phytochemical characterization and antimicrobial activity of Cymbopogoncitratus extract for application as natural antioxidant in fresh sausage

Gaddam Swetha Reddy

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ABSTRACT

The development of natural additives is considered an important research topic. In this work, the use of *Cymbopogoncitratus* (CC) extract as a natural additive for chicken sausage refrigerated was investigated. The CC extract was characterized by electrospray ionization with high-resolution time-of-flight mass spectrometry (ESI-ToF-MS) and the identified compounds were directly related to the antioxidant activity demonstrated by CC in the fresh sausage. In total, 31 phytochemical compounds were identified, and 27 of these still were not described in the literature for CC. The antimicrobial activity showed that CC extract is a potential antibacterial agent. Besides, the results showed that CC extract reduced lipid oxidation compared to synthetic additive. The sensorial characteristics were maintained, demonstrating good acceptability by the consumer. The results confirmed that CC can keep the quality of chicken sausage refrigerated for up to 42 days of storage.

ISBN: 978-81-952622-4-3

Development and Validation of Rp-Hplc Method for the Estimation of Rasagiline Tablet Dosage Forms

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ABSTRACT

An accurate and precise HPLC method was developed for the determination of rasagiline. Separation of the drug was achieved on a reverse phase C18 column using a mobile phase consisting of phosphate buffer and acetonitrile in the ratio of 50:50 v/v. The flow rate was 0.5 ml/min and the detection wavelength was 210 nm. The linearity was observed in the range of 10-125 µg/ml with a correlation coefficient of 1.000. The proposed method was validated for its linearity, accuracy, precision and robustness. This method can be employed for routine quality control analysis of rasagiline in tablet dosage forms.

A Simple Validated Stability Indicating RP-HPLC Method for the Determination of Three Anti-parkinsonism Compounds in Oral Contraceptive Tablet Formulations

Upputuri Srikanth

Princeton College of Pharmacy

ABSTRACT

The present study describe the simple, novel stability-indicating assay method was developed and validated for determination of Levodopa, Carbidopa and Entacapone along with their degradation products in pharmaceutical formulation (Tablet) by Reverse Phase High-Performance Liquid Chromatography (RP-HPLC). During the ICH prescribed stress study, Levodopa, Carbidopa and Entacapone were found susceptible to degrade under oxidative (Peroxide) and hydrolytic (acid and base) conditions. The separation was achievedwithHypersil BDS (250 x 4.6 mm, 5µm) column using 0.1% orthophosphoric acid as a buffer and acetonitrile containing 35% of 0.1% orthophosphoric acid (95:5 v/v%) as mobile phase, at a flow rate of 1.2 mL min-1 column temperature kept at 30°C and photodiode array detector at 282 nm. The average retention times for Levodopa, Carbidopa and Entacapone, were 2.4, 4.6 and 8.0 min, respectively. The optimal condition, method was validated according to the ICH and USP guidelines. The method were linear in the concentration range for Levodopa, Entacapone were 50-300 µg mL-1 for Carbidopa 12.5-75 µg mL-1 (r2 > 0.999)and all three compounds recoveries were above 99%. There were no chromatographic or spectral interferences from excipients and proposed method suitable forthe routine quality control of analysis.

ISBN: 978-81-952622-4-3

Method Development and Validation of Phenytoin Sodium in Bulk and its Pharmaceutical Dosage Form by Rp-Hplc Method

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ABSTRACT

To establish a method and validation developed for the determination of Phenytoin sodium in its pure form as well as in tablet dosage form by reverse phase high-performance liquid chromatographic method. Chromatography was carried out on a Symmetry C18 (4.6 x 150mm, 5 µm) column using a mixture of m and phosphate buffer (60:40 v/v) as the mobile phase at a flow rate of 0.7 mL/min, the detection was carried out at 225nm. The retention time of the drug was 2.49±0.04 minutes. The method produced linear responses in the concentration range of 10 and 20mg/ml of Phenytoin sodium. The method is useful in the quality control of Bulk and pharmaceutical formulations.

HPTLC and RP-HPTLC Method Development and Validation for the Estimation of Carbimazole in Bulk and Marketed Formulation

Kurma Kirankumar

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ABSTRACT

Carbimazole, ethyl 3-methyl-2-sulfanylidene-imidazole-1-carboxylate, is an antihyper- thyroidism drug. It is a prodrug and after absorption it gets converted to active form, methimazole. Methimazole acts by preventing the thyroid peroxidase enzyme and reducing the production of the thyroid hormones T3 and T4 (thyroxine). Carbimazole, ethyl 3-methyl-2-sulfanylidene-imidazole-1-carboxylate, is aantihyperthyroidism drug. HPTLC and RP-HPTLC method has been developed and validated for the determination of carbimazole in bulk drug and marketed formulation. Chromatographic separation was performed on Pre-coated aluminum plates with 250 µm layer of Silica gel 60 F254 and Silica gel 60 RP-18 TLC F254S using Toluene: Methanol: formic acid (3.5:1.5% v/v) and water: methanol in the ratio of (2.2:2.8% v/v) and Scanning was carried out densitometrically at 298 nm. Linear relationships were obtained between response and amount of drug in the range 400–2400 ng per band with high correlation coefficients (r2 =0.995 and r2 =0.998) for HPTLC and RP-HPTLC method of carbimazole respectively. The accuracy of the method in terms of % recovery was found to be from 98-101 ± 1.04 % and 99-100 ± 0.47 % and the limit of detection and quantification were 20.83, 63.12 and 27.30, 82.74, respectively. This method under statistical analysis proved a selective, repeatable and accurate analysis of the drug. This method can be used for quantitative analysis of Carbimazole in the bulk drug and in tablet formulation.

ISBN: 978-81-952622-4-3

Method Development and Validation- A Review

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ABSTRACT

Analytical method development followed by method validation is an important process in the drug discovery. Although the drug shows good potency, lack of validated analytical method will not allow the drug to enter into the market. This is to ensure the quality and safety of the drug. The main objective of this review is to give an idea about the old and novel techniques available for the analysis of drugs in their raw material and formulated forms, check the stability of the drugs in the presence of the excipients and other stress conditions experienced during their shelf life period. The review work puts a light on the hyphenated techniques for the analysis and impurity profiling of drugs like LC-MS-MS, LCNMR- MS, GC-MS and LC –MS. This review also deals with the bioanalytical method development for the quantitative determination of the drugs in the various biological matrices. It also provides a means to determine the biological safety of the drugs by dealing with the SIAMs (stability indicating assay methods).

Analytical Method Development for Sodium Valproate through Chemical Derivatization

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ABSTRACT

Sodium valproate has anticonvulsant activity and is structurally different to conventional antiepileptic drugs. The problem with valproic acid is the lack of a chromophore, which means that gas chromatography is the sole assay methodology. The introduction of benzoyl and phenyl groups to the molecule is a useful derivatisation, which enables the creation of detectable chromophores for HPLC analysis for pharmaceutical dosages as well as biological systems. Sodium valproate was derivatised by the addition of a chromophore to its structure by introducing a methyl benzoyl or a phenyl group. Trichlorophenol and 2-hydroxyacetophenone were used to introduce phenyl and benzoyl groups to valproic acid, respectively.. The method was validated for parameters like linearity, range, accuracy precision, and robustness.

ISBN: 978-81-952622-4-3

Mucoadhesive chitosan/gelatin films for buccal delivery of propranolol hydrochloride

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ABSTRACT

The aim of this work was to develop and characterize chitosan/gelatin films as innovative mucoadhesive system for buccal delivery of propranolol hydrochloride. FT-IR and TGA analysis confirmed the interaction between chitosan and gelatin. The presence of higher chitosan amounts in chitosan/gelatin films allowed the lowest percent water-uptake ability (235.1±5.3%) and the highest in vivo residence time in the buccal cavity (240±13min). Moreover, the presence of mannitol in the formulation allowed 80% drug permeation through porcine buccal mucosa in 5h. This behaviour suggests that the application of four and two films containing 5mg of propranolol hydrochloride could be suitable for achieving the proposed daily dose for hypertension and atrial fibrillation treatment, respectively. Another interesting aspect of chitosan/gelatin films was their compatibility with buccalmicroflora in the absence of drug and their ability to determine growth inhibition for pathogen bacteria, but not for probiotic species, when loaded with drug.

Formulation and Evaluation of Ibuprofen Gastro-Retentive Floating Tablets

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ABSTRACT

The objective of the present study was to formulate the gastro-retentive floating tablets containing Ibuprofen, which would remain in stomach and/or upper part of GIT for prolonged period of time. Floating systems have low bulk density so that they can float on the gastric juice in the stomach. Ibuprofen is an anti-inflammatorydrug.The tablets were characterized for the pre and post compression parameters such as friability, hardness, thickness, drug content, weight variation, *in-vitro* buoyancy studies and 13 hrs *in-vitro* drug release studies and the results were within the limits. From the results obtained, it was concluded that the optimized formulation F4 desired drug release properties and floating behavior.

ISBN: 978-81-952622-4-3

Formulation and Evaluation of Topical Ketoconazole Nano emulsion

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ABSTRACT

The treatment of fungal skin infections using antifungal drug topical preparations often takes a long time for treatment. The advantages of using topical medication Is to reduce the risk of side effects from medication including reducing the chance of interacting with other drugs. But when having a chronic or widespread fungal disease on the skin area, the patient must use oral medicatiopical medication. Due to the treatment of fungal infection with topical drug preparation taking a long time for treatment, the development of delivery systems may increase the effectives of treatment. This research aimed to develop ketoconazole nano-emulsion topical preparation and to study the antifungal efficacy of the developed formulation. The nano-emulsion bases were prepared using the low-energy emulsification method. Two types of oils, Caprylic/Capric triglyceride--CT and Isopropyl myristate--IPM were used as the oil phase. A formula with a nanoscale of internal droplets was selected based on stability at 30ºC and 45oC for thirty days. After that, the developed ketoconazole nano emulsion was tested for antifungal activity against Candida albicans by the agar well diffusion method. It was found the 0.5% (w/w) ketoconazole nano emulsion from CT and non-ionic surfactant was measured at the ratio of 4:1 droplet with the diameter of 189.4+6.7nm. and a zeta potential of -28.4+3.4 mV. The developed formula was physically stable for over thirty days at 30º C and 45º C. Additionally, antifungal activity using agar well diffusion method against ***C. albicans*** of the developed formulation containing 0.5% w/w of ketoconazole was found to be significantly more effective than that of commercially available ketoconazole creams (2.0% w/w) ($p<.05$). Finally, it can be concluded that the ketoconazole nano emulsion is a promising tool in the effective treatment of fungal skin infections.

FORMULATION AND EVALUATION OF STABILIZED BETA-CAROTENE 7.5% DISPERSION IN MULTIVITAMIN SYRUP

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ABSTRACT

In most of the multivitamin oral syrups, there are instability problems of vitamin A with vitamin D and E. Betacarotene (precursor to vitamin A) has poor stability and several studies had reported that Beta-carotene 7.5% dispersion was not stable in multivitamin syrup formulations. So the main objective of the study was to formulate and stabilize Beta-carotene 7.5% dispersion in multivitamin (Vitamin D and E) syrup formulations. Two formulations (B1 and B2) of Beta-carotene 7.5% dispersion syrups were developed. The formulated syrups were evaluated for appearance, colour,

ISBN: 978-81-952622-4-3

taste, pH, wt/ml, viscosity and drug content. Formulation B2 showed good results in terms of general, physical and chemical parameters evaluated compared to formulation B1. Hence, formulation B2 was considered as an optimized formulation. Multivitamins (Vitamin D & E) was incorporated in the optimized formulation (B3) and the stability of formulation B3 was evaluated in terms of general, physical and chemical parameters. The stability reports of formulation B3 revealed that Beta-carotene 7.5% dispersion was stable even in presence of multivitamins. The study thus concludes that stable formulations of multivitamin syrup with Betacarotene 7.5% dispersion could be successfully developed.

Rheology and stability of water-in-oil-in-water multiple emulsions containing Span 83 and Tween 80

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ABSTRACT

Multiple emulsions are often stabilized using a combination of hydrophilic and hydrophobic surfactants. The ratio of these surfactants is important in achieving stable multiple emulsions. The objective of this study was to evaluate the long-term stability of water-in-oil-in-water (W/O/W) multiple emulsions with respect to the concentrations of Span 83 and Tween 80. In addition, the effect of surfactant and electrolyte concentration on emulsion bulk rheological properties was investigated. Light microscopy, creaming volume, and rheological properties were used to assess emulsion stability. It was observed that the optimal surfactant concentrations for W/O/W emulsion long-term stability were 20% wt/vol Span 83 in the oil phase and 0.1% wt/vol Tween 80 in the continuous phase. Higher concentrations of Tween 80 had a destructive effect on W/O/W emulsion stability, which correlated with the observation that interfacial film strength at the oil/water interface decreased as the Tween 80 concentration increased. High Span 83 concentrations increased the storage modulus G' (solidlike) values and hence enhanced multiple emulsion stability. However, when 30% wt/vol Span 83 was incorporated, the viscosity of the primary W/O emulsion increased considerably and the emulsion droplets lost their shape. Salt added to the inner aqueous phase exerted an osmotic pressure that caused diffusion of water into the inner aqueous phase and increased W/O/W emulsion viscosity through an increase in the volume fraction of the primary W/O emulsion. This type of viscosity increase imposed a destabilizing effect because of the likelihood of rupture of the inner and multiple droplets.

ISBN: 978-81-952622-4-3

A Review on Latest Trend of Cosmetics-Cosmeceuticals

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ABSTRACT

Now days a new hot topic in the cosmetic industry is 'Cosmeceuticals', which is the fastest growing segment of the natural personal care industry. Cosmeceuticals are the future generation of skin care. They are the advances made within the world of dermatological products and the new backbone in skincare. All cosmeceuticals claim to contain functional ingredients with either therapeutic, disease-fighting or healing properties. The term Cosmeceutical was coined by Raymond Reed but the concept was further popularized by Dr. Albert Kligman in the late 1970's. Cosmeceuticals are topically applied as cosmetic pharmaceutical hybrids, intended to enhance the beauty through ingredients that provide additional health-related function or benefit. That means they are applied topically as cosmetics, but contain ingredients that influence the skin's biological function. Today's Cosmeceuticals are serving as a bridge between personal care products and pharmaceuticals; also Cosmeceuticals are the fastest growing segment in skin care market. There is no regulatory category for Cosmeceuticals; hence this review tries to understand regulatory scenario as well the difference between drug and cosmetics is enlightened. The paper is an earnest endeavor to evaluate a Cosmeceutical product that claims a beneficial physiologic effect. This review paper is to give recent knowledge about the latest trend of cosmetic industry Cosmeceuticals.

A validated HPLC assay method for the determination of sodium alginate in pharmaceutical formulation

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ABSTRACT

A high-performance liquid chromatography-diode array detector method was developed and validated for the quantification of sodium alginate in antacid oral suspension using a phenyl stationary phase and buffer solution at pH 7.0 as a mobile phase. The method was validated for specificity, linearity, range, accuracy, precision and robustness. The method was specific for the determination of sodium alginate in the bulk drug, pharmaceutical dosage form and under stress degradation. The method was linear over the range of 600 to 1,400 µg/mL with r(2) = 0.9999, and accuracy and precision were acceptable with relative standard deviation < 2.0%. The described

ISBN: 978-81-952622-4-3

method is simple, specific, precise, accurate, robust and stability-indicating, and can be successfully applied for the routine analysis of sodium alginate in bulk drug and pharmaceutical dosage form.

Development and Validation of stability indicating RP-HPLC method for the simultaneous estimation of Beclomethasonedipropionate and Formoterolfumarate in their combined pharmaceutical dosage form.

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ABSTRACT

A simple, rapid, precise and accurate stability-indicating, RP-HPLC method was developed and validated for simultaneous estimation of BD and FF in bulk drug and its formulation. Separation was achieved on a ODS Hypersil C18 (250mm× 4.6mmi.,5µm)column, kept at ambient temperature, using a mobile phase consisting of ammonium acetate buffer: Acetonitrile (30:70 v/v) at a flow rate of 1.5 ml/min and UV detection at 218nm. The average retention times for BD and FF were found to be 6.04min and 3.30 min respectively. BD and FF and their combination drug product were subjected to acid hydrolysis, alkali hydrolysis, oxidation, thermal and photolytic stress conditions,as per ICH guidelines. Linearity was established for BD and FF in the range of 30-70 and0.9-2.1µg/ml respectively. Correlation coefficient was found to be 0.9971 and 0.9984 for BD and FF respectively.

ISBN: 978-81-952622-4-3