



International Conference on Current Advances in Pharmaceutical Industry and Development

"Advances in Drug Design, Development and Novel Nanotechnology -Present and Future Prospects"

**Centre for Pharmaceutical Sciences, IST
Jawaharlal Nehru Technological University
Hyderabad, India
10th & 11th March 2022**

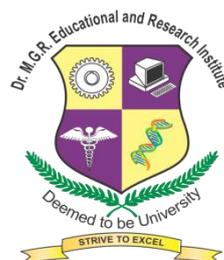
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Preface

This book reports the Proceedings of the “***International Conference on Current Advances in Pharmaceutical Industry and Development***”, organized by ***Jawaharlal Nehru Technological University Hyderabad (JNTUH) & Association of Pharmaceutical Research***.

The publishing department has accepted more than 463 abstracts. After an initial review of the submitted abstracts, 250 papers were presented at the conference and were accepted for publication in the Conference Proceedings. The topics that are covered in the conference include Pharmaceutical Technology, Pharmaceutical Chemistry and Pharmacotherapeutics, Pharmacology and Toxicology, Pharmacognosy and Phytopharmaceuticals and Pharmaceutical Nanotechnology etc. We would like to thank all the participants for their contributions to the conference and the proceedings.

Reviewing papers of the **ICCAPID 2022** was a challenging process that relies on the good will of those people involved in the field. We invited more than 12 researchers from related fields to review papers for the presentation and the publication in the **ICCAPID 2022** Proceeding. We would like to thank all the reviewers for their time and effort in reviewing the documents.

Finally, we would like to thank all the proceeding team members who with much dedication have given their constant support and priceless time to bring out the proceedings in a grand and successful manner. I am sure this **ICCAPID 2022** will be a credit to a large group of people, and each one of us should be proud of its successful outcome.

ICCAPID 2022

ACCREDITED BY NAAC



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Prof. Katta Narasimha Reddy

Ph.D, FWIF, FAPAS, FTAS

Vice-Chancellor



MESSAGE

It is indeed a matter of pleasure to note that Centre for Pharmaceutical Sciences, IST, Jawaharlal Nehru Technological University Hyderabad (JNTUH) & Association of Pharmaceutical Research organizes the International Conference on 'Current Advances in Pharmaceutical Industry and Developments' on 10th & 11th March, 2022.

The Pharmaceutical industry has an important role in designing and developing drugs and vaccines. They play a significant role in treating diseases and more importantly to improve the quality of life.

This conference provides an excellent platform for the interaction between experts in the areas of pharmaceuticals, drug delivery, nanomedicine, biotechnology, and nanotechnology around the world and aims in sharing some unique research and translational studies on various advances in the related fields.

I am sure that the resource persons specialized in the area of Pharmaceutical Sciences will enlighten the participants on the advanced knowledge of their specialization.

I appreciate efforts of organizers for selecting such a innovative and appropriate theme for the conference.

I wish the conference a grand success.

Prof. Katta Narasimha Reddy
Vice-Chancellor, JNTUH

From BioLEAGUES Director's Desk...

On behalf of **Association of Pharmaceutical Research**, I am delighted to welcome all the delegates and participants around the globe to the **"International Conference on Current Advances in Pharmaceutical Industry and Development"** which is going to be held on **10th and 11th March 2022**.



This conference will revolve around the theme **"Advances in Drug Design, Development and Novel Nanotechnology -Present and Future Prospects"**.

It will be a great pleasure to join with Doctorates, Research Scholars and Academicians all around the globe. You are invited to be stimulated and enriched by the latest innovations in all the aspects of Pharmaceutical Science while delving into presentations surrounding transformative advances provided by a variety of disciplines.

I congratulate the Chief Patron, Patron, Convener, Chairperson, Committee Members, Coordinator APR and all the people involved for their efforts in organizing the **ICCAPID 2022** and successfully conducting the International Conference and wish all the delegates and participants a very pleasant conference.



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Dr. A. Govardhan

Rector, JNTUH

MESSAGE

I am happy to note that the Centre for Pharmaceutical Sciences, IST, Jawaharlal Nehru Technological University Hyderabad and Association of Pharmaceutical Research are hosting an *International Conference on Current Advances in Pharmaceutical Industry and Developments* on 10th & 11th March, 2022.

The changing global scenario with an outburst of previously unknown diseases and pandemics has a significant impact on the pharma sector. With the advancement in the field of technology, the quality of human life as well as the advent of other lifestyle diseases is on a surge. The driving medical progress by researching, developing and bringing new medicines that improve health of patients around the world has ensured effective drug manufacturing that helps in therapy, treatment and prevention of a disease. Further, this requires a tremendous workforce towards the increased need for pharmaceuticals.

In response to the challenges that the contemporary world is facing, this conference has been planned to explore, identify and improve the effective drug discovery technologies.

I heartily compliment and congratulate the organizing team for this great effort and look forward to many more such path breakthrough events in future too.

I cordially welcome all the delegates of this conference graced by Eminent Scientists, Professors, Researchers, Scholars and Students from various parts of the globe. On this solemn occasion, I am happy to extend my warm greetings and best wishes to all the Distinguished Speakers, Session Chairs, Authors, Delegates and participants of this wonderful conference.

A handwritten signature in green ink, appearing to read 'A. Govardhan', written in a cursive style.

Dr. A. Govardhan

Rector, JNTUH

From BioLEAGUES CEO's Desk...

It is indeed a privilege to acknowledge and thank all the supporters and organizers of the “*International Conference on Current Advances in Pharmaceutical Industry and Development*”, who contributed greatly to organize the conference successfully.

I would like to acknowledge and thank the Chief Guest for his/her valuable contribution in the **ICCAPID 2022**

My special thanks to all of our Special Guests who so graciously accepted our invitation to participate in the conference. I also wish to acknowledge and thank the sponsors of the conference whose financial support was extremely grateful.

I would like to specially thank our Committee Members from various Organization whose continuous support have helped us plan and execute the conference successfully.

I am highly indebted to the contribution given by all the Scientists, Doctorates, Research Scholars, Academicians and students to the conference.



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(Established by JNTU, Act No. 30 of 2008)

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Dr. M. Manzoor Hussain

M.Tech., Ph.D.,

Professor of Mechanical Engineering &

REGISTRAR



MESSAGE

I am very delighted to host the International Conference on “Current Advances in Pharmaceutical Industry and Development” with the theme; Advances in Drug Design, Development and Novel Nanotechnology – Present and Future Prospects.

A huge change has been taken place in last few decades in the health care industry, where changing profile of population, emerging diseases and rapid growth in health care technology are placing health care challenges to meet the demand. This requires a transformation in the health care system to reassess the roles of health care professional. To ensure this fundamental shift, the conference has been planned to deliver sessions on understanding the demand and innovation in pharmacy field required to meet the health care challenges.

Keeping this in view, sessions have been planned featuring on pharma industries, drug design and growth in the field of budding pharmacy entrepreneurs. This is a great opportunity and occasion for us to interact with eminent personalities from various fields of pharmaceutical sciences. Let us join hands together to share our knowledge and experience that will go a very long way in helping to build up the healthy, prosperous and developed national.

In this context, it should be appreciated that the program Committee is bringing out a Proceedings containing the concerned research papers from participants across the globe from diversified disciplines which is expected to trend setting document for future research endeavours.

We hope that all of you will enjoy the academic feast, warm hospitality of Jawaharlal Nehru Technological University Hyderabad and rich heritage of the region and culture of Hyderabad City.

Dr. M. Manzoor Hussain
Registrar, JNTUH

REGISTRAR
JNT UNIVERSITY HYDERABAD
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Dr. M. Sunitha Reddy,
M. Pharm, Ph.D,
FPGEE, NABP (Mem), R.Ph. USA
Associate Professor & HOD
CPS, IST, JNTUH

MESSAGE

It is my pleasure to welcome all the invited speakers and delegates to Jawaharlal Nehru Technological University Hyderabad (JNTUH) for the International Conference on ‘Current Advances in Pharmaceutical Industry and Developments’ on 10th & 11th March, 2022 organized by Centre for Pharmaceutical Sciences, IST, JNTUH & Association of Pharmaceutical Research.

The theme of the conference addresses the challenging issues faced by the pharmaceutical sector in India and across the globe. The pharmaceutical industry has undergone far-reaching changes during the last decade. Emerging areas in the pharmaceutical research can lead to the development of novel molecules and drugs for different diseases. The pharmaceutical industries can make great strides with a multidisciplinary team consisting of the regulatory authorities and scientists from various concerned fields. The complexity of Pharma related sectors may converge to bring about solutions to deliver safer and easily available drugs and related ancillaries for the better health of society.

I am happy to know that a large number of eminent scientists and technologists from all over the world will be participating in the conference and discuss their valuable research innovations and experiences in various disciplines of pharmaceutical sciences. This will also lead to opportunities for fruitful collaboration for advancement in the pharma sector.

I appreciate efforts of organizers for selecting such an innovative and appropriate theme for the conference. I wish the conference a grand success.

A handwritten signature in blue ink, appearing to read 'SReddy', written in a cursive style.

Dr. M. SUNITHA REDDY

Convenor



Keynote Speakers



International Conference On Current Advances in
Pharmaceutical Industry and Development

10th – 11th March 2022



Dr. Fleming Martinez

Full Professor,
The National University of Colombia,
Colombia



Dr Sepideharbabi

President,
Iranian Environmental Mutagen Society (IrEMS),
Iran



Mr. Ignacio Quiles

Board of Directors,
WBY Ventures,
Spain



Dan Lim

Vice President,
AdventHealth University,
US



International Conference On Current Advances in
Pharmaceutical Industry and Development

10th – 11th March 2022



Dr. Hemachand Tummala

Professor,
South Dakota State University,
Brookings, SD, USA



Srikonda V. Sastry

SMEExpert LLC,
Sunnyvale, California, USA



Dr. David Mead

CEO and Cofounder at Varigen Biosciences,
US



Dr. Ahmed Hegazy

Board of Directors,
WBY Ventures,
Spain

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ABSTRACTS



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A Review on Transdermal Drug Delivery System



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Abstract

A transdermal patch is a medicated adhesive patch that is applied to the skin to deliver a predetermined dose of medication into the bloodstream. The patch delivers medication to the patient in a controlled manner, either by wrapping a reservoir of medication in a porous membrane or by body heat melting thin layers of medication inserted in the adhesive, which is an advantage of transdermal drug delivery over other methods such as oral, topical, intravenous, intramuscular, etc. Transdermal drug administration allows for a controlled release of the drug into the patient, allowing for a consistent blood level profile and, in some cases, increased effectiveness over other dose forms. Patches that are applied to the skin reduce the need for syringe or pump vascular access, and there are now a variety of patches for medications like clonidine, testosterone, and scopolamine. Combination patches for contraception and hormone replacement are also available. In TDDS drug permeation occurs through intercellular, trans cellular and appendageal routes across the skin. Stratum corneum acts as rate limiting barrier in the permeation of most of the drug molecules. Various factors that influence the drug delivery from the transdermal patch include skin condition, skin age and physicochemical and environmental factors. The basic components of TDDS are backing laminate, drug reservoir, rate controlling polymer membrane, adhesive and liners. After the preparation of transdermal patches evaluation tests are carried out such as evaluation of adhesives, in vitro and in vivo drug release studies and toxicological studies. In the recent decades various transdermal patches are available in the market.

Keywords

transdermal drug delivery system, adhesive novel drug delivery system, stratum corneum, backing laminate, liner.



A Systematic Review of Nasal Vaccination for SARS CoV-2



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Abstract

The nasal vaccine targets immune cells present in the mucosal membrane and tissue- which provides systematic as well as mucosal immunity present in other sites such as lungs and the intestines. Hence, a nasal vaccine may be more capable of inoculating crowds against the deadly infection and prevent even mild symptoms from developing. As the target is to deliver a dose which goes right into the respiratory pathways, the vaccine is either injected through a specific nasal spray or through aerosol delivery. Many viruses, including the SARS CoV-2, enter the body through mucosa - wet, squishy tissues that line the nose, mouth, lungs and digestive tract - triggering a unique immune response from cells and molecules there. Intramuscular vaccines generally fail at activating this mucosal response, and instead rely on immune cells mobilized from elsewhere in the body moving to the site of infection. Experts believe an intranasal vaccine will act against the virus from the time it tries to break the body's barrier, thereby making it more effective than the intramuscular ones in many cases.

Keywords

SARS CoV-2, Nasal route, Vaccination, Mucosal immunity, Effective delivery.



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A Review on Formulation and Evaluation of Emulgel



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Abstract

Emulgels have developed as one of the most intriguing topical delivery systems due to their dual release control mechanism, which includes both gel and emulsion pharmaceutical specialists are presently inquisitive about Emulgel systems because of their vital potential to perform as a drug delivery vehicle by incorporating a various vary of therapeutic compounds. These are either water in oil emulsions or oil in water emulsions, by combining it with a gelling agent, it became gelled. Incorporation of an emulsion into a product. It becomes a dual-control release system to the gel, which also improves its stability Emulgels are the result of combining the terms emulsion and gel. Emulgel is a unique treatment option for acne, fungal infections, arthritis, inflammation, psoriasis, and other skin problems. Preparing a medication emulsion and putting it into an Emulgel creates the topical system. Emulgel is a low-interfacial-tension, thermodynamically stable formulation made by combining a surfactant and a co-surfactant. It has a number of features, including enhanced permeability and strong thermodynamic stability. Emulgel offers a dual control and a long-lasting release. Emulgel increases both bioavailability and patient compliance. The resulting formulation's pH, viscosity, particle size, zeta potential, drug content, stability study, skin irritation test, and other parameters are assessed.

Keywords

Topical drug delivery, Emulgel, Gelling agents, Emulsifying agents etc.



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Hydrogels Based Formulations and Its Applications



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Abstract

Hydrogels are polymeric three dimensional networks and are capable of imbibing large amounts of water and remains insoluble in water due to their physical and chemical crosslinking. They respond to pH, temperature and ionic strength. They can be prepared by using natural polymers such as dextran, pectin, alginate or Synthetic polymers such as polyvinyl alcohol, polyethyleneoxide, polyhydroxyethylmethacrylate. Hydrogels are used to deliver several drugs. These are prepared by several techniques such as Bulk polymerization, physical irradiation, complex coacervation etc., Hydrogels have several applications in drug delivery systems, optics, imaging, tissue engineering, localized drug delivery, wound dressings etc., Morphology of Hydrogels are evaluated using Atomic Force Microscopy, X-ray diffraction, FTIR. They are also evaluated for their elasticity, swelling behavior and in vitro drug release. Today Hydrogels have found wide range of applications due to their non-toxic nature, low cost.

Keywords

Hydrogels, polymers, complex coacervation.



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Analytical Method Development and Validation of Fedratinib in Bulk and Pharmaceuticals by RP-HPLC



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Abstract

A simple, precise, accurate, robust, specific and sensitive isocratic stability indicating RP-HPLC method has been developed and subsequently validated for the determination of Fedratinib API and pharmaceutical dosage forms as per ICH guidelines. The separation achieved on a reversed phase Phenomenex Luna C₁₈, 5 μ m, 250mmx4.6mm i.d. as a stationary phase and mobile phase of methanol, acetonitrile and water in the proportion of 25:65:10. Other conditions optimized were: flow rate (1.0 ml/minute), wavelength (265 nm), Run time was maintained at 6.0 minutes. The retention time for Fedratinib was found to be 2.8 min. The stability of the drug was determined by studying the degradation of the drug under acidic, alkaline, peroxide, neutral, heat and UV conditions. The developed method was found to be linear with a correlation coefficient (r^2) of 0.9992. Recovery of Fedratinib was found to be in the range of 98-102-% which confirms the accuracy of the method. The limit of detection and the limit of quantification were found to 0.55 μ g/ml and 1.65 μ g/ml respectively. Sensitivity, accuracy, precision, robustness, stability, specificity, limit of detection, limit of quantification and system suitability parameters were validated for the developed method as per ICH Guidelines.

Keywords

Fedratinib, Myelofibrosis, RP-HPLC, Accuracy, Precision, ICH Guidelines.



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Quantification of Anti-Retroviral Drugs by RP-HPLC Method



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Abstract

A simple, Accurate, precise method was developed for the simultaneous estimation of the Rilpivirine and Cabotegravir in pharmaceutical dosage form. Chromatogram was run through Kromasil 150 mm (4.6 x 150mm, 5 μ m) Mobile phase containing Buffer 50% OPA: 50% Acetonitrile was pumped through column at a flow rate of 1 ml/min. Temperature was maintained at 30°C. Optimized wavelength selected was 257 nm. Retention time of Rilpivirine and Cabotegravir were found to be 2.349 min and 3.363 min. %RSD of the Rilpivirine and Cabotegravir were and found to be 0.6 and 0.3 respectively. %Recovery was obtained as 99.94% and 98.69% for Rilpivirine and Cabotegravir respectively. LOD, LOQ values obtained from regression equations of Rilpivirine and Cabotegravir were 0.37, 0.53 and 1.13, 1.61 respectively. Regression equation of Rilpivirine is $y = 29602x + 20224$ and $y = 24752x + 4467$ of Cabotegravir. Retention times were decreased and that run time was decreased, so the method developed was simple and economical that can be adopted in regular Quality control test in Industries.

Keywords

Rilpivirine, Cabotegravir, RP-HPLC



Biosimilars in Oncology: A Regulatory Overview

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Abstract

The biosimilars environment is fast-moving and rapidly evolving. The FDA defines a biosimilar as a biologic product that is highly similar to a US licensed reference biologic product for which there are no clinically meaningful differences in safety, purity, or potency compared with the reference biologic. Biosimilars are seen as a promising strategy to counter these rising healthcare costs, especially for biologic agents. The pace of change requires designing clinical programs in line with the latest requirements in targeted markets. Educating clinicians and patients about the potential financial benefits of using biosimilars, their safety and equivalency, and their effect on health care expenditure is an important strategic approach if wider use of biosimilars is desired. The FDA has created a regulatory approval process for biosimilars that aims to encourage and facilitate the development and introduction of biosimilars to provide competition for costly biologic agents. The availability of biosimilars might provide an opportunity to lower health care expenditures as a result of the inherent price competition with their reference product. Understanding how biosimilar cancer drugs are regulated, approved, and paid for, as well as their impact in a value-based care environment, is essential for physicians and other stakeholders in oncology. Biologics for the treatment and supportive care of cancer have enhanced the therapeutic options for clinicians in the management of oncologic therapy. The recent approval of several biosimilars in the United States had the potential to offer cost savings and health gains for patients with rheumatic diseases and cancers through highly similar efficacy. This study highlights the regulatory requirements for approval, extrapolation of indication of biosimilars in clinical cancer therapy.

Keywords

Biosimilars, Oncology, United States, Regulatory, Biologics



Antimicrobial Activity of Processed Shell of the Marine Mollusc (Sample No 09 and 11)



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Dr. P B Shamkuwar

Government College of Pharmacy, Govt. Polytechnic Campus, India

Abstract

Objective: The aim of the present study is to evaluate the antimicrobial activity of the processed shell powder (Sample no 09 and 11)

Methods: Processed shell powder from 09 and 11 was tested for inhibition of bacterial and fungal growth. Antimicrobial activity of the Shell powder (09 and 11) was tested against six bacterial strains and two fungal strains by disc diffusion method. Similarly, antibacterial activity was measured by a suppression zone around the disc impregnated with the treated shell powder. (Sample no 09 and 11)

Results: Antimicrobial action was examined in six different opportunistic human microbes and two fungi, for example, *Pseudomonas aeruginosa*, *Corynebacterium diphtheria*, *Salmonella Paratyphi B*, *Staphylococcus aureus*, *Proteus vulgaris*, *Escherichia coli*, *Malassezia furfur*, *Aspergillus niger* in different concentration 0.1, 0.2, 0.4 mg/ml. Among these sample no 09 and 11 powder showed the maximum zone of inhibition (08 mm size) against *Pseudomonas aeruginosa* at 0.4 mg/ml concentration and sample no 11 showed maximum zone of inhibition (08 mm size) against *Proteus vulgaris* at same concentration. For Fungus *Malassezia furfur* sample no 09 and 11 showed maximum zone of inhibition (04 and 03 mm size) at 0.4 mg/ml concentration, but standard doesn't show the inhibition against *Malassezia furfur*. For Fungus *Aspergillus niger* sample no 09 and 11 showed maximum zone of inhibition (09 and 05 mm size) at 0.4 mg/ml concentration.

Conclusion: The current perception proposed that, handled shell powder (Sample no 09 and 11) can be utilized as an alternative medicine as well as antimicrobial properties. Keywords: Sample no 09 and 11, Processed shell powder, antimicrobial activity.

Keywords

Sample no 09 and 11, Processed shell powder, antimicrobial activity.



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**Investigational New Drug the Leaping Step before
Committing Trials in Humans: An Informative Note**

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Abstract

Clinical examiners summon a few explicit administrative prerequisites if their examination incorporates the utilization of a drug specialist. Studies using a medication that the Food has not endorsed and Drug Administration (FDA) or for indications not in the supported marking may require recording an Investigational New Drug (IND) application with the FDA. On the off chance that an investigation meets explicit administrative exclusion models, an IND may not be required. Individual specialists may meet the FDA meaning of a support examiner, in which case the application interaction is mostly less muddled than for business backers, and this audit tends to just the present situation. Recording an IND requires finish of 3 arrangements of structures: 1 itemizing the examination (FDA Form 1571), 1 giving data about the examiner and study site (FDA Form 1572), and 1 ensuring that the investigation is enlisted in the public data set of clinical preliminaries (FDA Form 3674). If the IND is endorsed, the investigation may start 30 days after the FDA perceives receipt and doles out an IND. On the off chance that the FDA requires extra data or if the examination is put on a "clinical hold," the investigation should not proceed. While the IND is dynamic, the examiner should likewise keep on gathering a bunch of guidelines for checking the examination and answering to the FDA.

Keywords

New drug; Approval; Sponsor; Investigator; Regulations



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Method Development and Validation of Bilastine by LC-ESI-MS/MS in Human Plasma



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Abstract

Bilastine is a second-generation antihistamine (H1 Receptor Antagonist) medication which is used to treat of allergic rhinoconjunctivitis and Hives. Analytical method development and validation were done for the estimation of Bilastine in human blood plasma. And also the stability studies were done as per USFDA and EMA guidelines. The simple sample extraction procedure was done that is Protein Precipitation Technique (PPT). The linearity range was taken from 2000 ng/ml to 15.63 ng/ml. The LOD was 0.60 ng/ml and LLOQ was 15.63 ng/ml. LC-ESI-MS/MS was used to develop and validate this method, using Phenomenex Kinetex C18 column. Pump A contain 10mM Ammonium Acetate in Water (Milli-Q) with 0.1% Ammonia Solution and Pump B contain 0.1% Ammonia Solution in Methanol as solvent systems for the estimation of Bilastine. Propranolol was used as an Internal Standard in this study. The total chromatographic run time was only 7.0 minutes and the elute run time of Bilastine was 3.47 minutes. In future, this validated bioanalytical method was successfully applied in bioequivalence studies.

Keywords

Bilastine, LC-ESI-MS/MS, Method development and validation, Human plasma.



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Biography

My name is Mr. Dibya Das (M. Pharm, Pharmaceutics). I am now pursuing a Ph.D. at JIS University in Kolkata, West Bengal. My area of research is in the field of BA/BE studies which I am doing at TAAB Biostudy Services Kolkata, West Bengal, India.



International Conference On Current Advances in Pharmaceutical Industry and Development

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A Study on Off-Labelled Drug use in Community Pharmacy



Dr Haritha K

Sri Adichunchanagiri College of Pharmacy, India

Abstract

Background: The way of drug use which is different from the approved drug label is known as “off label” use. Various studies were reported that Prescribing off-label drugs is extremely common worldwide, but unfortunately, usually done without sufficient scientific data.

Materials and Methods: A prospective cross sectional study was conducted in selected community pharmacies. Descriptive statistics was performed and in few situations, participants did not answer every question, resulting in missing data, which was not approximated or utilized in the study.

Results: Out of 192 prescriptions collected 403 drugs were assessed for the off-label drug use. 127(32%) drugs were found to be off-labelled, majority in the age group of 15-47 years i.e., approximately 63(49.61%). Among all the drugs being assessed pantoprazole 43(33.94%) was found to be the major followed by azithromycin 7(5.51%), lorazepam 6(4.72%). Rationality of the off-label drug majorly found to be with respect to inappropriate indication 125(98.42%). Drug food interaction 76(66%) was found to be major followed by drug-ethanol 31 (27%) and drug-drug interaction 7 (0.06%).

Conclusion: From the study it was concluded that use Off-Labelled drug use is prominent and need awareness programmes to promote rational drug use.

Biography

Dr. Haritha K, currently working as Pharm D intern in The Department of Pharmacy Practice, Sri Adichunchanagiri College Of Pharmacy, Rajiv Gandhi University of Health Sciences Bangalore, Karnataka, India.



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Effect of Salinomycin on SARS-CoV2 Infected Epithelium and Endothelium the Pulmonary Circulation System Using a Microengineered Human Pulmonary Organ Chip Model



Dr. Ch. S. Phani Kumar

Aditya Pharmacy College, India

Abstract

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV2) variants still threaten the global public health by increased transmissibility, virulence, or likelihood of vaccine escape. Salinomycin (SAL) is a promising therapeutic approach several studies reported that antiangiogenic and inhibits the entry of SARS-CoV-1. Lung chip consists of two micro-channeled outer parts separated by porous PDMS membrane to mimic the movement mechanisms of Lung air-blood chamber and auxiliary vacuum channels support stretching of the PDMS membrane. Alveolar-capillary barrier is composed of alveolar epithelial and vascular endothelial cells, human alveolar epithelial type II cell (AT II) line (HPAEpiC) and lung microvasculature cell line (HULEC-5a) will seeded on the upper and lower side of porous membrane. This study sheds new information on factors behind severe endothelial injury associated with intracellular SARS-CoV-2 virus and mechanism of SAL in inhibiting virus entry into the host cells.

Biography

This is Ch. S. Phani Kumar, Professor in Aditya Pharmacy College. I have 10 years of teaching experience in pharmacy profession and would love to extend hands in novel research methods.



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**Analytical Method Development and Validation of
Cefuroxime Axetil using HPLC**



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Dr. Amulyaratna Behera

School of Pharmacy and Life Sciences, Centurion University of Technology and Management, India

Dr. Sidhartha Sankar Kar

School of Pharmacy and Life Sciences, Centurion University of Technology and Management, India

Abstract

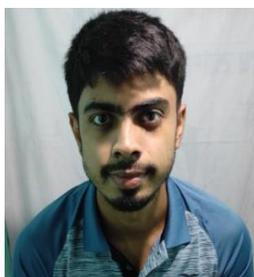
Cefuroxime Axetil (CFA) can be determined using a simple, sensitive, specific, and accurate HPLC method using a reverse phase. In order to evaluate CFA in its purest form and in pharmaceutical dosage forms, a rapid and reproducible High Performance Liquid Chromatographic method has been developed. A chromatographic method was developed and fully validated for the determination of CFA using an ODS C18 column (150 x 4.6 mm x 5* μ m length) with a mobile phase of methanol mixed with 0.01M potassium dihydrogen orthophosphate buffer (pH-2.0*0.05) at flow rate 0.8 ml/min. There was a retention time of 3.693 minutes for the drug. Linear responses were obtained in the range of 0.45 to 80 ng/mL of CFA. The HPLC method developed showed mild sensitivity, with LOD= 0.26 μ g/mL*1 and LOQ= 0.58 μ g/mL*1. ICH guidelines were successfully followed and the method proved reproducible when used for analysis of drugs in parenteral preparations.

Biography

Haragouri Mishra, completed Master in Pharmacy in Pharmaceutical Analysis and Quality Assurance at Jeypore College of Pharmacy. Presently pursuing PhD and working as Assistant Professor at Centurion University of Technology and Management.



Future Prospects of Bioelectronic Medicine for the Treatment of Alzheimer's Disease by Neuronal Stimulation



Hrishikesh Sarma

Girijananda Chowdhury Institute of Pharmaceutical Science (GIPS), India

Abstract

Bioelectronic Medicines (BM) are novel neuromodulation therapies, used to treat various diseases like rheumatoid arthritis, asthma, hypertension etc. as an alternative to conventional medicines. BM treatments are accomplished using a small, implantable device that generates and delivers periodic digital dosage to nerve bundles of the ANS, creating a disease fighting effect that can last for hours or days based on mechanisms like drug therapies. Study says BM also may have significant effects on CNS diseases like Parkinson's disease. In the case of Parkinson's disease, BM will act by electrical stimulation of the spinal cord and sending signals to the basal ganglia circuit, which in turn increases the release of stored dopamine. Alzheimer's disease, a progressive disease that destroys memory and other important mental functions, is thought to be increased its risk by low dopamine level. Study finds, Dopamine therapy improves cognitive functions in patients with mild to moderate Alzheimer's. In Alzheimer's, we propose using BMs in two ways. First, by electrical stimulation of the spinal cord using an implanted device in the brain, sending signals to the basal ganglia circuit, that in turn increases the level of dopamine. Second, by using a BM device in the substantia nigra area of the midbrain, which is responsible for secreting a large quantity of dopamine. The BM device will act on the dopaminergic neurons using the electrical signal, and thus stimulate the dopamine release from the dopaminergic neurons. In this presentation we will try to broadly overview the future approaches of Bioelectronic Medicine in Alzheimer's disease.

Keywords

Bioelectronic Medicine, Alzheimer's disease, Dopamine, Dopaminergic neuron.



Effect of Combination of Polymers in the Success of Buspirone HCl Buccoadhesive Tablets



Ijaz Sheik

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Ashok Thulluru

Associate Professor and Head Dept. of Pharmaceutical Quality Assurance, Shri Vishnu College of Pharmacy (Autonomous), India.

Abstract

Objective: The aim of the study was to prepare and evaluate buccoadhesive tablets of Buspirone HCl (BH) that avoids gastric degradation and first-pass metabolism, thereby increasing the drug bioavailability and onset of action. BH belongs to a class anxiolytic agent and a serotonin receptor agonist belonging to the azaspirodecanedione class of compounds.

Materials & Methods: In the present work, different ratios of synthetic polymer (HPMC K4M) and mucoadhesive polymers (Carbopol 934, sodium carboxy methylcellulose, sodium alginate and guar gum) and their combinations with HPMC K4M were studied to give a modified balance method, to determine the *ex vivo* bioadhesive strength and all the formulations were undergone pre-, post- compression studies, swelling index and *in vitro* dissolution studies.

Results: From the results of the evaluation studies, it was found that the combination of two polymers (HPMC K4M and Carbopol 934) possessed excellent mucoadhesive properties and better extended release of BH up to 8 h.

Conclusion: The formulation (F6) fulfilled all the criteria set from the desirability search. From the *in vitro* diffusion study, drug release from it is extended up to 8 h with a zero-order release profile. Results found that increase in prehydration time decrease in bioadhesive strength and increase in contact time increased bioadhesive strength. Thus, a stable BH buccoadhesive tablets were prepared successfully.

Keywords

Buccoadhesive tablets, buspirone HCl, anti-anxiety, HPMC K4M, Carbopol 934, sodium carboxy methylcellulose, sodium alginate and guar gum.



Dissolution Profile Matching of Venlafaxine Extended-Release Capsules Using MUPS Technology



Amity University

Isaiah Boyapati

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Dr. Rajendra Awasthi

Asst. Professor, Amity Institute of Pharmacy, Amity University, India

Prof. Dr. GT Kulkarni

Professor and Principal, Dept. Pharmaceutics, Gokaraju Rangaraju College of Pharmacy, India

Abstract

Background & Rationale: Immediate release dosage forms are easy to develop and manufacture. One of the major disadvantages of immediate release dosage forms is dose dumping and peak-valley blood drug levels. Hence extended-release dosage forms are developed. Venlafaxine extended-release capsules are developed by pelletization technology. These capsules were compared with Innovator product. Aim of this study is to compare the dissolution profiles of the developed product with innovator product, establish similarity and mechanism of release.

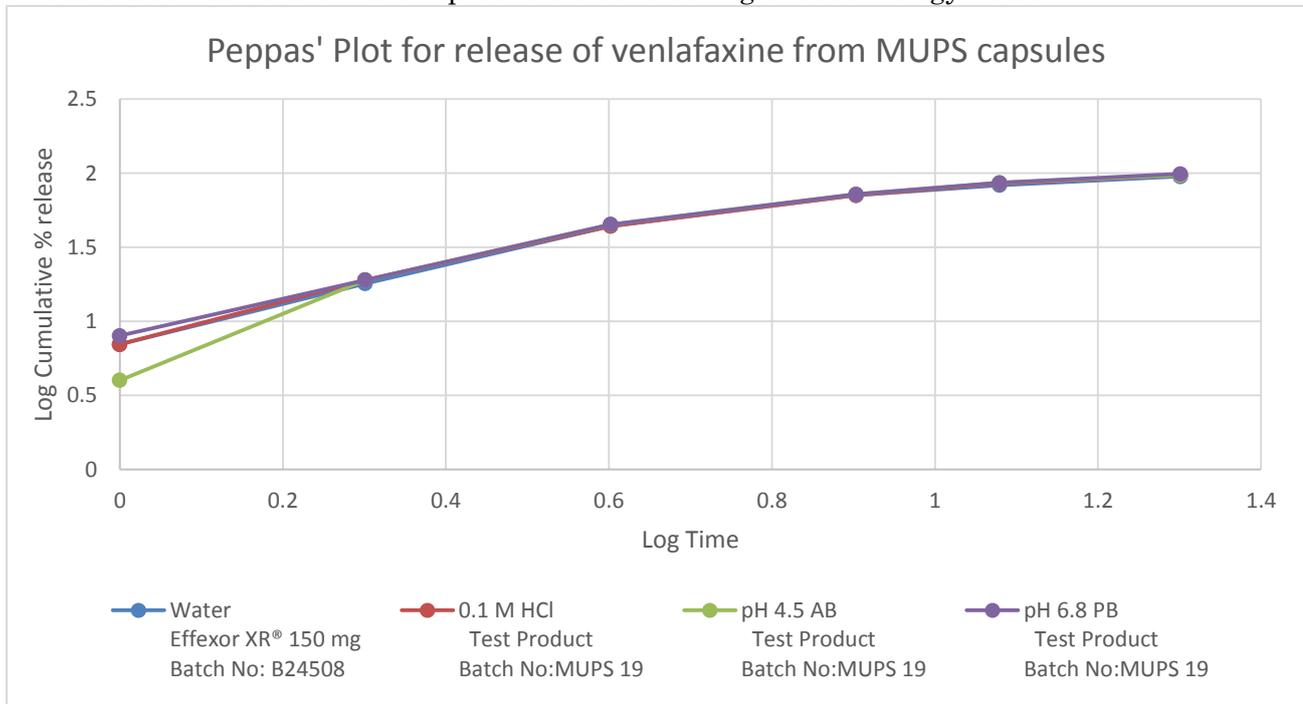
Methods: A: Formulation of Extended-release Capsules

Inert sugar spheres were loaded with drug using Wurster process. These drug-loaded pellets were coated with ethyl cellulose as release retardant polymer. HPMC was used as a binder and pore former. Extended-release pellets were lubricated with talc and filled in respective hard gelatin shells.

B. Instrumental Analysis: Formulated extended-release capsules were subjected to dissolution in acetate buffers of pH 1.2, 4.5, and phosphate buffer of pH 6.8. Dissolution testing was carried out using USP apparatus I (basket), 900 mL media, 100 rpm speed. The samples were collected at 1, 2, 4, 8, 12 and 20 h time intervals and subjected to HPLC analysis.

Results & Discussion: Formulated venlafaxine extended-release capsules developed by Wurster technology exhibited dissolution profiles similar to the innovator product in all the three media. f_1 and f_2 values were also calculated. The f_2 values were above 50% in all the three media. For determination of mechanism of release, the dissolution data was fit into Peppas' model. Peppas' plots for the developed MUPs were found to be linear, as indicated by the correlation coefficient values. The Peppas' plots had slope value above 0.5 and below 1, except in pH 4.5, indicating diffusion with swelling. In pH 4.5, the release at the end of 1 h was less than that in other buffers. This might be the reason for its slope above 1. Drug release by diffusion is a common phenomenon with ethyl cellulose, which was used in the present study as release retarding polymer.

Conclusion: The formulated venlafaxine extended-release capsules by MUPS technology is a suitable alternative and more reproducible considering the technology used.



Keywords

MUPS, Venlafaxine, Dissolution, Peppas Plots



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Current Overview of the Research in Alzheimer Disease



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ManjuladeviKasirajan

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Abstract

Alzheimer Disease (AD) is a progressive degenerative disorder that causes shrink in brain and brain cells. AD is usually caused by deposition of extracellular aggregation of the β amyloid peptide and intracellular aggregation of the tau protein called neurofibrillary tangles. As per WHO it is reported as 50-55 million cases of AD was found in 2021, worldwide. The causes of AD are age, genetic, environment factor and lifestyle changes. As per food and drug administration AD can be treated by targeting inhibition of Acetylcholinesterase (Donepezil and Galantamine), regulation of glutamate activity (Memantin), inhibition of Butyrylcholinesterase (Rivastigmine), Granulocyte-macrophage colony stimulating factor receptor inhibitor (Sargramostim), and Epidermal growth factor receptors inhibitor (Aducanumab). In past decay, treating the AD is a tremendous challenge due to drug transport across blood brain barrier Receptor mediated transport (RMT), Cell mediated delivery, Carrier Mediated Transport (CMT). Our work highlight some of the research work on AD such as supplement of vitamin D, usage of Methylene blue TRX0237, removing β amyloid through lymphatic system can slower the progression of AD. Hence we conclude that targeting the disease based on pathogenesis of AD can be beneficial effect for future researches.

Keywords

Alzheimer disease, EGRF, β amyloid, VitaminD.



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Formulation and Evaluation of Anti-Viral Beet Lipstick



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Abstract

Cosmetics are substances used to enhance the appearance of the human body. Herbal cosmetics have growing demand in the world market and are an invaluable gift of nature among herbal cosmetics lipsticks has become popular. The aim of the study is to prepare the medicated lipstick to treat *Herpes labialis*, as this lipstick consists of pigments and drug to treat cold sores caused by herpes viruses and effective for the welfare of women of the society. In this study the lipstick was prepared by the extraction of herbal plant and the extract is combined with drug to form a medicated lipstick. After synthesis, the physicochemical stability of the lipstick was examined by breaking load test, softening point, aging stability, pH, skin irritation test, perfume stability, solubility, surface anomalies. Further particle size, TGA/DSC analyses were carried out to characterize the thermal stability and the particle size distribution. The prepared lipstick was having a pH of 6.5 ± 1 which close to neutral pH, it has good stability and particle size was 407nm. This can be used by women for glooming effect of lips and also preventing from herpes viral disease with the application of medicated lipstick.

Keywords

Cosmaceutics, Acyclovir, Beetroot extract, Medicated Lipstick.

Biography

I am K.C.S Anupriya completed B. Pharmacy in Sree vidyanikethan college of pharmacy from Tirupati on 2020. Currently, I am pursuing IInd M. Pharmacy in Department of Pharmaceutics, Sree vidyanikethan college of pharmacy, Sree Sainath Nagar, Tirupathi.



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Role of Artificial Intelligence in Healthcare and Pharmaceuticals



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Abstract

Artificial Intelligence (AI) techniques and their applications in medical and pharmaceuticals are evolving rapidly. Artificial Intelligence deals with increasing amounts of data that are provided by health trackers like watches, smartphones, and other monitoring sensors in the field of medicine. Artificial intelligence focuses on how computers learn from algorithms, data and mimics the human thought and behavior process. The key categories of AI applications in healthcare involve early detection of diseases, diagnosis, prognosis, precision medicine, drug development, clinical trials, and providing patient quality care. It improves and increases clinical decision support systems that are used in transforming the future of pharmaceuticals. AI can play an important role in developing personalized medicine and the implementation of new personalized products in healthcare. There are many techniques that AI uses in the health care sector.

Keywords

Artificial Intelligence, Deep Learning, Healthcare, personalized medicine.



Development and Evaluation of Herbal Sunscreen Formulation



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Swathimol S

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Arya Prasad

College of Pharmaceutical Sciences, Government Medical College, India

Deepa. S. Nair

College of Pharmaceutical Sciences, Government Medical College, India

Abstract

Solar radiations will produce both beneficial and deleterious effects on the skin. When the skin is exposed to solar radiation for a long time it will produce various harmful effects such as sunburn, pigmentation, wrinkles, dermatitis, urticaria, ageing and even skin cancer. Sunscreens are intended to protect the skin from these harmful effects. The sunscreen agents in the formulation may scatter, reflect or absorb UV radiations and prevent its penetration into the skin and thereby skin damage. Sun protection factor is a laboratory measure of the effectiveness of sunscreen; the higher the SPF, the more protection a sunscreen offers against the UV radiations causing sunburn. The aim of the study was to determine the SPF of various herbal oils and the one with highest SPF value was selected and formulated in to emulgel. The invitro SPF is determined according to the spectrophotometric method of Mansur et al using hexane as solvent in the range of 290-320nm. Emulgel are emulsions, either of the water-in-oil or oil-in-water type, which are gelled by mixing with a gelling agent. The samples were evaluated for in vitro SPF, physical appearance, pH, viscosity and spreadability.



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**Development & Validation of RP-HPLC Method for the
Determination of Oseltamivir Phosphate API**



Khadeeja

Deccan School of Pharmacy, India

Sameera Begum

Deccan School of Pharmacy, India

Abstract

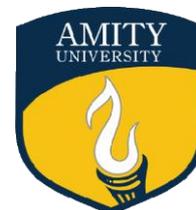
The development and assessment of a simple and quick liquid chromatographic test for the detection of possibly counterfeit oseltamivir phosphate has been completed. The RP-HPLC technique employs a C-18 column of 100mm x 4.6mm and operating at 25°C with an isocratic run utilizing Methanol. At a flow rate of 1 ml/min, acetonitrile (50:50 v/v) is used with UV detection at 227 nm. The procedure was statistically sound. Linearity, ruggedness, sturdiness, precision, and accuracy have all been verified. In order to obtain the calibration curve, with a correlation value of 0.996, the concentration range is 5-35g/ml with correlation coefficient 0.996.

Keywords

Oseltamivir phosphate (OSP); RP-HPLC.



3- Dimensional Printing of Tablets: Prospects and Challenges



kirti Aggarwal

Amity Institute of Pharmacy, Amity University, India

Abstract

Three-Dimensional (3D) printing is a technique for layer-by-layer printing of products, where Active Pharmaceutical Ingredients (API) and the related excipients are leveled up according to a digital model created with the help of computer aided software. This newly evolved technology assists in formulating personalized medicines which in return will be more patient compliant. It has competitive advantages over conventional type regarding complexity related to designing of the product and on-demand development. The advent of 3D printing has opened up new avenues for developing revolutionary medicine delivery methods. This review focuses on the benefits offered by 3D technologies for attaining quick medication, individualized, compound and customized drug delivery in the pharmaceutical business. The use of 3D printing in oral dosage forms, implants, topical applications and nanomedicines has been overviewed. In addition, the challenges associated with the 3D printing methods in the area of pharmaceutical formulation development are discussed in detail.

Biography

Kirti Aggarwal is a student at Amity University, Noida where she is doing her specialization in the pharmaceutical field. She did her schooling from Modern School, Faridabad and her Bachelor's from Amity University itself. Apart from having her keen interest in academia, she also likes to explore and study human behavior in particular. Kirti believes that new transformations can only be made if one is consistent and knows the real meaning of success and failures.



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**Personalized Medicine & Pharmacogenomic
Milestone in Treatment Approach from Tradition to Modern
Way**



Kunal Kanojia

KIET School of Pharmacy, KIET Group of Institutions, India

Shubham Bhatt

KIET School of Pharmacy, KIET Group of Institutions, India

Anuj Pathak

KIET School of Pharmacy, KIET Group of Institutions, India

Dr. Daksh Bhatia

KIET School of Pharmacy, KIET Group of Institutions, India

Abstract

Daily changes in the lifestyle caused so many imbalances in the health condition and using same medication for all ones is not good. So we approach towards the modern way in which the treatment is based on the gene studies of particular person to develop a new techniques to treat the diseased condition and prescribed them the best medications that optimized the health perfectly. All the individuals has different gene profile which make them venerable and on the basic of which we develop this personalized medicines. Theses genomic portfolio helps in developing the best, safe and effective treatment method for particular person with their unique gene profile. Personalized medicine increase the life extinction of person and decrease the financial expenditure as well as time. The advancement in the personalized medicine can help to detect the diseases at its previous stage by the help of different biomarkers and early detection of genetic events in diseased conditions. By developing this method, there is lot of limitations and challenges occurred in the way to minimized them different standard measures were also taken to prevent the privacy of individuals. This modern approach provides different applications and benefits in the field of treatment. The detection of various genes is easy through the gene testing help in marking the genes through the biomarkers help to minimize the effect. Nowadays, personalized medicine mostly preferred by the people to treat not only the diseases but also in the inherent problem too. Different studies were also performed on a population to get its importance from different scientist, doctors and pharmacist and in response that get good response regarding using such treatment approach to held. This method not only minimized the side effect of the drug but also guarantee the successful result in treatment.



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Keywords

Healthcare, Personalized Medicine, Genomic portfolio, Venerability, Gene testing, Pharmacogenomic, Biomarkers, etc



Technological Advancements in Monoclonal Antibodies



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Poojitha

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Umaima sameen

Smt. Sarojini Ramulamma College of Pharmacy, India

T.Sowmya

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Abstract

Biopharmaceuticals are innovative solutions that have revolutionized the treatment of important chronic diseases and malignancies. The approval of biosimilar products has become a complex and balanced process, and there are versions of drugs with established bio similarity that can offer a more accessible treatment option to patients. The research was based on the search of the selected terms in the title, summary, and claims of the documents through a search strategy containing IPC code and keywords. In articles recovery, the Web of Science tool was used in the search of scientific publications dated from the last 5 years. The search resulted in a total of 2295 individual patent documents and 467 families using DWPI database, 769 individual patents and 205 families using Patent Inspiration, and 2602 articles using Web of Science database. Additionally, this work describes the number of organizations that contribute to this area, where they are, how much development they have undergone, and the inventors/authors involved. Based on the number of publications registered, there is an important prominence for scientific research in mAbs. In terms of innovation, it is expected that several therapeutic drugs are already under regulatory review, which will allow drugs to be approved over the next few years and will thus generate a continuous flow of new products based on immunotherapies, mAbs, and biosimilar drugs. These drugs have become essential weapons for the treatment of significant diseases, and the increasing trend in the number of related scientific and technological publications contributes to making these therapies available to the greatest number of people.



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Biography

I am from Mahabubnagar district. I am pursuing my studies from Smt. Sarojini Ramulamma College of pharmacy, year 2018 – 2024. I am studying Doctor of Pharmacy, and want to focus on becoming a Clinical Data analyst. I want to provide a healthcare information professional who verifies the validity of scientific experiments and gathered data from research.



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A Review on Co-Processed Excipients: Current and Future Trend of Excipient Technology



M. Sessa Sai Durga

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Abstract

There is no single-component excipient fulfills all the requisite performance to allow an active pharmaceutical ingredient to be formulated into a specific dosage form. Co-processed excipient has received much more attention in the formulation development of various dosage forms, specially for tablet preparation by direct compression method. The objective of this review is to discuss the emergence of co-processed excipients as a current and future trend of excipient technology in pharmaceutical manufacturing. Co-processing is a novel concept of combining two or more excipients that possess specific advantages that cannot be achieved using a physical admixture of the same combination of excipients. This review article discusses the advantages of co-processing, the need of co-processed excipient, general steps in developing co-processed excipient, limitation of co-processed excipient, technologies used in developing co-processing excipients, co-processed excipients in the literature, marketed products and future trends. With advantages offered by the upcoming newer combination of excipients and newer methods of co-processing, co-processed excipients are for sure going to gain attraction both from academia and pharmaceutical industry. Furthermore, it opens the opportunity for development and use of single multifunctional excipient rather than multiple excipients in the formulation.



Design, Preparation and Evaluation of Ethosomal Topical Gel Containing Boswellic Acid



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Abstract

Transdermal drug delivery system showed promising result in comparison to oral drug delivery system. Ethosomes are ethanolic liposomes and can be defined as non-invasive delivery carriers that enable drugs to reach deep into the skin layers and/or the systemic circulation. These are soft, malleable vesicles tailored for enhanced delivery of active agents. In comparison to other vesicular dermal delivery systems, Ethosomal drug delivery systems contain several advantages. Boswellic acid is an anti-inflammatory drug, also used in the treatment of Rheumatic arthritis. In the present study ethosomes-based Gels were formulated using Phospholipid, ethanol, Tween 80 and Carbopol 934p as gelling agent and evaluated for their potential as topical delivery systems for Boswellic acid. Prepared ethosome studied for its physical appearance, which was found to be white, viscous, creamy preparations with a smooth and homogeneous appearance. It was easily spreadable with acceptable mechanical property. In vitro drug release of Boswellic acid from ethosome was performed to study the release behavior of drug. From the kinetic studies it was found that optimizes ethosome Formulation followed Zero order release kinetic which showed highest correlation coefficient value ($r^2=0.9955$).

Key Words

Transdermal drug delivery system, Boswellic acid, Ethosomes, anti inflammatory activity, Gel



Effect of Combination of Natural and Synthetic Polymers in Sustaining the Release of Diclofenac from Its Matrix Tablets



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Abstract

Objective: The objective of the present study was to investigate the effect of combination of natural and synthetic polymers on the physical characteristics and *in vitro* drug release of Diclofenac Sodium Sustained Release (SR) tablets.

Materials: Synthetic polymers (HPMC K100M) and natural polymers (Sodium carboxy methylcellulose, sodium alginate, guar gum and xanthan gum). Directly compressible lactose is used as diluent, magnesium stearate as lubricant and talc as glidant.

Methods: Diclofenac sodium sustained release tablets were prepared by direct compression method. The directly compressible blends were evaluated for Pre-, post-compression, swelling index, *in vitro* dissolution and followed by *in vitro* drug release kinetics studies.

Results: From the results of the evaluation studies, it was found that the combination of synthetic and natural polymers (HPMC K100M and sodium alginate) possessed excellent sustained release properties of drug up to 12 h with a better zero-order release profile.

Conclusion: From the above study, it was concluded that the combination of synthetic and natural polymers (HPMC K100M and sodium alginate) is better to sustain the release of drug up to 12 h with a better zero-order release profile. Evaluation parameters of all the formulated batches were found to be within the acceptable limits. The drug polymer ratio was found to influence the drug release, as the polymer level increased, the drug release rates were found to be decreased. The results of *in vitro* drug release kinetics of optimized formulation follows zero order and the mechanism of drug release was found to be non-Fickian diffusion. Thus, it can be concluded that the diclofenac sodium SR tablets were successfully formulated and evaluated.

Keywords

Diclofenac Sodium, HPMC K100M, sodium carboxy methylcellulose, sodium alginate, guar gum, xanthan gum and *in vitro* drug release studies



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A Review on Iontophoresis Drug Delivery System



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Abstract

The term iontophoresis refers to ion transfer. It can be defined as the permeation of ionized drug molecule across biological membranes under the influence of electrical current. It is a painless, sterile, non-invasive technique for injecting drug in to the body under the influence of electricity. It has proved to enhance the skin penetration and the release rate of various drugs which have poor absorption or penetration profile through the skin. It also enhances delivery of many ionized and unionized moieties. It works on basic electrical principle “like charges repel each other and opposite charges attracts each other”, so iontophoresis works by electrostatic repulsion. Various advantages of iontophoresis are low risk of infections, enhanced drug penetration, rapid termination, avoids first pass metabolism etc. Pathway of ion transport occur through intercellular route, appendageal route and trans cellular route. Various operational and biological factors effects Iontophoresis Drug Delivery. In iontophoresis drug delivery system iontophoretic device is used which includes iontophoresis generator and electrodes. Iontophoresis is used in the treatment of hyper- hydrosis, diagnosis of cystic fibrosis and delivery of many nonmetallic and metallic ions, vasodilators etc.

Key words

Iontophoresis Drug Delivery System, Electrostatic repulsion, Iontophoretic device, Iontophoresis generator, Electrodes.



Gene Polymorphisms of Interleukins and their Association with Endometriosis



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Abstract

Background: Endometriosis is a complex gynaecological disorder which causes chronic problems such as dysmenorrhea, dyspareunia, pelvic pain, and infertility. It is a multifactorial disease which involves genetic, hormonal, immunological and environmental components. Pathogenesis of endometriosis is still not completely understood.

Aim of the study was to Investigate Interleukin- 4 (IL-4) and Interleukin -18 (IL-18) gene polymorphisms in patients with endometriosis.

Material and methods: This study evaluated the -590C/T gene polymorphism of Interleukin- 4 (IL-4) and C607A gene polymorphism of Interleukin -18 (IL-18) in women with endometriosis. The study included 150 women with endometriosis and 150 controls. DNA was extracted from peripheral blood leukocytes, and further analyzed by PCR amplification and sequencing carried out to observe the relationship between the gene polymorphisms and endometriosis. To evaluate the risk of the different genotypes, 95% Confidence Intervals (CI) were calculated.

Results: Interleukin18 gene polymorphism showed significantly higher in the endometriosis group when compared to controls, whereas no significant difference was observed in IL -4 gene polymorphism between control women and patients with endometriosis.

Conclusions: The present study suggests that the IL-18 gene polymorphism may be associated with an increased risk for endometriosis, which delivers valuable understanding into the



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pathogenesis of endometriosis. However, larger studies are required to evaluate whether these alleles have a direct effect on disease susceptibility.

Key words

endometriosis, genetic polymorphism, cytokine, interleukin.



Ultra Performance Liquid Chromatographic (UPLC) Method with Photo Diode Array (PDA) Detector for the Simultaneous Estimation of Bictegravir Sodium, Emtricitabine and Tenofovir Alafenamide Fumarate



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Abstract

The aim of the present research work is to develop and validate a stability indicating Ultra Performance Liquid Chromatographic (UPLC) method with Photo Diode Array (PDA) detector for the simultaneous estimation of Bictegravir sodium, Emtricitabine and Tenofovir Alafenamide Fumarate in their fixed dosage form. The developed method employed acetonitrile and pH 2.5 Tri Ethanol Amine (TEA) buffer in the ratio of 30:70v/v as mobile phase at a flow rate of 1.0ml/min with an injection volume of 0.5 μ l. The analytes were separated on BEH C18 (1.8 μ , 100 \times 2.1mm) column with detection wavelength of 265nm. The analytes under study obeyed Beer's law in the concentration range of 3.125 – 18.75 μ g/ml, 18.75 – 112.5 μ g/ml and 12.5 - 75 μ g/ml for Bictegravir, Emtricitabine and Tenofovir Alafenamide Fumarate respectively. The proposed method was successful in separating and quantifying the compounds in the presence of degradants. Thus a specific, accurate and robust stability indicating method has been developed for simultaneous quantification of Bictegravir, Emtricitabine and Tenofovir Alafenamide fumarate in their combined dosage form.

Biography

This is N. Divya, Associate Professor working in Aditya College of Pharmacy. My specialization is in Pharmaceutical Analysis and currently working on developing RP-HPLC and UP-HPLC method development and validation.



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Medical Devices Insight – India and the Global Scenario



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Abstract

Healthcare sector advanced with the recent advancement in the science to develop different technologies the diagnosis the chronic disease and develop their accurate treatment that was not possible in previous decade of years. A good relationship develop between the pharmaceutical and engineering sector in the favor of which they develop so much medical devices that work as per the physiology of the organs without any defect. They exhibits good performance and have good life span in biological environment too. These devices not only replace the partial but also the complete organ too that not work properly in body. Nowadays from bandages, syringes, thermometer to prostheses, implants and other devices are developed and used as well. There are so many innovations are also here that help in developing different apparatus and equipment's that are applied in medical applications such as MRI scan, CT scan, etc. that are widely used in diagnosis by scanning or imaging. But for these devices there are so many limitation and challenges are there so to minimize the problems different regulatory bodies or authorities are developed in not only India but also in different countries that develop the different standards for medical devices and regulate them in good manner. In this review article we are going to explore the medical devices, their use, applications, limitations, combination products, their challenges and regulation in various countries including India, European Union, Japan and United State. There are so many risk and challenges that help in the product development cause and illegal uses also caused.

Keywords

Biological process, Combination product, Implants, Medical devices, Physiology, Regulation & Challenges, etc



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Hydrogels



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Abstract

Hydrogels are defined as three dimensional networks of hydrophilic polymers which are held together with cohesive forces or association bonds and swell when comes in contact with water. These networks are water insoluble due to cross linking because of hydrogen bonding and ionic interactions it also provides physical integrity and mechanical strength and sometimes forms as a colloidal gel. These hydrogels have high thermodynamical affinity for solvent which offers good swelling properties. These can imbibe water 10 to 20 times of its molecular weight. Hydrogels provide good biocompatibility as they possess high water content. These are synthesised by different techniques such as Isostatic ultra-high pressure in which suspension of biopolymer is subjected to ultra-high pressure (300-700MPa) for 20 minutes and other methods are cross linking, Nucleophilic substitution reaction, Freeze thawing, by using irradiation, gelling agents (glycophosphate). Hydrogels are characterised by Multimode atomic force microscopy (Surface morphology), X-ray diffraction (crystalline structure), cone plate viscometer(viscosity), FT-IR (change in morphology) and swelling behaviour. Monomers used in the synthesis of hydrogels are N-vinyl1,2 pyrrolidine, Methoxyethyl methacrylate, Ethylene glycol methacrylate, Hydroxyethyl methacrylate, Poly N – isopropyl acetyl amide, polymer of lactic and glycolic acid, N-(2-hydroxy propyl) meth acrylamide, PEG meth acrylate, PEG diacrylate. These are widely used in Tissue engineering, Regenerative medicine, Implants, 3D cell cultures, Drug delivery (PULSINCAP, Hydrodynamic systems).

Keywords

Hydrogels, Monomer, Hydrophilic Polymers, Nucleophilic substitution e.t.c.



Evaluation of Cardioprotective Effect of *Biophytum Sensitivum* in Preclinical Myocardial Infarction Models



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Abstract

Myocardial infarction, the most common ischemic heart disease, is considered as the leading cause of mortality worldwide. The existing treatment provides symptomatic relief but cannot arrest the underlying cause. The present study was intended to explore the cardioprotective effect of methanolic leaf extract of *Biophytum sensitivum* in isoproterenol and AlCl₃ induced myocardial infarction in rats by studying cardiac muscle cell injury markers and serum lipid level. Induction of myocardial infarction in rats was done by 2 doses of isoproterenol on 6th and 7th day in 7 days model and daily doses of AlCl₃ in 21 days model. Alteration of anthropometric parameters like heart weight, body weight, their ratio and biochemical parameters like ALT, AST, CK-MB, Total Cholesterol, Triglycerides, HDL, LDL, VLDL indicated the induction of myocardial infarction. Methanolic extract of *Biophytum sensitivum* pretreatment normalized all anthropometric and biochemical parameters which were actually altered by both isoproterenol and aluminium chloride. Histological examination revealed lesser degree of myocardial injury in pre-treated rats. Outcomes of the present study revealed that methanolic extract of *Biophytum sensitivum* has a significant protective effect against isoproterenol and aluminium chloride induced myocardial infarction through the antioxidant potential of its phytoconstituents.

Keywords

Biophytum sensitivum, isoproterenol, AlCl₃, Myocardial infarction, phytoconstituents



Spectrofluorimetric Method Development for Oxolamine Citrate



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Abstract

Simple, accurate and precise method was developed and validated for the selected drug Oxolamine citrate. The method is based on the spectrofluorimetric method development for Oxolamine citrate. Fluorescence intensity for Oxolamine citrate was measured at the excitation wavelength λ_{ex} 285 nm and emission wavelength λ_{em} 314 nm. The calibration plot was obtained in the concentration range of 5-30 $\mu\text{g/mL}$. The obtained correlation coefficients are in the range of 0.9997. The % recovery value are found to be 98.20. Limit of detection and limit of quantification are found to be 1.1 and 3.5 for Oxolamine citrate. The method was validated as per ICH guidelines and the results of validation parameters such as linearity, precision, accuracy, Limit of detection and limit of quantification indicates the suitability of the method for the routine analysis in drug and self-syrup dosage form.

Keywords

Oxolamine citrate, Spectrofluorimetry



Development and Evaluation of Ethosomal Gel Formulation of Climbazole



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Abstract

Dandruff is a prominent scalp problem caused due to two main factors which are growth of fungal species *Malassezia furfur* and excess sebum production, this leads to the itchiness, inflammation and ultimately to the visible white or pale yellow flakes on the scalp. Several anti-fungal treatments are available in the market and are used as hair shampoos, conditioners. However, the contact time of these agents with the scalp is short which lead to the recurrence of dandruff. Therefore, the present study involved preparation of an anti-dandruff ethosomal gel formulation loaded with the drug climbazole. The formulation would enhance the skin penetration of the climbazole due to ultra-deformable behavior of ethosomal vesicles and increased contact time of the gel with the scalp. The ethosomes loaded with the drug climbazole were prepared by cold method. The prepared formulations were evaluated for physical appearance, particle size, PDI and entrapment efficiency. The prepared ethosomes were dispersed in carbopol gel (1%w/w) to obtain final drug concentration of 0.5% w/w. The prepared gels were evaluated for ex-vivo skin permeation studies. Based on the results of particle size, PDI, entrapment efficiency, ex-vivo skin permeation studies, CG4 formulations was selected as final formulation. The final formulation was evaluated for zeta potential and texture analysis. It was observed from ex-vivo skin permeation studies that ethosomal formulation of climbazole showed better permeation than plain gel of climbazole.



Inclusion of Nanocosmeceuticals in the Health Care Industry: A Comprehensive Review on Its Pros and Cons



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Abstract

New technologies are booming in personal care industry. Nanotechnology manifests the progression in the arena of research and development, by increasing the efficacy of the product through delivery of innovative solutions. Cosmeceuticals are regarded as the fastest growing segment of the personal care industry and the use has risen drastically over the years. To overcome certain drawbacks associated with the traditional products, application of nanotechnology is escalating in the area of cosmeceuticals. 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, nanoparticles, buckyballs, nanoemulsions, dendrimers, fullerenes, microgels, nanogels, nanocrystals, nanogold and nanosilver have come into existence have replaced the usage of conventional delivery system. Nanocosmeceuticals exhibit improved activity because of better entrapment efficiency, enhanced skin penetration, and retention leading to prolonged release of active ingredients higher stability, site specific targeting. The nanotoxicological researches have indicated concern regarding the impact of increased use of nanoparticles in cosmeceuticals as there are possibilities of nanoparticles to penetrate through skin and cause health hazards. This current review on nanotechnology used in cosmeceuticals highlights the various novel carriers used for the delivery of cosmeceuticals, their positive and negative aspects and marketed formulations, toxicity, and regulations of nanocosmeceuticals.

Keywords

Nanotechnology, Cosmeceuticals, Nanocosmeceuticals.



Biotin-Chitosan Conjugated Quercetin Proliposomes as an Approach for Tumour Targeted Drug Delivery



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Abstract

Flavonoids are one of the most important phytochemicals in terms of its significant anti-inflammatory, hepatoprotective, antidiabetic, antioxidant, antiallergic and anticancer properties. Quercetin is a bioactive flavanol found in frequently consumed plant foods like onion, apple, berries and broccoli. It is lipophilic in nature and can cross cellular membranes and trigger various intra cellular pathways involved in chemoprevention. It has been known to mediate both intrinsic and extrinsic apoptosis in various cancer cells. The optimized Quercetin loaded liposomes were prepared by Ethanol injection method followed by conjugation with Biotin-Chitosan conjugate and lyophilized in the presence of mannitol as cryoprotectant to obtain proliposomes. The characterization of the final product was done by Particle size, Zeta potential, MTT assay, SEM and TEM, *in-vitro* drug release, encapsulation efficiency, flow properties and hydration studies. The particle size and zeta potential were found to be 180.6 nm and -20.1 respectively. The entrapment efficiency was found to be 86.73 %. *In-vitro* cytotoxicity study was carried out on MDA-MB 231 breast cancer cell lines of pure drug and prepared formulation. Upon comparison, more cytotoxicity was exhibited by the formulation than the pure drug. The proliposomes and its Biotin-Chitosan conjugated derivatives are promising candidates for further studies and also suitable for delivery of other drug candidates.

Keywords

Quercetin, Biotin-Chitosan conjugated proliposomes.



Simultaneous Estimation of Ambroxol Hydrochloride and Loratadine in Combined Tablet Dosage Form by First Order Derivative UV Spectrophotometric Method



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Abstract

To develop simple, rapid, accurate, precise, linear method for simultaneous estimation of ambroxol hydrochloride and loratadine in combined tablet dosage form by first order derivative UV spectrophotometric method. In this method 0.1NHCl solution is used as solvent for estimation of ambroxol hydrochloride and loratadine and the absorption maxima was determined at 265nm (ZCP for Loratadine) for ambroxol hydrochloride and 307nm (ZCP for Ambroxol Hydrochloride) for loratadine. The drugs obeyed beer lambert's law in a concentration range of 10 – 125 µg/mL for ambroxol hydrochloride and 2 - 12µg/mL for loratadine with regression coefficient of 0.9994 and 0.999 respectively. The %RSD values (<2) in precision studies indicates the reproducibility of the method. The LOD values were found to be 10.35µg/ml and 0.37µg/mL and LOQ values were found to be 31.3µg/mL and 1.15µg/mL for ambroxol hydrochloride and loratadine respectively. The results of analysis were developed as per ICH guidelines.

Keywords

Ambroxol hydrochloride, Loratadine, First order derivative spectrophotometric method, 0.1N HCl.



Formulation Development and Characterization of Piroxicam Inclusion Complexation



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Abstract

The aim of the study was to design Piroxicam's inclusion complexation, to improve its solubility by the reduction of particle size which leads to improve the particle surface area thereby increases the wettability of the mixture. Physical mixture, co-grinded mixture, kneading and solvent evaporation method were used to prepare the inclusion complexation of Piroxicam with β -cyclodextrin at 1:0.5, 1:1, and 1:2 w/w (Piroxicam/ β -cyclodextrin) ratios. Differential scanning calorimetry, Fourier-transform infrared and X-ray diffraction and scanning electron microscopy studies were used to investigate the interaction of Piroxicam with β -cyclodextrin. From scanning electron microscopic studies, it was observed that crystalline were formed as spherical in shape with rough surface, small piece & Pure Piroxicam in crystalline form with rough surfaces. Form Scanning electron microscopic studies, it was observed that amorphous were formed as spherical in shape with smooth surface, wide piece & β -Cyclodextrine in amorphous form with rough surfaces. The inclusion complexations of Piroxicam with β -cyclodextrin exhibited higher saturation solubility and dissolution rate than that of the pure drug of Piroxicam. Formulation K2 showed more drug release rate by reducing the particle size with complexation technique like kneading technique.

Key Words

Co-grinded mixture, Inclusion Complexation, Kneading, Wetting Property, Particle Shape.



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Medication Taken During Gestation and Effects of Teratogenic Activity- A Review

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Abstract

The ability of a drug to cause fetal abnormalities or deformities is called teratogenicity. During pregnancy, maternal exposure to some exogenous causative agents causes birth defects. These can be prevented by identifying these agents and avoiding them. There are some drugs which are not safe for mother's fetus and early infants. These agents affect the embryo, creating abnormalities in the development of physiological induction and structural disorders in their offspring. These lead to teratogenicity. These agents might be the reason for many fetal diseases and delays the development of embryo and fetus. There are physical or chemical agents like ionization radiation, oxidative stress, etc which retards the growth of fetus. These abnormalities are due to placental transfer of drug by maternal-fetal circulation. This review deals with issues of different classes of medication taken during gestation and promotes general and precise resources used during pregnancy and lactation.

Keywords

Teratogenicity, Gestation, Medications



An Overview on Pharmacological and Analytical Description of “Methylsulfonyl-3-(1-Methyl-5-Nitro-2-Imidazolyl)-2-Imidazolidinone” (Satranidazole)



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Abstract

Satranidazole drug is a class of nitroimidazole derivative. It is chemically known as Methylsulfonyl-3-(1-methyl 5-nitro-2-imidazolyl)-2-imidazolidinone, in class II satranidazole is classified (low solubility and high permeability), this drug is used in the treatment of trichomoniasis, giardiasis and amoebic infection. It is effective against *E. histolytica*, *Giardia* and *T. vaginalis*. The aim of this review is to study the different estimation methods of satranidazole and compare the study of satranidazole with other drug molecules by use of High Performance Thin Layer Chromatography (HPTLC), High Performance Chromatography (HPLC) and UV spectroscopy methods. Determine the effect of drug release from different pharmaceutical dosage forms and also study the pharmacokinetic profile of the drug. SAT is widely preferred as the mode of action of other nitroimidazole that mainly act as the cell nucleic membrane during the reduction phase. It has been observed that SAT has DNA-breaking abilities, preferably used for measuring substantial breakdown of DNA. The substituted imidazolidinone has been used to produce more activity against anaerobic bacteria and microaerophilic bacteria at the second position; and MIC₉₀ is four times less than metronidazole. Due to which the SAT has produced and developed extensive DNA that is characterized by helix instability and strand breakage. It has a higher tolerance to inactivation by high oxygen because comparison with other 2- and 5-nitroimidazole indicates that this anaerobe may be more active towards other 5-nitroimidazoles. SAT has newly presented as an antiprotozoal agent in oral formulation. It is highly effective, stable and has a well-resistant and clinically useful action against common protozoa. It is rapidly absorbed and exhibits higher concentrations than



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metronidazole. The present review offers a brief description of various works already done on satranidazole.

Keywords

Satranidazole, DNA, UV spectroscopy, HPLC, and HPTLC



Development and Stability Indicating RP-HPLC Method for Estimation of Dalfampiridin Bulk Drug and Tablet Dosage Form



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Abstract

Background: In the current study, a simple, improved, precise, rapid, and accurate reverse phase liquid chromatographic method was produced for the estimation of Dalfampiridin in bulk and tablet dosage form which is a potassium channel blocker used for the treatment of Multiple Sclerosis (MS). The separation of Dalfampiridin was achieved isocratically on a C18 column (250 × 4.6 mm, 5 μm) using (0.1% v/v) buffer pH 3.0 ± 0.05 adjusted with diluted Orthophosphoric Acid (OPA) and Acetonitrile (ACN) in the ratio of 60:40% (v/v) as a mobile phase, at a flow rate of 0.5 mL/min, and column temperature of 40 °C. HPLC grade methanol as diluents was used. 5 mL of the standard solution of the drug was injected, and the eluted analytes were detected at 262 nm.

Results: Dalfampiridin was eluted at 4.5 min with a run time of 10 min. Linearity in the concentration range of 25–75 ppm with a correlation coefficient of 0.999. LOD and LOQ were found to be 0.711 μg/mL, 2.154 μg/mL, respectively. Dalfampiridin was subjected for forced degradation stability study in conditions of thermal, acid, alkali, and oxidation and photo-degradation condition.

Conclusion: The results of the analysis prove that the method is simple, improved, precise, accurate, for Dalfampiridin and can be applied for routine analysis.



Ocular Hypotensive Potential of Trimetazidine Using Bentonite Clay-Based Film Formulation for Topical Delivery: Molecular Docking Study



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Abstract

Elevated Intraocular Pressure (IOP) is the most common cause of glaucoma. Increased Endothelin-1 (ET-1) concentration in aqueous humour results from trabecular meshwork contractility to primary open angle glaucoma formation. Trimetazidine has decreased the serum ET-1 level by protecting the endothelial cells. It exhibits a short elimination half-life of about 3 to 4 h and needs to frequent oral administration three times daily, leading to lesser patient compliance. HPMC-Bentonite based drug delivery carrier has been investigated to solve these disadvantages. Bentonite incorporated trimetazidine ocular film has been prepared by solvent casting method in the ratio of 1:0001 to 0.00005. The area under the decreased IOP versus time curve after topical administration has observed the sustained delivery. Formulations showed controlled release of drug for six h. With less bentonite in the film, the permeation time has been prolonged. Compared to the formulation without bentonite, the matrix formulation including bentonite showed more significant negative binding energy values, suggesting a durable and long-lasting impact. Bentonite clay-based trimetazidine ocular film could be used to reduce IOP in normotensive rabbits in a controlled manner.

Biography

Rakesh swain is currently working as Senior Research Fellow under department of Science and technology in the department of pharmaceuticals. He is working under the guidance of Prof (Dr)



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Subrata Mallick (HOD Pharmaceutics) & Dr Sujata Mohapatra (Assoc prof.) at School of Pharmaceutical Sciences, Siksha 'O' Anusandhan (Deemed to be University), Bhubaneswar, Odisha, India. His area of work is on biopolymer based drug delivery system, advanced ocular drug delivery, polymer-clay composite system.



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Genetic Variations and Pharmacogenomics- A Prospective Towards Personalized Medicine



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Abstract

The advancement in genetic science and technology paves the way towards the transition from conventional therapy to Personalized Medication. The genetic information helps to individualize drug selection and use in turn reducing the chances of adverse effects and maximizing patient care. Pharmacogenomics is a field of medicine that studies how genes affect the response towards a medication. It also identifies susceptible diseased and altered genes presenting the potential new drug targets. Individual responses towards drugs are mostly unpredictable. Pharmacogenomics aims in uplifting patient care by enhancing therapies tailored to genetic makeup and reducing the risk of serious adverse effects. The pharmacogenomic information and guidelines are made available by the Clinical Pharmacogenetics Implementation Consortium (CPIC) and Dutch Pharmacogenetics Working Group (DPWG). Personalized medicine aims in providing the right drug to right person at right dose. Implementation of pharmacogenomics into clinical practice needs a multidisciplinary team effort to achieve optimal genomic-informed care. This prospective renders on the significance of personalized medicine in clinical practice, emphasizing the emerging path towards its clinical implementation.

Keywords

Personalized Medicine, Pharmacogenomics, CYP450, CPIC, Implementation, Genetic polymorphism.



Design Synthesis *In-silico* and *In-vitro* Evaluation of Anti-tubercular Activity of Ofloxacin Azetidinone Derivatives



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Abstract

Ofloxacin is a broader spectrum quinolone antibiotic useful for the treatment of many bacterial infections. 2-azetidinone is most commonly known as β -lactam. The β -lactams have acquired importance since the discovery of penicillin. The compounds containing 2-azetidinones possess some biological activities. The present work is to explore more possibilities of finding suitable ofloxacin-azetidinone derivatives with enhanced activity and less toxic drugs. These synthesised new compounds desired to treat multidrug-resistant tuberculosis. These ofloxacin containing azetidinone derivatives (A1, A2, A3, A4, A5, A6) were synthesized and characterized by analytical methods (TLC), Spectroscopic methods (FT-IR, HRMS and $^1\text{H-NMR}$, $\text{C}^{13}\text{-NMR}$). The antitubercular activity of synthesized compounds were compared by using Isoniazid, Ethambutol, Pyrazinamide, Rifampicin and Streptomycin as standard drugs. the concentrations of derivatives (0.8, 1.6, 3.12, 6.25, 12.5, 25, 50, 100 $\mu\text{g/ml}$) were prepared by using sterile deionized water as a solvent. The Antitubercular Assay was Performed by using Microplate Alamar Blue Assay method (MABA method) and Analyzed MIC values found at 1.6 $\mu\text{g/ml}$. Docking results were generated and all compounds results shown above standard drug values. The compound A1 & A3 given best results and are -11.6 and -11.0 binding affinity values.

Keywords

ofloxacin-azetidinone, docking studies, anti-tubercular activity



A Review: Novel Method for Microsponges Drug Delivery System

Ramandeep Kaur

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Abstract

Microsponges drug delivery, because of their benefits has got a lot of potential and is very emerging field have been leading researchers around the globe to investigate them as drug carrier. Microsponges are polymeric drug delivery system composed of porous microspheres. They are tiny sponge like spherical particles with large porous surface. This unique technology for controlled release topical agents also use for oral as well as biopharmaceutical drug delivery. Microsponge are reliable delivery system that encapsulate both water insoluble and water sparing agent to improve their effectiveness. Microsponges can entrap various types of drugs and incorporated in formulations like cream, gel, lotion and powder. Various marketed formulations are also available Cerac, Ultraguard and retinol cream. One of the best feature of this technology is that that its own self-sterilizing and it provides increased efficacy for topically active agents with enhance formulation flexibility and numerous study has confirmed that microsponges are non-mutagenic, non-irritant and non-allergic in nature. The current review elaborates the microsponges technology with its release mechanism, preparation methods, characterization, evaluation parameters and its applications.

Biography

Miss Ramandeep Kaur is a student in the pharmaceutics department of the ASBASJSM, College of Pharmacy, Bela (Punjab). She is pursuing a master's in pharmaceutics. She has done her bachelor's degree from Himachal Pradesh Technical University.



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**Revolutionizing Drug Product Review using Artificial
Intelligence: US FDA's KASA**



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Abstract

Module 3-Quality and CMC data will be collected and evaluated using an FDA-developed system based on SCM (Structured Content Management). For the FDA's unique quality assurance system for pharmaceuticals: Knowledge-Assisted Assessment and Structured Application (KASA), raw data is mobilized, an algorithm is used to automate risk assessment, and reviewers are given pre-filled content selection tools to suggest risk reduction strategies. To get and keep track of all the information about a pharmaceutical product's entire lifecycle, this system wants to set up rules and algorithms for risk assessment and communication, as well as rules and algorithms for computer-aided application analysis. It also wants to compare regulatory requirements and quality risks across applications. Regulator quality control will be more efficient, consistent, and effective when the standardisation and structure of information exchange and the management of both the lifecycles of both products and facilities are fully put in place. Abbreviated New Drug Application (ANDA) submissions grew, and the public called for more affordable pharmaceuticals. KASA was set up to meet these needs, and it was able to do this. According to this article, KASA has features that are meant to cut down on the work load of health agency regulators and submission writers. KASA can't be used because of a lot of big problems. Artificial intelligence will be used by the FDA to make sure that pharmaceuticals are safe and effective. This will make it easier for the FDA to make sure that pharmaceuticals are safe and effective.

Keywords

KASA, Artificial intelligence, CMC data, Lifecycle of drug products, Automating risk assessment.



In-Vitro and In-Vivo Evaluation of a Solid Self-Emulsifying Drug Delivery System (S-SEDDS) for Oral Quercetin Administration



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Abstract

The aim of this study was to evaluate a novel S-SEDDS of Quercetin, in-vitro and in-vivo, for the improvement of its oral absorption. Self-emulsifying concentrate of Quercetin with Triacetin as oil phase, Tween 20 as surfactant and Ethanol as co-surfactant was successfully formulated into S-SEDDS using Aerosil® 200 as adsorbent. The resultant powder showed excellent flow properties and compressibility, which is ideal for solid dosage forms. The developed S-SEDDS was evaluated in-vitro and in-vivo for improvement of bioavailability. In-vitro drug release studies of the optimized formulation was found to be $99.70 \pm 0.227\%$ within 30 min and drug release followed first order kinetics (regression coefficient-0.9701). Results of in-vivo bioavailability studies conducted using Wistar albino rats also gave clear indication of significant enhancement of oral bioavailability of Quercetin.

Biography

- 1) Currently working as Assistant Professor of Pharmaceutics at College of Pharmaceutical Sciences, Government Medical College, Thiruvananthapuram, Kerala, India .
- 2) Completed Masters in M.Pharm (Pharmaceutics) From University of Kerala, India
- 3) PhD scholar at University of Kerala, India
- 4) Current research interests include development of Novel Drug Delivery systems



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Design, Development and Invitro Evaluation of Santonin Loaded Mucoadhesive Films for the Effective Treatment of Necrotizing Sialometaplasia



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Abstract

Necrotizing Sialometaplasia (NS) is an inflammatory condition that affects the salivary gland tissues and can mimic squamous cell carcinoma or mucoepidermoid carcinoma on histological and clinical examination, resulting in inappropriate surgical treatment. The anti-inflammatory property of santonin, a sesquiterpene lactone found in plants of the family Compositae, was demonstrated in acute inflammatory processes. Thus, the present work aimed to formulate mucoadhesive Santonin films with the objective of improving clinical efficacy, patient compliance and bioavailability for the treatment of NS. Using a solvent casting technique, a significant number of formulations of mucoadhesive drug delivery systems of Santonin were developed as oral films. Sodium carboxymethylcellulose, hydroxypropylmethylcellulose, hydroxyethylcellulose and polyvinyl pyrrolidone K-90 were used as mucoadhesive polymers. Our team evaluated the prepared films for weight, thickness, pH, swelling index, uniformity of drug content, in vitro residence time, folding endurance, and in vitro release and permeation studies. The permeation studies showed that the films released the drug over at least 10 hours. Having shown good swelling, a convenient residence time, and promising controlled drug release, the films containing 10 mg of Santonin in sodium carboxymethylcellulose 2% w/v and hydroxyethyl cellulose 2% w/v can be selected for the development of oral films for the treatment of Necrotizing sialometaplasia.



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Keywords

Necrotizing sialometaplasia (NS), Santonin, Sodium carboxymethylcellulose, Hydroxypropylmethylcellulose, Hydroxyethylcellulose.



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Pharmacogenetics of Cytochrome P450 Isoenzymes – A Step Towards Cardiovascular Precision Medicine



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Abstract

Pharmacogenetics is a study that concentrates on the effect of genetic factors on reaction to drugs in individuals, thus enhancing the therapy outcome. Pharmacogenetics is significantly known for reducing possible adverse effects caused by various medications. Cytochrome P450 (CYP450) isoenzymes are known for their significant role in the oxidative metabolism of approximately 80% of available drugs. These enzymes can influence the availability, efficacy, toxicity, adverse effects of various drugs. Many important and most common cardiovascular drugs are metabolized by these isoenzymes. The extent of genetic variations or polymorphism seen in these genes and their influence on inter-individual variation in response to cardiovascular drugs is increasing due to many factors. This review highlights the genetic mechanisms donating to variation in drug response to cardiovascular diseases treatment and also the significance of implementing cardiac precision medicine in clinical field.

Keywords

Adverse effects, Cytochrome P450, Cardiovascular, Metabolism, Pharmacogenetics, Polymorphism.



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A Novel Method to Authorise and Establish the Vital Variables of IVRT Layout for Docosanol Cream 10%.



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Abstract

IVRT is an In-Vitro Researching parameter which is utilised to release the potential Drug components from the Semisolid Drug products. In this Abstract the IVRT Technique is Used to determine the release rate of Docosanol from Docosanol Cream 10%.

By using this IVRT Tool we can determine the product similarity between the two comparable semisolid dosages (Reference Semisolid Drug Product and Test Semisolid Drug Product). Similarity ratios of Reference Semisolid Drug product and Test Semisolid Drug product should fall in Limit upto 75-133.33% as per the FDA-SUPAC-SS Guidance. To check the similarity between the two similar semi solid dosage products Test Semisolid Drug product requires validation.

To initiate the IVRT Method Validation performing laboratories should be certified, equipped and chartered, Maintenance and control of the study facility environment and systems Qualification and Calibration of the Instruments used for the validation activity shall be certified as per the USP Semi solid Drug products- Performance Tests. To check the rate and extent of release of potential component from the Semisolid Drug products a Validated Quantification Method is required.

As per the FDA U.S. Draft recommendation on Acyclovir Cream 5% Semisolid Drug product parameters to be valid were Qualification of Instrument, qualification of Synthetic membrane, qualification of optimized receptor solution, qualification of optimized receptor solution during experimentation, IVRT Receptor solution sample analytical method validation, IVRT Environmental Control, Linearity of slopes at Different Concentration, Precision of slopes, Quantification of product Portion remained after the study and Sensitivity(Change in Test Concentration), Specificity(Different Test Concentrations and Average IVRT Release) and Selectivity(Compare Test Product and Alter Product).

The results obtained from the IVRT Validation parameters determine the efficiency of the Validation which tends to determine the similarity between the Test Product and Reference Product.



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Keywords

IVRT, Validation, Semisolid Dosage Form, Test Semisolid Drug product and Reference Semisolid Drug product



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A Systematic Review on mRNA Vaccines for Cancer Immunotherapy



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Abstract

The application of mRNA methodology in vaccine production is a relatively new innovation. They combine the potential of mRNA to encode for almost any protein with an excellent safety profile and a flexible production process. In recent years, the mRNA method of vaccine production has been extensively recognized as a versatile method not only in the treatment of infectious disease but also in cancer immunotherapy. mRNA vaccines traditionally consist of a messenger RNA synthesized by in vitro transcription using a bacteriophage RNA polymerase and a template DNA that encodes the antigen(s) of interest. After administration and internalized by the host cells, the transcripts are translated into the cytoplasm of the host cell. The antigen produced as a result are presented to the immune cells for initiating the immune response. Dendritic Cells (DC) can be utilized as a carrier by delivering tumour-associated antigen mRNAs or total tumour RNA to their cytoplasm; then, the mRNA-loaded DCs can be delivered to the host to elicit a specific immune response. During the recent COVID pandemic, 2 mRNA vaccines were approved for human use and the outcome of the vaccines were remarkable. This paves way for the future possibilities for cancer immunotherapy and other infectious diseases.

Biography

I'm Shashank from Vels University, Chennai. I'm in my fourth year of Pharm.d (Doctor of Pharmacy). Oncology is my field of interest and my main intention is to explore, develop some new and safe treatment for cancer, thereby bypassing the adverse effects caused by the traditional chemotherapy and enhancing the livelihood of the cancer patients.



Development of EPA/DHA Loaded Chitosan Scaffolds & Its Potential to Treat Diabetic Wounds



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Abstract

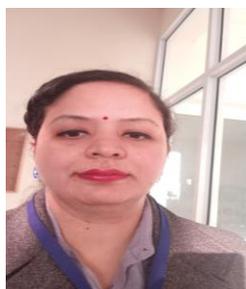
Type 2 diabetes mellitus have reached epidemic proportions worldwide. Hence the percentage of secondary complications including diabetic wounds has increased exponentially for the last few decades. Sadly, the treatment options currently available to treat diabetic wounds pose significant challenges in reaching target site of wound or infection. Consequently, recent trends leaning towards developing novel topical products that target diabetic wounds at the site of infection either by reducing the inflammation or infection. In regards, mounting evidences suggest that n-3 fatty acids, including Eiscosapentaenoic Acid (EPA), Docosahexanoic Acid (DHA) are beneficial in combating diabetic wounds. But their effectiveness in treating diabetic wound depends on preserving their functionality, biodegradability, non toxic, Antibacterial and its bioavailability. Moreover these compounds are both very unstable, water insoluble and have very unpleasant aroma. Hence we propose to use microencapsulation technology to overcome the drawback. In this review, we propose insights on the development and applications of Nano/micro encapsulated formulation, including EPA, DHA loaded Chitosan wound matrix.

Keywords

Diabetes wound, Eiscosapentaenoic acid (EPA), Docosapentaenoic acid (DPA), Chitosan, Nano encapsulation, Omega-3 fatty acid, Topical, Drug delivery



A RP-HPLC Method for the Analysis of Moxifloxacin in Ophthalmic Formulation



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Dr. Girish Kumar Gupta

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Abstract

A stability indicating High performance Liquid chromatography method was developed for the Moxifloxacin in ophthalmic formulation. The chromatographic separation was achieved on C18 (250 mm × 4.6 mm, 5 μ m) particle size column. The mobile phase contains a mixture of methanol : ACN : water with 0.1% TEA in isocratic elution mode. The total run time was 10min. The proposed method is found to be having linearity in the concentration range of 2-12 μ g/ml with correlation coefficient of 0.999. The developed method is found simple and accurate. Due to its simplicity, rapidness, precision and accuracy it may be used for laboratory analysis.

Keywords

Moxifloxacin, Method development, validation, stability indicating.

Biography

Shipra Thapar, (Roll no. PH1888010001) Research scholar (Pharmaceutical Chemistry), CT University is currently working as Assistant Professor in CT University itself. She holds the position of Academic coordinator of the School of Pharmaceutical Sciences. Her research interest lies in Pharmaceutical chemistry covering Analysis, medicinal chemistry. The current paper covers method development for ophthalmic solutions.



Transdermal Patches in Diabetic Management: A Review

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Abstract

Diabetic management is a complex therapeutic area which demands multiple drugs to manage its complications. Transdermal drug delivery system can aid this area by offering alternate delivery system to the oral route by which it helps to keep the side effect profile to minimum. Transdermal drug delivery system is gaining popularity as this offers advantages of parenterals without requiring professional assistance from the self-administration unlike and minimize side effect profile by avoiding first pass metabolism.

A single dose formulation consists of selected antidiabetic agents prepared using different technologies. Selection of drugs which are suitable for Transdermal administration will be done based on the physicochemical characteristics, viz. Molecular weight, partition coefficient, drug affinity for hydrophilic and lipophilic phases, melting point, preferably shorter half-life, non-irritating and non-sensitizing to the skin, dose ideally not more than 50mg etc. After selecting the drug molecules based on the above physicochemical properties, different technologies viz. Drug in adhesive system, drug reservoir system, matrix drug delivery technology, transdermal Gel system, formulation of microneedles will be evaluated for suitability and best approaches will be identified and taken further.

After selecting the drug and drug delivery system, novel polymers will be evaluated for formulating the mentioned transdermal drug delivery systems. Prototype formulations will be developed and QbD design will be adopted after thorough risk assessment of formulation and process variables. Finally, the best formulation will be evaluated based on satisfactory physicochemical characteristics and in-vitro dissolution profile and stability. Comparative in-vivo study shall be performed to understand pharmacokinetics behavior.

Keywords

Diabetes Type-II, Transdermal Patch, Technologies.



Molecular Modeling Study and Synthesis of Indole Analogues to Target Gamma-secretase for Alzheimer's Disease



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Abstract

Alzheimer's Disease (AD) is a multifaceted neurodegenerative disorder, characterized by presence of Amyloid Beta (A β) plaques and neurofibrillary Tau protein tangles in brain (1). The enzymes involved in amyloid cascade are beta-secretase, and gamma-secretase (2). We aim to work on gamma-secretase, as it possesses an active site and an allosteric site, on which the designed three series of Indole analogues can be evaluated for inhibitory and modulatory activity respectively. The concept of gamma-secretase modulation was discovered when subset of NSAIDs, such as ibuprofen, indomethacin, and sulindac showed A β lowering potential (3). Our area of interest was Indole analogues to simulate Indole pharmacophore of Indomethacin. Computational studies on series of Indole analogues were performed using Schrodinger. Molecular docking was performed using PDB ID 7D8X. The possibility of Indole analogues as potential inhibitors and/or modulators was explored by docking designed analogues at active site as well as allosteric site. Some analogues exhibited interactions with catalytic dyad (Asp 257 and Asp 385) (4). In silico ADME studies depicted overall favorable results especially for QPlogP, QPlogBB, and QPPMDCK (5). Analogues showcasing good computational results were considered for synthesis and characterization. Some of the analogues showcase potential towards the target gamma-secretase for AD.



Formulation Development and Evaluation of a Novel Emulsion Composition Embracing Aspirin and Glycerin in the Treatment of Ischemic Stroke



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Abstract

Stroke, a neurological deficit caused by an acute focal injury of the central nervous system is one of the leading causes of disability and death in India. Among all the strokes ischemic stroke accounts for 70% in India. An untreated ischemic stroke patient loses 1.9 million neurons in each minute and for every 15-minute reduction of the door to needle time there is a 5% lower odds of in-hospital mortality. It was reported that early and prompt use of aspirin in patients with suspected acute ischemic stroke reduces the recurrent stroke, death in hospital and improves functional recovery. Indian Stroke Association (ISA) also recommended aspirin 300mg as loading dose and 75 mg as maintenance dose. A multi disciplinary care is required ischemic stroke because in 25% of the patients clinical deterioration occurs due to brain and cerebral edema. Cerebral edema can be minimized by giving IV mannitol and /or glycerol or 3% normal saline. The present investigation is aimed to develop an intravenous novel emulsion using glycerine as continuous phase to treat ischemic stroke and was prepared by high pressure homogenization and evaluated for particle size, drug content, physical and chemical stability of the formulation, sterility. The results were promising.

Biography

T.Swetha, completed my intermediate in Bhavitha junior college, mahabubangar. Now i am studying B.Pharmacy IV year in Smt Sarojini Ramulamma College of Pharmacy, Mahabubnagar,I want to do M. Pharmacy in pharmaceutics



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Current Advances in Pharmaceutical Industry and Development



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Abstract

The pharmaceutical industry is experiencing rapid transformation. Artificial Intelligence, additive manufacturing, and other Industry technologies are some of the most notable pharma industry developments. There are 20 firms that work with new technologies that are advancing their respective fields. The top ten trends and innovations affecting pharmaceutical firms throughout the globe are outlined below. The top 10 pharmaceutical business trends for 2021 are shown in the Tree Map below.

Flexible pharmaceutical production is in high demand due to the fact that many parts of the globe still do not have easy access to essential medications. Use of AI and machine learning is speeding up drug research and development procedures. Data management is becoming more important for pharmaceutical businesses as they seek to make essential data available to other parties. Top 10 Pharma Trends in 2021 are Artificial Intelligence, Big Data & Analytics, and Data Sharing.

Keywords

Artificial Intelligence, additive manufacturing, and Flexible pharmaceutical production



Formulation and Evaluation of Microspheres of Anti-Inflammatory Drug Diacerein Prepared by Iontropic Gelation Method



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Prof. (Dr). Tapan Kumar Chatterjee

JIS University, India

Abstract

Microspheres are the controlled release dosage form that improves therapeutic efficacy of the drugs, prolongs duration of action, reduces dosage frequency and improves patient compliance. Diacerein microspheres reduce soft stool & diarrhea which is the main adverse effect of diacerein. Iontropic gelation method was used to prepare diacerein microspheres. In this process, sodium alginate & chitosan were used as polymers whereas calcium chloride was used as a cross-linking agent. Diacerein microspheres of various batches showed mean particle size ranging from 306-542 μm & % yield was ranging from 49 to 82%. Increased concentration of calcium chloride & sodium alginate increases the particle size whereas, increased concentration of chitosan increases the drug entrapment efficiency of the microspheres. Percentage (%) drug release study was carried out in phosphate buffer at pH 6.8 in USP apparatus II (Paddle type). Data showed that increased concentration of chitosan decreases the drug release from microspheres. Decreased drug release rate was observed in B3 batch which contains sodium alginate & chitosan in the ratio of 1:3. SEM studies of B3 batch revealed that microspheres are having spherical shape & rough surface. Formulation B3 shows good results & can be considered as an optimized batch for further animal studies.

Biography

The presenting author Mr. Tathagata Roy is currently working as an assistant professor in the Department of Pharmaceutical Technology, JIS University, Kolkata. Mr. Roy has more than 10 years of teaching experience. He had been associated with various pharmacy colleges of Uttarakhand, Delhi & West Bengal. His area of specializations is molecular & advanced pharmacology, Human anatomy & physiology, Novel drug delivery systems. Currently Mr Roy has credit of 27 nos. national & international publications. Presently he is pursuing his Ph.D. from JIS University, Kolkata.



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Evaluation of Anticancer activity of *Basella alba* on PC-3 and COLO-205 cell line

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Abstract

Cancer is a class of diseases characterized by uncontrolled cell growth. The current treatment options for cancer are radiotherapy, chemotherapy, hormone therapy, and surgery, where all of them have unpleasant side effects. Because of their adverse side effects, it is challenging to develop a new drug for cancer treatment. Therefore, in the present investigation, a widely consumable vegetable *Basella alba* was subjected to evaluate its antiproliferative effect along with molecular signalling of apoptosis in human prostate and colon cancer cell line. IC₅₀ values for BA-1 samples were 247.9g/mL in PC-3 cells and 202g/mL in COLO-205 cells, respectively in PC-3 and COLO-205 cells, standard Vincristine had IC₅₀ values of 16.01M and 15.28M. Our current study manifested that leaf extracts of *Basella alba* have antiproliferative activity against prostate and colon cell line and can be a potent source of anticancer agents to treat cancer.

Keywords

Basella alba; Cytotoxicity; Cell lines; Prostate Cancer



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Development and In Vitro Evaluation of Colon Specific Drug Delivery System Using Natural Gums



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Abstract

The aim of present study was to develop colon targeted system for Prednisolone using guar gum and Tamarind seed polysaccharide as release controlling layers on either side of matrix tablets of Prednisolone. Wet granulation was used to formulate matrix tablets having varying amounts of guar gum and Tamarind seed polysaccharide. All the formulations were evaluated for In-Process Quality Control (IPQC) tests. *In vitro* Drug release investigations were carried out in circumstances that mimicked stomach-to-colon transit. Physical parameters such as weight variation, hardness, friability, and content homogeneity were assessed for the produced tablets. The in-vitro drug release investigation was conducted at 37.5°C for 2 hours in 0.1N HCl, followed by 3 hours in pH 7.4 phosphate buffer, and then 15 hours in simulated colonic fluid pH 6.8 phosphate buffer containing 4% w/v rat ceacal content. Guar gum alone failed to restrict drug release, according to the findings. Matrix tablets released nearly 100 percent of the substance when tested in colonic contents. Prednisolone formulations, on the other hand, did not release the drug in the stomach or small intestine but instead carried it to the colon, resulting in sluggish absorption and making the drug available for local action in the colon.

Keywords

Prednisolone, Tamarind Seed Polysaccharide (TSP), Guar Gum & Colon Targeting



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Bioprinting in Pharmaceutical Application



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Abstract

The pharmaceutical industry is moving ahead at a rapid pace. Modern technology has enabled the development of novel dosage forms for targeted therapy. However, the fabrication of novel dosage forms at industrial scale is limited and the industry still runs on conventional drug delivery systems, especially modified tablets. The introduction of 3D printing technology in the pharmaceutical industry has opened new horizons in the research and development of printed materials and devices. The main benefits of 3D printing technology lie in the production of small batches of medicines, each with tailored dosages, shapes, sizes, and release characteristics. The manufacture of medicines in this way may finally lead to the concept of personalized medicines becoming a reality. This chapter provides an overview of how 3D printed technology has extended from initial unit operations to developed final products.

Biography

Vivek. C is a 3rd year B.pharm student at Chettinad School of Pharmaceutical Sciences. He is a budding researcher, his primary research interests are advance instrumentation on drug analysis.



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Chemistry of Thiazide and Thiazide like Diuretics in Lowering Hypertension Patients



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Abstract

Diuretics are drugs which causes net loss of Na and water in urine. Thiazides and thiazides like diuretics are used in hypertension .Hypertension is a modifiable cardiovascular effects. Starting with the monograph of first line drugs (CHLORTHALIDONE AND INDAPAMIDE) of thiazides like diuretics in lowering hypertension . The different classes of thiazide diuretics are characterised with the synthesis. The clinical use of thiazide diuretics in treatment of oedema, congestive heart failure etc..as well as some career clinically important condition is examined. Common adverse effects like hypokalamie ,hypochloremic alkalosis, skin rashes etc.. Drugs treating in the hypertension is examined and guideline that have been introduced are presented. A discussion of structure activity relationship(hydrochlorthiazide -6 chloro dihydro 1,2,4 benzothiazine 7 sulphoamide -1,1 dioxide) is presented. I would like to conclude that a monograph of thiazide like diuretics used in lowering hypertension.

Keywords

hypokalamie, hypochloremic alkalosis, Chlorthalidone, Indapamide, Hydrochlorthiazide



Development and Optimization of Lentinan Loaded Ultradeformable Vesicular Delivery System



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Dr. Kamlesh J. Wadher

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Abstract

Cancer is the rapid creation of abnormal cells that grow beyond their usual boundaries, and which can then invade adjoining parts of the body and spread to other organs, the latter process is referred to as metastasizing. Skin cancer- the abnormal growth of skin cancer most often develops on skin exposed to the sun. Melanoma is a serious form of skin cancer that begins in melanocytes, the melanin-producing neural crest-derived cells located in the bottom layer (the stratum basale) of the skin's epidermis. The major drawback of the current cancer therapy strategies is the inability to deliver specific drug to the target, causing the drug to affect both healthy and cancerous cells alike. Most drugs used in conventional therapeutic strategies have low solubility, high metabolism and are hydrophobic, making them biologically unavailable leading to systemic toxicity. Sustained release becomes important to supply the skin with a drug over a prolonged period of time hence a vesicular delivery system such as ultradeofmable vesicle i.e. Transethosomes was considered to be formulated for improve the permeation of anticancer drug Lentinan. LN transethosomes were prepared by Mechanical Dispersion Method. The preformulation study of the lentinan was done for solubility, melting point and phytochemical screening from the results of it was observed that the isolated bioactive molecules indicate the presence of carbohydrates and flavonoid. Further for compatibility assessment of drugs and excipient it was done with the help of FTIR. The results showed the compatibility between the drugs and excipients. All the transethosomes formulation were evaluated the entrapment efficiency by ultracentrifugation method. In present study, different ratio of sodium deoxycholate used. The %EE and drug release of different batches was in a range 38-70% and above 90 % respectively of



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Lentinan and amount of the release kinetics showed the matrix model as best fit model and release was significant change ($p < 0.05$).

Keywords

Ultradeformable vesicles, Transethosomes, Lentinan, Preformulation, Drug delivery



In vitro Bioavailability Testing for Different Brands of Fluconazole Tablets



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Abstract

A routine in vitro pharmacopeial bioavailability testing of five brands of fluconazole tablets with label claims of 150.0 mg marketed in Chennai was carried out to ascertain their consistencies. Fluconazole, a bis-triazole, is a first-generation antifungal agent used in the treatment of vaginal candidiasis and similar infections in the mouth, throat, and bloodstream. The plasma half-life of fluconazole is approximately 30 hours. This study focused on evaluation and comparison of the physicochemical properties of different brands of Fluconazole (150mg) uncoated tablets available in drug retail outlets in Chennai.

In vitro tests such as hardness, weight variation, disintegration time, dissolution study, were conducted as per Indian Pharmacopeia. Weight variation results showed that all brands fall within the 5% limit from the average which is acceptable. Friability was also found to be within IP limits i.e, less than 0.8%. Disintegration time of less than 15 minutes was observed for all brands. All Investigated products passed the test by showing more than 80% drug release in 30 minutes.



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Biography

Ankit Kumar S is a 3rd year B pharm student, currently pursuing his course in Chettinad School of Pharmaceutical Sciences, CARE. He is interested in the research area and this is the first step in his research career.



FTIR-ATR Fingerprinting and Characterization of Commercial Honey Samples and Their Adulterants: A Qualitative Case Study



VINAYAKA MISSION'S
RESEARCH FOUNDATION
(Deemed to be University under section 3 of the UGC Act 1956)



VINAYAKA MISSION'S
COLLEGE OF PHARMACY

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Saravanan Muniyappan

Vinayaka Mission's College of Pharmacy, Vinayaka Mission's Research Foundation (Deemed to be University), India

Kumar M

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B S Venkateswarlu

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Abstract

In recent years, there has been growing interest in verifying the quality of commercial honeys, as a very interesting natural remedy. Honey is a valuable food commodity that gains a lot of attention due to its potential health benefits and usage to sweeten foods and beverages. To save on manufacturing costs, honey is susceptible to deliberate adulteration with sugar syrups such as corn syrup. Honey adulteration does not pose significant health problems, but it negatively influences market growth and consumer confidence. The aim of this study was to develop procedures allowing for authentication of commercial honey by ATR-FTIR spectroscopy. The FTIR-ATR spectrum of natural honey was used as a reference to determine the pollen content within the investigate marketed commercial honey samples. The higher percentage of pollen contained the honey, the more similarities were observed between the respective spectra of these two samples, while the spectra of other honey types differed significantly. Fourier Transform Infrared Spectroscopy (FTIR) with Attenuated Total Reflectance (ATR) was used to collect absorption spectra of various commercial honey samples. Absorption FTIR spectra was used as a tool to identify the potential adulteration of honey samples. The techniques presented in this work provide an alternative method to determine the purity and authenticity of foods, such as honey, and other natural products.



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Keywords

ATR FTIR Spectroscopy, Honey, Derivative, Pollens, Fingerprinting

Biography

I am Annapoorani Arjunan currently working as an Assistant Professor in the Department of Pharmaceutical Chemistry at Vinayaka Mission's College of Pharmacy, VMRF-DU, Salem, Tamilnadu, India. Previously I worked as a lecturer in Padmavathi College of Pharmacy, Dharmapuri, Tamilnadu, India. I received my undergraduate degrees B.Pharm from Tamilnadu Dr.MGR Medical University and Postgraduate degree M.Pharm from Vinayaka Mission's Research foundation (DU). My current research is on novel analytical method development utilizing ATR-FTIR spectroscopic technique for selected drugs in its bulk and marketed formulation. To my credit I've published my research work in indexed journals and a patent was filed on the FTIR quantitation technique.



Pencillin Antibiotics- Cell Wall Inhibiting Drugs



R. Arun kumar

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Abstract

Here we present firstly cell wall synthesis such as pencillins, natural pencillins, pencillin-G used parentally (I.V), pencillin -V are used orally how it differentiate to use and very narrow spectrum antibiotics how to face and destroy not for remaining bacteria but only for streptococcal, the alkyl group chain interaction in narrow spectrum antibiotics. These are pencillinases or β - lactamases, in the very narrow spectrum of β - lactam group of nafcillin to use to effect neutropenia and nephritis. In the wide spread antibiotics, those anti β -lactamase drug such as clavulanic acid, sulbactam, tazobactam act as body guards. Why because to join the wide spread smart pencillins, neutralise the β - lactamases

Smart pencillins—Amoxicillin + Clavonic acid- Augmentin

Smart pencillins – Ampicillin+ sulbactam – Unasyn

Sulbactam is body guard of β -lactamases.

They help to Clea Enterococcal

H- Haemophili's influenza

E- E. coli

L- Listeria monocytogenes (G+)

P- Proteies

S- Salmonella typi.

Green pus is effective on pseudomonas that's why kills the antipseudomonal antibiotics (super model antibiotics) such as piperacillin + tazobactam – zosyn

Ticarcillin + clavonic acid – timentin

Remaining are Azlocilin, mazyollin, carbencillin.

Biography

Mr. R. Arun kumar completed his schooling from christhu Jyothi vidyalayam, mahabubnagar and completed his intermediate from prathibha junior college and he's now studying B. pharmacy 4th year in SMT. Sarojini ramulamma college of pharmacy, mahabubnagar- 509001. He wants to gain knowledge in this field. He wants to be a nuclear pharmacist.



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Quantification of Dolutegravir by Application of Chromogen Reagent



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Devilal J

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Abstract

To develop a simple, specific, accurate, precise and cost effective reliable spectrophotometric method have been developed and validated for quantitative estimation of dolutegravir in pure form and pharmaceutical dosage formulation. The ferric chloride causes oxidation of dolutegravir and itself get reduced to ferrous form (Fe⁺²) and the resulting ferrous form greenish brown colored complex with MBTH reagent, which has absorption maxima at 524 nm. This method obeyed linearity, in the concentration range of 2.5-12.5 µg/ml. linear relationships with good correlation coefficient of 0.9992 are observed between the absorbance and corresponding concentration of dolutegravir with MBTH respectively. The method can serve as a reliable and affordable assay method for the routine analysis in bulk and pharmaceutical dosage forms.



To Study the Effect of Super-Disintegrant on Fast Dissolving Tablets of Montelukast



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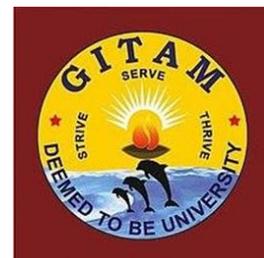
Abstract

There is a need to develop formulations that overcome problems of solid dosage form such as tablet, viz. difficulty in swallowing, inconvenience in administration while traveling, and dysphagia. Hence in the present study, an attempt has been made to prepare fast dissolving tablets of Montelukast sodium with an enhanced dissolution rate. The tablets were prepared by direct compression method using super disintegrants. Direct compression is the most simple and economical method used in tableting. The simplicity of the direct compression process is apparent from a few steps involved in the manufacture of tablets as compared to wet granulation. The tablets were evaluated for various parameters such as hardness, drug content, friability and were found as per the specification. Drug content estimation showed that more than 95% of the drugs were present. The highest drug release was obtained with the optimized batch containing a higher concentration of super disintegrants such as Sodium starch glycolate and Crosspovidone.

Keywords

Montelukast sodium, Fast dissolving tablet, super disintegrants, direct compression.

Forced Degradation Study of Ixazomib Citrate and Characterization of Degradation Products by HPLC-PDA and LC-QTOF-MS/MS



Bhukya Vijay Nayak

GITAM Deemed to be University, India

Shinoy Sugunan

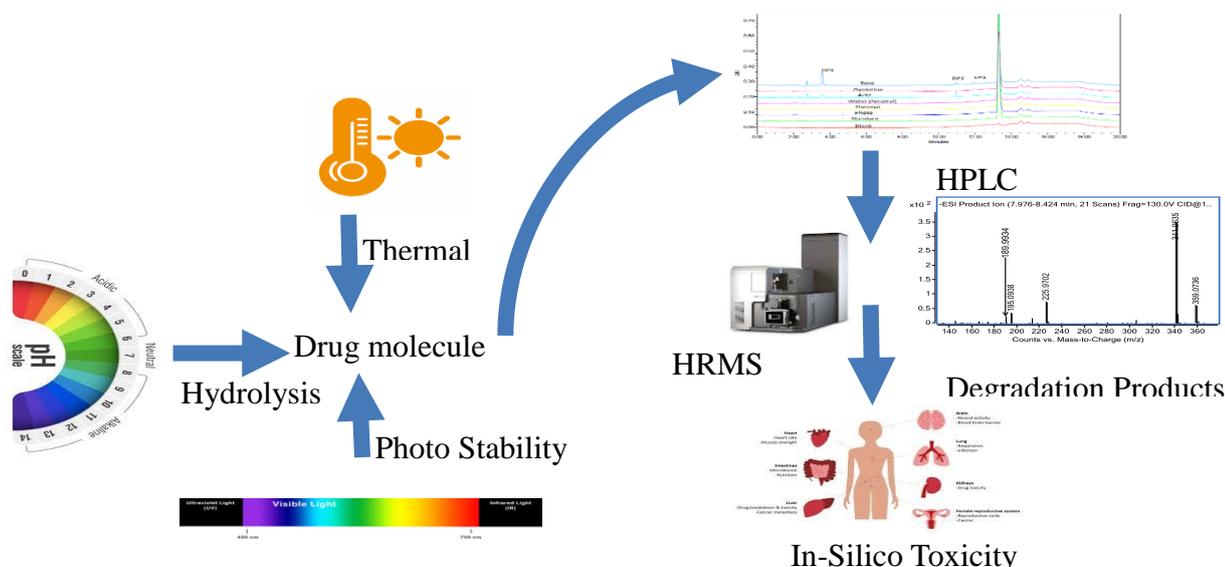
GITAM Deemed to be University, India

Abstract

Background: Ixazomib citrate is a selective proteasome inhibitor which is used for the treatment of multiple myeloma. No literature reported on Forced degradation and characterisation of degradation products using LC-QTOF-MS/MS.

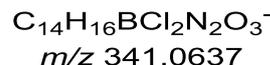
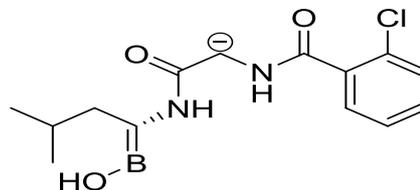
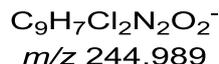
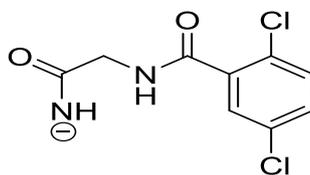
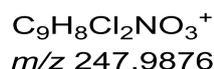
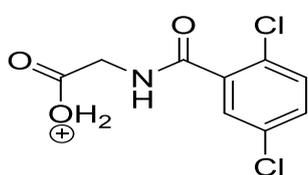
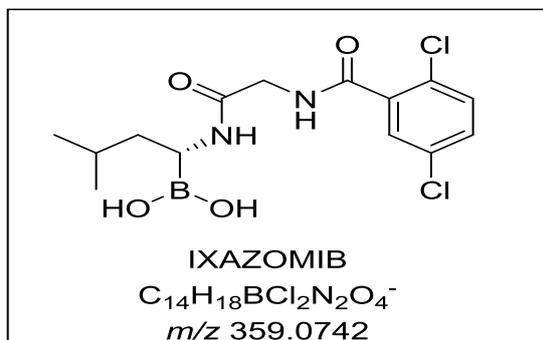
Objective: To development and isolate degradation products under different stress conditions and provide degradation pathways using LC-QTOF-MS/MS

Methods:



Optimized method: Drug and DPs were identified and separated on C8 column (250x4.6)mm 5 μ m using gradient elution with ammonium acetate (10mM pH 7.0) and methanol as mobile phase and detected at 230nm on HPLC-PDA.

Results:



ADMET Properties	Identifier	Ixazomib	DP-1	DP-2	DP-3
Reproductive Toxicity	Repro.Tox	Nontoxic (97%)	Nontoxic	Toxic (62%)	Toxic
Phospholipidosis	P.Lipidosis	Nontoxic (84%)	Toxic (95%)	Nontoxic (99%)	Toxic

Conclusions: The drug was susceptible towards acid and alkaline hydrolysis conditions which resulted in formation of 3 degradation products. ADMET Predictor™ software which shows DP 1 and 3 were predicted for phospholipidosis and DP 2 and 3 were predicted to be teratogenic. The proposed method may be helpful during generic drug development, routine analysis of the drug and also in quality monitoring.



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Uterine Fibroids: Diagnosis and Treatment



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T.Sowmya

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Abstract

Uterine fibroids are common benign neoplasms, with a higher prevalence in older women and in those of African descent. Many are discovered incidentally on clinical examination or imaging in asymptomatic women. Fibroids can cause abnormal uterine bleeding, pelvic pressure, bowel dysfunction, urinary frequency and urgency, urinary retention, low back pain, constipation, and dyspareunia. Ultrasonography is the preferred initial imaging modality. Expectant management is recommended for asymptomatic patients because most fibroids decrease in size during menopause. Management should be tailored to the size and location of fibroids; the patient's age, symptoms, desire to maintain fertility, and access to treatment; and the experience of the physician. Medical therapy to reduce heavy menstrual bleeding includes hormonal contraceptives, tranexamic acid, and nonsteroidal anti-inflammatory drugs. Gonadotropin-releasing hormone agonists or selective progesterone receptor modulators are an option for patients who need symptom relief preoperatively or who are approaching menopause. Surgical treatment includes hysterectomy, myomectomy, uterine artery embolization, and magnetic resonance-guided focused ultrasound surgery.

Biography

I am student of Bpharm3rdyear, in Smt. Sarojini Ramulamma College of pharmacy. I have completed my 2nd year of B.pharm with 77%. I had done my schooling in Z.P.H.S ChinthaKunta with 87% in 2017. I won inspire award in 2016 for my experiments in biology and represented my school in District level competition. I had done my intermediate with 90% at Prathibha Junior college. I have huge interest towards research Work and looking forward to work in research department in MNCS



Formulation and Evaluation of Dithranol Cream for the Treatment of Psoriasis



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Abstract

Psoriasis is an autoimmune disorder that is usually characterized by chronic inflammation of the skin. Conventional methods of treating psoriasis such as local therapy, phototherapy, etc. were found to be less effective in patients. Dithranol is an anthracene derivative that is effective in the treatment of psoriasis, but it is inconvenient for usage due to side effects such as irritations, burning and staining of the skin, and also improper formulation problems. The current study aims to develop an evaluation of Dithranol cream, by using Dithranol, Liquid Paraffin, Yellow Paraffin, White Paraffin, Oleic Acid, PEG 400, Ascorbic Acid, Methyl Paraben, Rose Oil at different concentrations. Formulations were evaluated for studies including pH and Viscosity, In-vitro dissolution studies, Extrudability, and Spreadability. In-vitro dissolution studies demonstrated that the formulation F5 showed better drug release of 84.8% at the end of 24 min. On the basis above results, the F5 formulation was identified as optimized. Thus, confirming the applicability of Dithranol and Liquid Paraffin, Yellow Paraffin, Oleic Acid, PEG 400, Ascorbic Acid, Methyl Paraben, Rose Oil to overcome the conventional issues of irritations, burning, and staining of the skin.



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Transcatheter Aortic Valve Replacement in Myocardial Interventions



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Abstract

In developing countries, aortic stenosis is the most common valvular heart disease. Over 7% of the elderly suffer from aortic stenosis due to degenerative disease. Patients with symptomatic severe aortic stenosis have a dismal prognosis without valve replacement, and approximately one-third of them over 75 years of age are not referred for surgery. The Transcatheter Aortic Valve Replacement (TAVR) has been clearly proven to be superior to surgical aortic valve replacement irrespective of surgical risk in all patients and it's probably better in most patients than surgery with respect to strike mortality patients with frailty, comorbidities, advanced age, and severe left ventricular dysfunction are typically concerned about prohibitive surgical risks. The transcatheter replacement of the aortic valve involves placing a valve within the heart to treat aortic stenosis. Adults who need an aortic valve replacement but aren't well enough to have valve surgery can have a transcatheter aortic valve replacement.

Biography

Divya G is a third-year student at Chettinad School of Pharmaceutical Sciences pursuing a B.Pharm degree. She is a rising researcher with a primary interest in novel drug delivery system and formulation sciences.



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Evaluation of Prevalence and Risk Factors of Obstructive Sleep Apnea in Patients with Acute Coronary Syndrome



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Dr. M. Varaprasanna Rao

School of Pharmaceutical Sciences, Vels Institute of Science Technology and Advanced Studies, India

Abstract

Obstructive Sleep Apnea (OSA) is a very often clinical condition that can be associated with high mortality risk, particularly in Coronary Heart Disease (CHD). The objective of our study is to evaluate the prevalence and risk of obstructive sleep apnea in patients with acute coronary syndrome using the Berlin questionnaires. In this cross-sectional study a total of 70 patients were included and the prevalence and risk were determined based on the BQ categories and the percentage was calculated accordingly. In this study, the patients above 45 years and obese were at a higher risk for OSA. Based on the BQ, more positive (36.6%) responses were observed in category 1 (snoring) when compared to category 2 (13.3%) and 3 (20%) which concluded that acute coronary syndrome patients are at a high risk (HR) for developing Obstructive Sleep Apnea.



Formulation and In-vitro Evaluation of Levofloxacin Loaded Cubosomes



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M. Mohan Varma

Head of the Department, Dept of Pharmaceutical Technology, Shri Vishnu College of Pharmacy (Autonomous), India.

Abstract

Cubosomes encapsulating levofloxacin were prepared by emulsification method and characterized for particle size, SEM, TEM analysis, Drug content, Drug entrapment efficiency, Viscosity studies, stability studies. The cubosomes prepared were kept at $4\pm 0.5^{\circ}\text{C}$ in nitrogen-flushed glass vials for further evaluation studies. Among the five different formulations, F4 exhibited highest entrapment efficiency of 78.35% and the practical yield of the different formulations ranged from 54.36% to 83.71%. The prepared formulation was characterized for surface morphology by SEM analysis, which revealed that the particles are spherical to cubic in shape and were uniformly dispersed without any aggregates. Hence, the present study was successful to formulate and evaluate the levofloxacin cubosomes.



Formulation and Evaluation of 7-Hydroxy Flavone Based Oral Mucosal Adhesive Films for the Treatment and Management of the Recurring Aphthous Stomatitis



Gopikanath.S

Vels Institute of Science, Technology and Advanced Studies, India

Uppuluri Varuna Naga Venkata Arjun

Vels Institute of Science, Technology and Advanced Studies, India

Dr. Thukani Sathanantham Shanmugarajan

Vels Institute of Science, Technology and Advanced Studies, India

Abstract

Recurring Aphthous Stomatitis (RAS) is characterized by ulcers within the oral mucosa that occur without other symptoms. In addition to minor and major ulcers, herpetiform ulcers are also classified. Minor ulcers have a diameter of less than 1cm, and are more common. Major ulcers are larger than 1cm. They have a longer healing time and often scar. An herpetiform ulcer is a recurrent crop of small ulcers that appear throughout the oral mucosa. Whereas, the 7-hydroxyflavone is a member of the flavone subclass of flavonoids. This compound inhibits 20alpha-hydroxysteroid dehydrogenase (AKR1C1), aromatase, aldo-keto reductases AKR1B10 and AKR1B1. This compound inhibits inflammation by attenuating the production of NO, PGE2, TNF-alpha, and IL-6, suggesting that it could be a lead compound for the development of anti-inflammatory agents. This study aims to formulate and evaluate 7-Hydroxy flavone mucoadhesive films. Polymers such as PVP K30, Carbopol 934, and carboxymethyl cellulose were used, along with propylene glycol, to prepare the films through solvent evaporation. The developed formulation exhibited ideal swelling, invitro release and physicochemical characteristics. In this sense, 7-Hydroxy flavone mucoadhesive films containing Carbopol 934, carboxymethyl cellulose, and PVP K30 might be an effective alternative to conventional therapy.



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Hutchinson-Gilford Progeria Syndrome



Hafsa Naaz

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Adeeba

Smt. Sarojini Ramulamma College of Pharmacy, India

Adnan

Smt. Sarojini Ramulamma College of Pharmacy, India

T. Sowmya

Smt. Sarojini Ramulamma College of Pharmacy, India

Abstract

Aim: Aim of the presenting case is the rarity of this hereditary disorder.

Background: Progeria is a rare genetic disorder in which symptoms resembling combination of dwarfism and premature aging are manifested at a very early age. Most of patients born with progeria typically do not live past the age of 13 years. It is a genetic condition that occurs as a new mutation in a LMNA gene leading to formation of abnormal protein. Case Description: A 4 year old male child patient of Indian origin reported to the Dept. of Oral Medicine and Radiology with a chief complaint of extra tooth in the midline. Extra-oral Examination revealed triangular facies, decreased subcutaneous fat deposition over the face, proptosis with entropion, beaked nose, receded chin and microstomia. Intra-Oral Examination revealed narrow V-shaped maxilla with deep palatal vault. USG, KUB, abdomen, Cranium and ECHO study were normal. On Skeletal survey, AP Skull and Lateral Skull view reveal brachycephalic skull with flattening of the occipital bone. X-RAY chest reveals normal bone density. Proximal bones of femur and humerus appeared longer than tibia/fibula and radius/ ulna respectively, on the bilateral lower limb X-Ray.

Conclusion: Further research on molecular etiopathogenesis of Progeroid Syndromes (PGs) is warranted so that more appropriate targeted therapy can be developed in future.

Biography

My name is Hafsa Naaz. I am from Mahabubnagar district. I am pursuing my studies from Smt. Sarojini Ramulamma College of pharmacy, year 2018 – 2024. I am studying Doctor of Pharmacy, and want to focus on becoming a Clinical Pharmacist. Want to provide patient care that optimizes the use of medication and promotes health, wellness, and disease prevention.



A Validated RP-HPLC Method for Simultaneous Estimation of Ciprofloxacin and Fluocinolone Acetonide in Pharmaceutical Formulations



Harini Pamulapati

Gokaraju Rangaraju College of Pharmacy, India

Abstract

A simple, accurate, precise and sensitive RP-HPLC assay method have been validated for the simultaneous estimation of ciprofloxacin and fluocinolone acetonide in pharmaceutical formulation. Ciprofloxacin and fluocinolone acetonide were separated using Develosil ODS HG-5 RP C18, (5m, 15cmx4.6mm i.d.) column with mobile phase composition of acetonitrile and potassium dihydrogen phosphate buffer (0.02M, pH 5.0) in the ratio 60:40(v/v) under isocratic mode at a flow rate of 1.0ml/min. The wavelength used for detecting the drugs was at 284nm. Here resolution was good, theoretical plate count and symmetry were appropriate. The LOD and LOQ were calculated using statistical methods. The % RSD values were less than 1. The validation parameters, tested in accordance with the requirements of ICH guidelines, prove the suitability of this method. The method was successfully applied for determination of drug in tablets, wherein no interference from tablet excipients was observed, indicating the specificity of the developed method. The proposed method was found to be simple, precise, accurate, rapid, economic and reproducible for the simultaneous estimation of ciprofloxacin and fluocinolone acetonide in pharmaceutical formulation.



Studies on Liquid-Solid Techniques to Enhance the Dissolution Rate of Poorly Soluble Drug Ritonavir



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Dhanashree Agarkar

Smt. Kishoritai Bhoyar College of Pharmacy, India

Dr. Dinesh Biyani

Smt. Kishoritai Bhoyar College of Pharmacy, India

Dr. Milind. J. Umekar

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Abstract

Ritonavir is an antiretroviral protease inhibitor used in the treatment and prevention of Human Immunodeficiency Virus (HIV) infections. Micronization, solubilization, through solute solvent complexation, and solid solution molecular encapsulation are some of the strategies that have been employed to improve the dissolving characteristics of poorly soluble pharmaceuticals but shows plenty of issues. To overcome all of these issues, liquid-solid techniques, also known as powder solution technology, were developed. Ritonavir is a medication that is poorly water soluble, hence liquidsolid techniques are utilized to improve its solubility. Poor solubility is thus one of today's primary difficulties in drug development. Decreasing particle size, lowering crystallinity, and/or increasing surface area can improve the dissolving rate of some poorly soluble medicines.

Adsorption of the drug onto a high surface carrier is another method of boosting dissolution rate. The drug is first dissolved in an organic solvent, then the solution is soaked in a high surface area carrier such as silica. Toxic solvents, on the other hand, are disadvantageous due to the presence of residual solvent in the medication formulation. To address the issue, the 'liquidsolid compact' technology is a novel and promising approach to improving dissolution.

Keywords

Poor solubility, Dissolution, Liquid-solid technique



Development and Validation of RP-HPLC Method for the Simultaneous Determination of Niacin and Simvastatin in Active Pharmaceutical Ingredient and Combined Tablet Dosage Form



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Abstract

A novel, precise, accurate, rapid and cost effective isocratic reverse phase high performance liquid chromatographic method was developed, optimized and validated for the estimation of niacin and simvastatin in bulk and pharmaceutical dosage forms. The drugs were estimated using phenomenex Gemini C18 (4.6mm × 150mm, 5µm) particle size column. A mobile phase composed of triethylamine buffer and methanol in proportion of 32:68v/v, at a flow rate of 1ml/min was used for the separation. Detection was carried out at 248nm. The linearity range obtained was 30-70µg/ml for niacin and simvastatin respectively. The correlation coefficient values were found to be 0.999 and 0.999. Precision studies showed % RSD values less than 2% for both the drugs in all the selected concentrations. The percentage recoveries of niacin and simvastatin were found to be 100.19% and 100.75% respectively. The assay results of niacin and simvastatin were found to be 99.82%. The limit of detection and limit of quantification were 2.6µg/ml and 7.8µg/ml for niacin and 3.4µg/ml and 10.2µg/ml for simvastatin respectively. The proposed method was validated as per the International Conference on Harmonization (ICH) guidelines. The proposed validated method was successfully used for the quantitative analysis of commercially available dosage forms.

Keywords

Niacin and Simvastatin, RP-HPLC, ICH guidelines, validation



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A Review of Immediate Release Dosage Forms for Enhancing Dissolution and Bioavailability of Some Insoluble Drugs



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Abstract

Immediately release dosage forms dissolve faster than traditional dosage forms after ingestion. For example, linked PVP or crospovidone sodium, starch glycolated-CMC are super disintegrates often used in development tablets. This pill induces immediate dissolution of the tablet in the stomach. Increasing patient compliance They also help increase marketing, product life cycles, and possibilities. It offers several benefits over conventional pharmaceutical delivery methods. This article will discuss the role of super disintegrates in the manufacturing of immediate-release tablets, the process of disintegration, and several standard and new granulation procedures. This review also covers recent studies on instant release dosage formulations.

Keywords

Immediate release tablets, superdisintegrants, polyvinylpyrrolidone, sodium starch glycolate, carboxymethylcellulose.

Biography

Dr. J. Rajkumar obtained his Doctorate from GITAM University, Vizag. He is currently working at Vaageswari College of Pharmacy, Karimnagar, Telangana, Where he is a Professor of Pharmaceutical sciences. Rajkumar has extensive research experience in the fields of formulation design and new drug delivery methods. He has also worked with undergraduate and graduate students on their project work. He also serves as a reviewer for numerous journals that are included in the Scopus index, also filed two patents.



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Role of Ascorbic Acid in Management of Covid-19 Pandemic



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Abstract

In late 2019, a sudden outbreak of an unknown virus occurred in China, causing severe respiratory depression and eventually death. This virus was identified as a novel coronavirus (SARS CoV2). This new deadly illness has caused a pandemic and created emergency care around the world. Indeed, we need a deeper understanding of the current situation and strategies to prevent COVID 19. Due to the lack of vaccines currently available, it is important to enhance innate immunity along with the prophylaxis and treatment available to treat or prevent COVID19. Vitamin C supplementation affects the immune system and acts as an antioxidant. Moderate to severe COVID 19 cases with high doses of vitamin C are successful, with significantly reduced mortality and morbidity. Vitamin C and other antioxidants are now available for effective treatment of COVID19-related acute respiratory distress syndrome.

Keywords

COVID-19, Ascorbic acid, ARDS, Anti-oxidant, Immunity.



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Aerosil Incorporated Valsartan Film for Improvement of Buccal Permeation



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Abstract

Valsartan is a poorly water soluble antihypertensive drug of BCS class II, which accounts to its very low oral bioavailability (10-35 %). Hence, solubility enhancement of valsartan is a major issue for improving oral bioavailability. As per previous report colloidal silicone dioxide (Aerosil 200) is an inert and porous adsorbent carrier having large surface area and has the capability of improving solubility of poorly soluble drugs. The objective of this project was to develop Aerosil incorporated valsartan buccal films for improving oral mucosal permeation. Ratios of valsartan to Aerosil in the films were VS₁ (1: 50), VS₂ (1:100), VS₃ (1:1000) and Val (without Aerosil) with HPMC as the mucoadhesive polymer matrix. The films were almost transparent and of uniform thickness (179 ± 240 μm). Physicochemical characterization was done by FTIR, DSC, XRD and in-vitro release study. FTIR showed carboxyl and amide carbonyl stretching at 1732 and 1602 cm⁻¹ respectively. Silanol stretching was seen at 1060 cm⁻¹ and hydrogen bonding of Aerosil and valsartan was probably at 925 cm⁻¹. DSC and XRD data revealed the amorphization of drug in the film formulations and buccal tissue permeation. Buccal permeation pattern was VS₁> VS₂> VS₃> Val. In conclusion, oral mucosal permeation of valsartan can be enhanced significantly using Aerosil 200 incorporated buccal films.



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Biography

Krushna Prasad Pattnaik is currently engaged in his M Pharm, in the department of Pharmaceutics, under the guidance of Prof (Dr) Subrata Mallick (HOD Pharmaceutics), at School of Pharmaceutical Sciences, Siksha 'O' Anusandhan (Deemed to be University), Bhubaneswar, Odisha, India. His work focus is on Formulation and Development, Molecular Docking and Drug Delivery Systems.



Formulation and Evaluation of Vancomycin HCL Colon Targeted Tablets Using the In-situ Polyelectrolyte Complexation Technique



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Abstract

Develop orally administered colon target drug delivery tablets of vancomycinHCl 500 mg by using in situ polyelectrolyte complexation technique. Tablet matrices (F1 to F9) containing drug to total polymer ratio (10:1, 10:2, 10:3) was varied but the ratio between the polyelectrolyte pairs (1:1) was maintained constant were prepared by wet granulation, the moisture content during wet granulation method initiated the formation of in situ PEC and subjected to in vitro release studies to explore their drug release in the colon. The coating applied on the core tablet retarded the drug release in 0.1N HCl and it also further resisted the drug release in pH 7.4 phosphate buffer for about 5 hours based on the coating thickness and not more than 10% drug was released during the first 5 hours of dissolution. After the rupture of coating in pH 7.4 phosphate buffer, PEC formation was initiated. After complete formation of PEC, control of drug release was achieved. Among all the formulations it was observed H2C10 prepared with PEC combination of chitosan-hupu gum is fulfilling the objective of the investigation is to have a lag time of 5 hours with maximum drug release over a period of 20 hours and H2C10 formulation was considered as optimized formulation among all the formulations. The in vitro drug release from H2C10 colon matrix tablet in rat caecal content medium in comparison with drug release in normal conditions of dissolution are shown as drug release was completed in 20 hours in rat caecal content medium compared to 22 hours in normal conditions of dissolution.

Biography

This is K. Venkateswarlu working as Associate Professor in Aditya College of Pharmacy. My expertise is controlled drug delivery and novel drug delivery systems.



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Chemical Classes Presenting Novel Antituberculosis Agents Currently in Different Phases of Drug Development



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Abstract

Tuberculosis [TB] is a potentially serious infectious disease that mainly affects the lungs. Tuberculosis (TB), caused by *Mycobacterium tuberculosis* (Mtb), is a curable airborne disease currently treated using a drug regimen consisting of four drugs. Global TB control has been a persistent challenge for many decades due to the emergence of drug-resistant Mtb strains. The duration and complexity of TB treatment are the main issues leading to treatment failures. Other challenges faced by currently deployed TB regimens include drug-drug interactions, miss-matched pharmacokinetics parameters of drugs in a regimen, and lack of activity against slow replicating sub-population. These challenges underpin the continuous search for novel TB drugs and treatment regimens. This includes new TB drugs under development with emphasis on their chemical classes, biological targets, mode of resistance generation, and pharmacokinetic properties. The newer class of drugs includes quinolone derivatives, Diarylquinolones, nitroimidazoles, Oxazolidones, Ethylenediamines. As effective TB treatment requires a combination of drugs, the issue of drug-drug interaction is of great concern. Therefore, compiled drug-drug interaction, as well as efficacy for drug combinations studies involving antitubercular agents in clinical development.



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Self Emulsifying Lipid Formulation for Poorly Soluble Drugs



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Abstract

The oral delivery of lipophilic drugs is not effective due to their low aqueous solubility. To improve the oral bioavailability and solubility of the poorly water-soluble drugs/lipophilic drugs a formulation is generated which is known as SDLF (Self- Dispersing Lipid Formulation) SEDDS (Self Emulsifying Drug Delivery Systems). SEDDS are defined as Isotropic dispersions which are formulated by using oil, co-surfactant, surfactants and solubilized drug. These are rapidly converted to Oil in Water (o/w) Emulsion or W/O/W emulsion with fine droplets when they are dispersed in aqueous medium under mild agitation. The rate and extent of absorption of the orally administered drug is affected by the droplet size. Smaller the droplet size greater the absorption, bioavailability and efficacy of the active compound. The fine droplets formed are transported and absorbed by the lymphatic pathway which bypasses the first pass metabolism and improves the bioavailability of the active ingredient. Self-dispersing lipid formulation can be differentiated to SNEDDS (Nano Emulsion), SMEDDS (Micro Emulsion), SEDDS (Coarse Emulsion). These are evaluated by Laser diffraction sizer (particle size distribution), Coulter sizer (mean particle size), Nephelometer (turbidity measurement), Zeta sizer (zeta potential) e.t.c. SEDDS are mostly suitable for formulating BCS class 2 drugs.

Keywords

SEDDS, Lipophilic drugs, surfactants, zeta sizer e.t.c.



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Non-Culture-Based Methods for Detection and Identification of Campylobacter



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Abstract

The zoonotic pathogen *Campylobacter* is a major cause for enteritis and gastroenteritis around the world. Almost, 1 out of 4 key diarrhoeal diseases globally is due to *Campylobacter*. *Campylobacter* species are gram negative bacteria that are microaerophilic, non-fermenting, motile rod shaped or curved with single polar flagellum; they are oxidase-positive and grow optimally between 37 and 42°C.

Detection and identification of *Campylobacter* can be done using conventional culture-based methods, as well as Non-Culture Based Techniques (NCBT). But NCBT's are more preferred because these techniques are often rapid, accurate and more sensitive when compared with culture-based methods. NCBT's can also detect *campylobacter* cells in the Viable But Non Culturable (VNBC) state.

However, some of these techniques demand advanced instruments as well as specially trained individuals. One major drawback is that they fail to distinguish between dead and live cells.

Over the last decade, more emphasis is given on biosensor-based methods for detection of *Campylobacter*. Biosensors like Optical and Electrochemical sensors using C- reactive protein as biomarker offer high sensitivity, selectivity and rapidity, and also cost efficient and non-destructive sensing.



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Biography

Mohammed Yaser k is currently persuing his 3rd year B pharm at Chettinad School of Pharmaceutical Sciences. He is hard working and is eager to learn a lot by doing research. His current area of interests include Pharmaceutics and drug formulation.



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Synthesis & Antimicrobial Activity of Graphene Oxide



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Abstract

Graphene is an amazing material that has a new impact on modern technology for human. It is by far the slimmest and strongest material in the world. It exhibits the properties from carbon, therefore capable of carrying electrons without scattering at room temperature. It is well-known for its conductivity than copper and much superior in properties such as ductility and fragility. Graphene has opened a new avenue of research and the increased number of publications in recent times witnesses the same. The research on graphene shows an exponential growth and exhibits a wide range of applications. The present study compiles on the recent advancements in graphene applications and its future scope in human life.

Key words

Grapheneoxide, applications,technology



Controlled Crystallization of Febuxostat in Presence of Aqueous Bentonite Dispersion



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Abstract

Crystallization plays a vital role in alteration of the physicochemical behavior of the drug particle. Febuxostat (Feb) is a BCS class II drug of selective Xanthine oxidase inhibitor with oral bioavailability of around 49%. Controlled crystallization of febuxostat was carried out using aqueous bentonite dispersion as the anti-solvent of different concentrations of 10, 20, and 30 ppm (FB₁₀, FB₂₀ and FB₃₀ respectively). Crystals were characterized by FTIR, XRD and In-vitro release study. FTIR showed the O-H stretching of carboxylic acid, C≡N and C=O stretching at 2646.34, 2231.57, and 1678.07 cm⁻¹ respectively. Silanol stretching was seen at 1011, and at 952 cm⁻¹ probably due to Si-O-H bond formation febuxostat with bentonite particle. The crystalline nature of febuxostat was confirmed by XRD. Most sustained release was found in FB₁₀ followed by FB₂₀ followed by FB₃₀ and the quickest release was found in pure febuxostat. In conclusion, bentonite can be used to sustain the dissolution pattern of the crystallized febuxostat in presence of bentonite clay.



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Biography

Mouli Das is recently working on her M.Pharm project, in the department of Pharmaceutics, under the guidance of Prof (Dr) Subrata Mallick (HOD Pharmaceutics), at School Of Pharmaceutical Sciences, Siksha 'O' Anusandhan (Deemed to be University), Bhubaneswar, Odisha, India. Her research area of interest is Formulation and Development as well as Drug Delivery System.



Formulation and Evaluation of Gastroretentive Floating Tablet Using Synthetic and Natural Polymers



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Abstract

The aim of the present study was to design of gastro retentive floating matrix tablets of Domperidone by using combination of Eudragit RSPO with natural polymers Guar gum. The tablets were prepared by wet granulation process. . The work was carried out using individual polymers, and in combination with the constant drug: polymer ratio (1:1). The tablets were prepared with the combination of synthetic and natural polymers in the concentration of 30:70, 50:50 and 70:30. The prepared tablets were investigated for the pre-compression and post-compression parameters. FTIR and DSC studies proved that no chemical interaction in Domperidone and polymers. All the batches evaluated for swelling and floating properties also, the batches containing combination of synthetic with natural polymers shows very good swelling properties since natural hydrophobic gums swells rapidly and efficiently in water. The combination batches of natural Guar Gum and with Eudragit RSPO showed very good swelling as compared to individual polymers. It can be concluded that the Gastroretentive Floating system of domperidone, sustained the release comprising synthetic and natural polymer can be formulated.

Keywords

Gastroretentive Floating system, Domperidone, Tablets, Eudragit, Natural Gums



Liquisolid Technique: An Approach to Enhance Solubility and In-Vitro Dissolution Rate of Poorly Aqueous Soluble Drug



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Abstract

Liquisolid compacts are new formulations that increase drug bioavailability by converting a drug in a liquid state (liquid drug, drug solution, emulsion, or suspension) to a specific carrier and coating material and then sorption (by mixing, spraying) to a solid dosage form. The most important components in the composition of Liquisolid compact are carrier properties (liquid absorption capacity). The primary goal of this study was to use tween 80 as a non-volatile liquid to manufacture Ezetimibe into liquid-solid compacts. The second goal was to create an Ezetimibe sustained-release tablet. Liquisolid compacts are a promising way for achieving such an unique goal. For the manufacture of compacts, the liquisolid technique was utilized, and characteristics such as drug content, hardness, friability, and in-vitro dissolution test were measured before and after compression. The LS-6 tablet is a batch that has been optimised. This results in medication release rates of 18.4 percent, 53.9 percent, and 89.6 percent in 1, 4, and 8 hours, respectively.

Keywords

Liquisolid compacts, Ezetimibe, Tween 80, Sustained – release tablet.



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**Design and Molecular Modeling Study of Novel Pyrazole and
Quinazoline Based Schiff Bases to Find Potential Hits
against Fungal Biofilm**



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Abstract

Secreted Aspartic Proteases (Saps) who are imperative for the virulence in fungal species like *C. Albicans* also reported for biofilm formation. The design and developed novel hits who inhibit the Secreted aspartic proteases 5 emerging target for fungal biofilm inhibitors. The series of Pyrazole and Quinazoline are most exploited heterocyclic nucleus in drug design for the development of bioactive lead molecules. Series of Pyrazole and Quinazoline ring modeled on the basis of principle of Bioisosteric replacement. The insilico validation of modeled Schiff bases for druglikeness suggests that most of them have excellent pharmacokinetics properties (ADME), Low toxicity and most of them following the Lipinski rule of five. The analysis and validation of inhibition potential of the optimized Schiff bases on the basis of molecular docking study gives the insights of molecular interactions, mode of binding and binding affinity between most active lead molecules at binding cavity of fungal drug target Secreted Aspartic Proteinases (Saps). The current work will be a insilico template for the quest of Novel Schiff Bases (SBs) that has very high selectivity, No drug or multidrug resistance has been the goal of current drug design and development process.

Keywords

Secreted aspartic proteases (Saps), *Biofilm*, Schiff bases, Pharmacokinetics properties, Molecular docking

Biography

Mr. Manoj G. Damale graduated from Pravra Rural College of Pharmacy, Pravranagar (MS), INDIA in 2007. He has completed M. S. Pharmacy from National Institute of Pharmaceutical Education and Research Kolkata West Bengal, INDIA in 2009. He is Pursuing his PhD degree from Dr. Babasaheb Ambedkar Marathwada University, Aurangabad under the supervision of Dr. Jaiprakash N. Sangshetti. He has published more than 35 research papers in International Journals and Presented posters in International and National Conferences. His major area of



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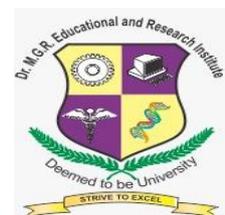
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research includes design, synthesis of bioactive molecules and Computer aided drug design techniques such as molecular docking, pharmacophore modeling, QSAR, Denovo drug design, molecular dynamics and ADMET testing.



Analysis of Bioactive Compounds of Clitoria Ternatea Plant Extract using HRLC-MS Techniques



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Abstract

Medicinal plants have emerged an important source in governing healthy condition and minimizing the side effects of modern- day medicine. Many evidence-based reports are paved in the literature about the numerous beneficial aspects of medicinal plants. *Clitoria ternatea* L. belongs to the family Fabaceae and is known to be one of the important Ayurvedic medicinal plant whose uses are specified mainly for the modification of Central nervous system activities. 'Medhyarasayana' is one of the Ayurvedic formulations which is used to promote the intellectual capacity, revive the body and nervous tissue, *Clitoria ternatea* serves as a major constituent of 'Medhyarasayana.' Phytochemical screening and identification of *C. ternatea* will help to isolate the important phytoconstituents responsible for the central nervous system effects, isolated components via screening can be utilized in future for the formulation of herbal medicine for various neurodegenerative disorders. In the present study, the phytochemical evaluation of the hydroalcoholic extract of *Clitoria ternatea* was performed using the HR-LCMS technique. Preliminary qualitative phytoconstituents analysis showed the presence of tannins, alkaloids, saponins, steroids, carbohydrate, protein, flavonoids and triterpenoids in the whole plant extract of *Clitoria ternatea*. Nearly 50-80 compounds were isolated via HR-LCMS technique.

Keywords

Central nervous system disorders, herbal formulation, phytochemical analysis, HR-LCMS technique



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**Machine Learning and Artificial Intelligence in
Pharmaceutical Regulatory Intelligence**



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Abstract

Background: The current increasing demand of Artificial Intelligence (AI) in pharmaceutical regulation and machine learning has been noted as significant. It is a rapidly expanding area of digital technology in drug regulatory affairs. The agenda is to simplify regulatory compliance and introduce automation which will reduce the human workload, errors and enhance quality of services significantly.

Objective: Introducing Artificial Intelligence in both organisations can ensure streamlined Regulatory compliance and enhance the efficiency of many functions in the Regulatory compliance procedures.

Results: This review has elucidated the fact that Artificial Intelligence and Big Data can be the backbones of Regulatory agencies, by reducing its need to conduct periodic audits, which are often troublesome and time-consuming, companies can also effortlessly monitor their compliance limitations. It also demonstrates the prevalent application of machine learning and Artificial intelligence methods in drug discovery, and indicate a promising future for these technologies.

Conclusion: This review supports the roles of machine learning and artificial intelligence in accelerating drug development and discovery processes, thereby making them more cost-effective or altogether putting an end to the need for clinical trials.



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Keywords

Artificial Intelligence, Regulatory Intelligence, Regulatory Affairs, Regulatory Compliance.



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A Prospective Observational Study on Health Related Quality of Life in Diabetic Retinopathy Patients Based on Severity



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Abstract

Diabetes mellitus is a world-wide epidemic and diabetic retinopathy, a devastating, vision-threatening condition, is one of the most common diabetes-specific complications. Diabetic retinopathy is now recognized to be an inflammatory, neuro-vascular complication with neuronal injury/dysfunction preceding clinical microvascular damage. A study was designed to find out the quality of life among Diabetic retinopathy patients based on severity. In this study, a total of 76 diabetic retinopathy patients were included. The patients who are all suffering with severe ophthalmic issues due to DR are included in this study. It is a prospective observational study conducted in diabetic retinopathy patients. By using proforma, the patients demographics, past medical and medication history, blood glucose levels were monitored and assessment is done by using SF -12 questionnaire. The physical and mental component summaries shows a statistical significance which is determined using student t – test. This study suggests that comorbidities will also reduce the quality of life of diabetic retinopathy patients.

Biography

I'm Nithila from Vels University, Chennai. I'm in fourth year of my college study (Pharm.D - Doctor of Pharmacy). I like to do research on diabetes. Even though it's a common field, my interest is to invent new methodology to enhance the living of the diabetes patients and to help them lead a comfortable life without any complications.



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Synthesis and Antimicrobial Activity of Indazole-3-Carboxylic Acid Derivatives



Noor ul eain

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Abstract

In the field of medicinal chemistry wide variety of heterocyclic compounds have been investigated for their biological activity. Novel Benzimide derivatives were synthesised by reaction between Indazole-3-carbohydrazide and Benzoyl amino acid derivatives. The synthesized compounds show good yield and the compounds were characterized by the ¹H NMR, IR and MASS spectroscopy. The synthesized compounds were tested for Antibacterial activity using Broth dilution method compared to a standard Azithromycin against *E.Coli* and *S.aurius*. The results of Biological tests make the synthesized derivatives were an interesting lead molecule for further synthetic and biological evolution. Most of compounds possess good activity against *E.Coli* and *S.aureus*. The good antibacterial activity of the synthesised compounds indicates that having more Nitrogen moieties.



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**Novel Dibenzopyrrole and Their Hetero-Arylated Derivatives:
Designing & *In-Silico* ADME/Tox. Studies**



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Abstract

Dibenzopyrrole represent one of the most valuable ring systems in the modern synthetic chemistry, because of their widely recognizes versatility with biological and pharmacological activities. Vinca-site binding compounds originate from disparate organisms and exhibit a variety of chemical compositions. Several of these compounds, such as vincristine and vinblastine, have been used for more than four decades as clinically effective cancer therapeutics. Docking study has revealed that compounds from serial number 2-43 showed better binding with the tubulin (PDB ID- **5J2T** with the of **Resolution: 2.20 Å**). Among those many DPCO9 showed good binding in M-loop of Vinca binding site in tubulin at β - α chain. *In-silico*, *ADME/Tox* computation of the designed compounds gives a brief knowledge about absorption, distribution, metabolism and excretion evaluation. Study also revealed that our newly designed compounds revealed that compounds safely pass the *ADME/Tox* studies possessed by nearly 95% of available drugs.



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Nanoparticles for the Treatment of Duchenne Muscular Dystrophy



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Abstract

Duchenne Muscular Dystrophy (DMD) is an X-linked recessive muscle degenerative disorder caused by mutations in the dystrophin gene. It is seen primarily in boys. DMD can be caused by more than 7,000 unique mutations in the largest gene (Dystrophin) of the human genome, which encodes a central protein in muscle fibers. While this astounding number of mutations all variably blocks muscle function, the affected muscles share another common feature – that is chronic inflammation.

Chronic inflammation significantly contributes to the rate and extent of muscle degeneration, most researchers are pursuing different anti-inflammatory nanoparticles based approaches that could be applied to the weakening muscles of DMD patients. Several synthetic nanoparticles and naturally existing viral and non-viral nanoparticles seem to hold great promise to repair and replace the mutated dystrophin gene present in the muscles and can significantly change the disease course.

While a majority of nanoparticles for the treatment DMD are still in initial preclinical development stage, several therapies such as Adeno-Associated Virus (AAV)-mediated systemic micro-dystrophin gene therapy are advancing for phase I clinical trials. Innovative approaches in the design of the miniature micro-dystrophin genes, engineering of muscle-specific synthetic AAV capsids, and novel nanoparticle-mediated exon-skipping sequences are likely to result in major breakthroughs in effective DMD therapy.



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Biography

Raghul K is a 3rd year B pharm student, currently pursuing his B.pharm course in Chettinad school of Pharmaceutical sciences, CARE. He is very much interested in Advanced instrumentation techniques



QbD Driven Green RP-HPLC Method Development and Validation for the Simultaneous Estimation of L-Glutathione, Silybin and Curcumin in bulk and Marketed Formulation



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Vinodhini C

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Abstract

L-Glutathione (GSH), Silybin (SIL) and Curcumin (CUR) are well-known antioxidants. A simple, robust and fast simultaneous RP-HPLC method was developed and validated as per ICH Q2 (R1) guidelines. The separation was performed on C₁₈ analytical column (4.6 × 100 mm, 3.5 μm) using mobile phase ethanol: water (pH 6.7) as green solvents in gradient program with flow rate of 1.07 min/mL. Central composite experimental design was used to optimize these independent variables and analyze their effect on the response variables like Retention Time (RT), resolution between peaks, capacity factor and tailing factor. Method validation was carried out for establishing the specificity, linearity range, accuracy, sensitivity, robustness, precision and ruggedness. The method applicability was evaluated on tablet formulation. The peaks of the analytes were found to be well resolved and three distinct RT were recorded for L-GSH, SIL and CUR at 3.3, 4.9 and 7.3 minutes respectively and linear over concentration range of 3.7-26.3 μg/mL, 62.5- 437.5 μg/mL, and 12.5- 87.5 μg/mL for GSH, SIL and CUR respectively. All method validation criteria were within the range of acceptance. The proposed method may bring a novel HPLC assay which can be applicable to toxicokinetic, pharmacokinetic, bioavailability and bioequivalence studies.

Biography

Ramya J, is third year Full time Ph.D student under Shri NPV Ramasamy Udayar Fellowship, SRIHER, under the guidance of Dr Vinodhini C. Graduated from Acharya Nagarjuna University, Guntur and Master's in Quality Assurance from Sri Ramachandra University, Chennai. Current research area is bioanalytical method development and validation with QbD and Green approaches.



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Antimalarial Chemotherapy, Mechanisms of Action and Resistance to Major Antimalarial Drugs in Clinical Use



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Abstract

Malaria is an infectious disease caused by protozoan parasites from the Plasmodium family that can be transmitted by the bite of the Anopheles mosquito or by a contaminated needle or transfusion. Falciparum malaria is the most deadly type. Malaria has remained the leading cause of death in children under five years of age and pregnant women in sub-Saharan Africa and other endemic countries. As per the antimalarial drug discovery especially the quinolones has led to the hope that malaria might be completely eradicated from the world. But However, lack of proper understanding of the mechanisms of antimalarial drug action and resistance to major antimalarials currently in clinical use has doused our hope for malaria eradication in a near future. While drugs such as chloroquine were banned for reasons associated with resistance and safety in some countries like Nigeria, a proper understanding of their modes of actions in the malarial parasite could pave ways for discoveries and development of novel antimalarials with similar properties and targets. Other drugs such as the antifolates are still in use as Intermittent Preventive Treatments in Pregnancies (IPTPs) and Infants (IPTIs) respectively. Resistance to these drugs is driven by mutations of the drug target (DHFR and DHPS). Although Artemisinin Combination Therapies (ACTs) are widely in use in many malaria endemic areas, resistance to these combination regimens defined as delayed parasite clearance were since reported. Four credible Single Nucleotide Polymorphisms (SNPs); N86Y, N1042D, S1034C, and D1246Y were detected in the Plasmodium Falciparum Multidrug Resistance Transporter gene-1 (PfMDR-1 gene) and implicated for artemisinin resistance while K76T mutation in the transmembrane domain of malarial parasites is associated with resistance to quinolone antimalarials.

Keywords

Malaria, Antimalarial, Resistance, Mechanisms, Nucleotide, Mutation



Average Doses of Leucovorins Required in Acute Lymphoblastic Leukemia Patients Receiving High Dose of Methotrexate Therapy



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Abstract

Aims and Objectives: To determine the average number of leucovorin doses given to the acute Lymphoblastic leukemia patients receiving chemotherapeutic agent i.e., High Dose Methotrexate in their consolidation phase of the treatment.

Method: An observational Retrospective study was carried out in the inpatient department of Aware Gleneagles Global Hospital, Hyderabad, India. In a total of 73 pediatric and adult patients with Acute Lymphoblastic Leukemia from various age groups in their Consolidation stage comprising of 4 cycles each containing a course of HDMTX (High Dose Methotrexate) from 2016-2021 were included in the investigation. All data important to the investigation was gathered from the Patient case sheets and Electronic clinical records in the planned patient's Performa or information assortment structure i.e., data collection which incorporates Patient demographic subtleties, Laboratory values, and so forth

Results: Among the 73 subjects of ALL, the most average number of LV doses given in HDMTX is 6 among all the three subtypes of ALL diagnosis. There was a significant association between HDMTX toxicity and number of hours till toxicity developed from the start of HDMTX infusion. It was also evident that there is an association between the HDMTX toxicity symptoms and age group, gender, diagnosis and HDMTX doses respectively.

Conclusion: Consequently, from our study we have concluded that average no. of leucovorin doses is correlated with the toxicity of methotrexate. The toxicity caused due to leucovorin can be cured with extraordinary degree by satisfactory and adequate hydration/Alkalinization, precise dose of Anti emetics and regular monitoring of Urine pH, Serum Creatinine, Serum Methotrexate levels, Complete Blood Count as to identify any toxicity and intense management of the toxicity.



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Keywords

Acute Lymphoblastic Leukemia, HDMTX, Methotrexate, Serum Creatinine, serum methotrexate, Leucovorin Rescue, Toxicity.

Biography

My name is Sahithi Maroju, I'm from Hyderabad, as far as my educational qualification is concerned, I'm in my final year of PharmD from Sree Dattha Institute of Pharmacy, Sheriguda, Hyderabad.



Screening and Identification of Potential Bioactive Molecules against Aortic Tissue Proteins (ACE2 and MMP-7) using *In silico* Analysis



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Abstract

Background, Hypertension is one of the significant risk factors for cardiovascular diseases. Mechanism of hypertension involves Renin-Angiotensin-Aldosterone System (RAAS). Angiotensin II is a potent vasoconstrictor that causes a rise in blood pressure. Hypertensive mechanism also influenced by certain vascular gene/proteins (*NOS3, VEGF, MMP-7etc*). Angiotensin-Converting Enzyme (ACE) can be a potential therapeutic target for managing hypertension. Matrix Metalloproteinase-7 (MMP7), a member of the Matrix Metalloproteinase (MMP) family, is involved in the mediation of both agonist-induced vascular tone and cardiac remodeling. We **Objective** aimed to study the effect of a few bioactive molecules on Aortic Tissue Proteins (ACE2 and MMP-7) in hypertensive rat model by *In silico* analysis. **Methods**, Data collections for bioactive molecules from the different phytochemical databases for the generation of the 3D structure were done by SWISS ADME tool & PDB database to generate a target protein molecule. **Result**: According to docking score we got molecules which showed prominent activities with the studied target proteins (ACE2&MMP7). **Conclusion**: The findings of this study indicate one of the few possible ligands (Calyxin B) by *In silico* approach. Hence this tool may be considered as a possible predictor for inhibitors of ACE2 and MMP-7 induced hypertension.

Keywords

ACE2 and MMP-7, hypertension, ADME, Molecular Docking.



Dyneumo MK-2: An Investigational Circadian-Locked Neuromodulator for Applied Chronobiology with Responsive Stimulation



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Abstract

Deep Brain Stimulation (DBS) is a well-established palliative treatment for Parkinson's disease, essential tremor, and epilepsy. Electrical neuromodulation is used in DBS to decrease symptoms. The majority of contemporary systems deliver a continuous pattern of fixed stimulation, with clinical follow-ups to ensure that it is working well. Settings that are restricted to conventional business hours are fine-tuned. This management strategy has a flaw in that. The effect of stimulation on circadian, or sleep-wake, cycles is not completely studied; either in the laboratory or in the field. Whether it's in the gadget design or the clinical follow-up, devices can be placed in specific areas of the brain. The impact on wakefulness and sleep can be profound when combined with the reticular activating network. As new targets are investigated, this problem is likely to worsen, with the possibility for entraining signals that aren't influenced by their surroundings. To deal with this problem, a new brain-machine interface for DBS that combines a slow-adaptive circadian-based stimulation pattern with a fast-acting channel for responsive stimulation has been demonstrated for seizure control management. Design and prototype were carried out in accordance with ISO standards in preparation for first-in-human research trials to investigate the utility of multi-timescale automated adaptive algorithms. Patient safety is ensured by risk management standards. The ultimate goal is to account for everything within the algorithms embedded in brain-machine interfaces and in the algorithms embedded neuromodulation technology.

Keywords

DYNEUMO MK-2, Deep brain stimulation, neuromodulation, circadian-based stimulation.



Crystal Products of Pioglitazone-Citric Acid for Improvement of Drug Dissolution



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Abstract

Crystal engineering is emerging as an important tool for enhancement of dissolution of poorly soluble drugs. Pioglitazone hydrochloride is a BCS class II anti-diabetic drug widely used for the treatment of type II diabetes. This project was aimed at the formulation of pioglitazone cocrystals with different molar ratios of citric acid as co-former, i.e., 3:1 (PC1), 3:2 (PC2), 3:3 (PC3) and 3:4 (PC4). FTIR, XRD and In-vitro release were performed for characterization of the cocrystals. FTIR studies showed the peaks at 1684 and 1333.53⁻¹ cm of C=O stretching and C-S stretching respectively. Hydrogen bonding of citric acid and pioglitazone was at 3418.21⁻¹ cm proved the binding for cocrystal formation. Presence of significantly amorphised state of pioglitazone in the cocrystal samples has been observed from the XRD data. The in-vitro release study confirmed that with rising concentration of citric acid, the rate of drug release also increased. This was as per the sequence, PC4 > PC3 > PC2 > PC1 > P. In conclusion, crystalline products of pioglitazone with citric acid have shown significantly improved dissolution rate of the drug which is supposed to improve oral bioavailability of the drug.



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Biography

Shibashis Panigrahy is pursuing M.Pharm at School of Pharmaceutical Sciences, Siksha 'O' Anusandhan (Deemed To Be University, Bhubaneswar, under the guidance of Prof. (Dr.) Subrata Mallick, HOD, Dept. of Pharmaceutics, School of Pharmaceutical Sciences, Siksha 'O' Anusandhan (Deemed To Be University, Bhubaneswar).



Formulation and In vitro Evaluation of Metformin HCl Gastroretentive Floating Tablet



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Abstract

The purpose of the present study was to develop the floating tablets of Metformin HCl and evaluate the drug release profiles of these formulations. Metformin is an oral anti-diabetic drug in the biguanide class. It is the first-line drug of choice for the treatment of type 2 diabetes, especially in people who are overweight, obese and those with normal kidney function. Plasma half-life of Metformin after intravenous administration, about 1.5 to 4 h. Absorption of the metformin HCl is limited to upper part of the gastrointestinal tract and therefore its bioavailability from both immediate and sustained release marketed dosage forms is 50-60%. So metformin is suitable for gastroretentive drug delivery system that can improve bioavailability. Tablets were formulated using polymers HPMC K100M, Eudragit RL100, Ethyl Cellulose, Xanthan gum, along with effervescent agents citric acid and sodium bicarbonate. All the formulation were prepared by wet granulation technique. The prepared tablets of all the formulations were evaluated for physical characters like tablet hardness, friability, weight variation buoyancy lag time, total floating time, assay, in-vitro drug release. The main aim was to optimize the formulation for 24 hours in-vitro release and total floating time to more than 24 hours.

Keywords

Metformin HCL, Sustained release, HPMC K100M, Eudragit RL100, Floating DDS



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A Prospective Observational Study on Incidence of Polypharmacy and Drug Related Problems among Geriatrics in Tertiary Care Hospital



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R.Kamaraj

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Abstract

Polypharmacy is one of the reasons for occurrence of (Drug Related Problems) DRPs. Polypharmacy is most prevalent in elderly and consequences associated are increased healthcare costs, adverse drug events, drug interactions, medication non adherence, functional status, cognitive impairment, urinary incontinence and nutrition. All these consequences are listed under DRPs. The present research targets on incidence of DRPs, polypharmacy and the relationship between DRPs and polypharmacy. As the geriatrics is highly affected population, the study is conducted among geriatrics (more than 60 years of age) using PCNE classification. It is a Prospective Observational study, a sample of 151 geriatric patients was observed among which the male population was 97(74.62%) and female were 54(41.54%). Of them 130(86.09%) patients were identified with DRPs and 21(13.91%) patients were without DRPs. A total of 219 DRPs were identified in 151 patients and out of them, 146(66.67%) in male and 73(33.33%) in female were observed. The active role of clinical pharmacist is necessary in identifying and resolving the DRPs. The DRPs identified must be accepted by the physicians and cooperation of patients and physician is necessary for resolving DRPs.

Key words

Drug Related Problems, Polypharmacy, geriatrics

Biography

I am Sreenu Thalla, Research Scholar, Department of Pharmacology, SRMIST, Kattankalathur, Tamil Nadu. I have 8 Years of experience as Clinical Pharmacologist in Amaravathi Institute of Medical Sciences, Guntur, Andhra Pradesh and have 5 Years of Teaching experience. I had published 42 publications includes both national and international journals with good impact factor.



Estimation of Naratriptan Hydrochloride by using RP-HPLC Method



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Abstract

Naratriptan Hydrochloride is a selective 5-hydroxytryptamine 1 receptor subtype agonist mostly used for the treatment of migraine headaches. An RP-HPLC method was developed for Naratriptan using Potassium Di-hydrogen Phosphate (KH_2PO_4): Acetonitrile as a mobile phase in the ratio of 25:75 v/v. The flow rate was kept 1.0 ml/min and the detection was carried out at 224nm. The linearity of proposed method was investigated in the range of 5-25 $\mu\text{g/ml}$ for Naratriptan. The limit of detection was 0.25 $\mu\text{g/ml}$ and limit of quantitation was 0.75 $\mu\text{g/ml}$. The percentage recovery of Naratriptan was ranged from 98.22 to 99.04. The % R.S.D. value for intraday precision study were < 1 % and for interday study were < 2 % it conforms that the method was sufficiently precise. The validation studies were carried out fulfilling's the ICH requirements. The procedure was found to be specific, linear, precise, accurate and robust.

Biography

Prof. Swati N. Lade Perusing Ph.D. from Sumandeep Vidyapeeth Vadodara and Currently working as Associate Professor in the Hi-Tech College of Pharmacy Chandrapur. she is having 12 years of teaching experience he has 18 numbers of publication in his credit in various national and international journals along with the 2 Book Publication and 05 conferences Publication she is actively participated in various National and International conferences.



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Repurposing in Treatment of Blood Cancer



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Abstract

Cancer is a major cause of death in the world today, and its level of incidence is set to increase globally putting pressure on health services and pharmaceutical companies to develop novel therapies at a competitive pace. The current model of drug discovering is being continuously scrutinized due to the high failure rate that has been recently associated with it. Finding new therapeutic indications for already established drug substances is known as redirecting, repositioning, reprofiling, or repurposing of drugs. The most accepted argument in favor of this method of drug development is the reduced research and development time involved in bringing the drug to market and to the patient's bedside. Thalidomide, Imatinib, Dasatinib are using as repurposing drugs. Drugs that have been withdrawn, approved, currently in clinical trials or have failed clinical trials all may have repurposing opportunities. Repurposing will contribute to improving and increasing the therapeutic armory available for blood, and other, cancers.

Biography

I am studying B.pharmacy in Smt.Sarojini Ramulamma collage of pharmacy at Mahabubnagar from the academic year 2019_2023. I have completed my ssc in the year 2017at Z.P.H.School (government school). And done my intermediate in the year of 2017to2019. From prathibha junior college at Mahabubnagar. Hobbies: Listening music, drawing, reading books. My Aim is to become a medical coder. And I have participated UCSPU_IPA international webinar in Palamuru University and I got the certificate.



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Dual Release Bi-layered Tablets for the Treatment of Hypertension and Diabetes



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Abstract

Diabetes and hypertension are the two most common diseases that often co-exist. The most common cause of death is heart disease. In present investigation we combine Valsartan and Metformin HCL for treatment of both diseases. That's why we are incorporating bilayer technology. Bi-layer tablet is a new technology for successful development of immediate and sustained release formulation in one dosage form. Bi-layer tablets can be primary option to avoid chemical incompatibilities between APIs by physical separation. For the preparation of bilayered tablets we are using physical mixing method. For immediate action we are using solubility enhancement polymers and for sustained actions we preferred sustained release polymers. Examples of polymers for immediate release Poloxamer 188, PVP K30, Poloxamer 338 for sustained release we are using HPMC K100, HPMC K15, Xanthan gum, Guar gum are used at different concentrations. Among all the formulations, dosage form which contains Poloxamer 188 and HPMC K100 gives the best result.



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The Prevalence of Risk for Obstructive Sleep Apnea among Type 2 Diabetes Mellitus Patients



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Abstract

Obstructive Sleep Apnea (OSA) is a common medical disorder and Type 2 Diabetes Mellitus (T2DM) is an endocrine disorder where both of them commonly coexist. T2DM will disturb sleep patterns and disturbed sleep may predispose to insulin resistance resulting in T2DM. The study aim is to evaluate the prevalence of risk for Obstructive sleep apnea among T2DM patients based on patient demographic variables (age, gender and Body Mass Index (BMI)) and Berlin Questionnaire (BQ). In this cross-sectional study a total of 111 patients were included and the prevalence of risk was determined based on the BQ categories and the percentage was calculated accordingly. In BQ, Category 1 includes five questions based on snoring, category 2 includes three questions based on daytime somnolence and category 3 includes two questions based on BMI. These categories were marked as positive if the responses for snoring or daytime somnolence indicate persistent symptoms (> 3-4 times/week). Third category includes the patient's BMI greater than 30 kg/m² (obese) indicates positive score. In this study, the patients above 61 years (100%) and obese (94%) were at a higher risk for OSA. Based on the BQ, more positive (89.19%) responses were observed in category 1 (snoring) when compared to category 2 (40.54%) and 3 (74.77%) which concluded that T2DM patients are at a high risk (HR) for developing Obstructive Sleep Apnea



Formulation, Development and Evaluation of Film Forming Organogel for Dry Skin



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Abstract

The skin is a primary route for the dermal or transdermal delivery. Recently, film forming polymeric Gel is a novel approach which presents an alternative to the conventional dosage forms used on the skin. The aim of this work is to develop a Pluronic and lecithin organogel and evaluate Moisturizing property of the formed polymeric film and prevent the skin from drying. The gel containing different quantities of Polaxomer, soya lecithin and polyvinyl alcohol and were characterized for their mechanical properties and moisturizing capabilities. The polymeric films, which were produced were thin, flexible, resistant, and suitable for application on limbs and feet. Studies showed that the film was intact for more than expected period of time The ex vivo experiments of the gel was effective as compared to a commercial cream containing the same quantity of aloe vera and vitamin E. It was found that the gel penetrated in the deep layers of the stratum corneum when the formulation was applied. The results which were obtained showed that the polymeric films formed from organogel containing vitamin E and Aloe vera could be an innovative therapeutic approach for enhancing the moisturization of skin.

Keywords

Organogel, film forming gel, dry skin, soya lecithin, polaxomer.



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**Formulation Development and Evaluation of
Eicosapentanoic Acid Tablets**



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Abstract

The present invention provides highly purified omega-3 acid formulation. Omega-3 fatty acids are often referred as “Essential” Fatty Acids (EFAs) because they are needed for human health but are not sufficiently produced by the body alone. The two major health promoting omega-3 unsaturated fatty acids are Eicosapentanoic Acid (EPA) and Docosahexanoic Acid (DHA). Eicosapentanoic Acid (EPA) is the leading omega-3 can be converted from ALA in vivo, but since the conversion rate is low, they have to be taken from food. EPA is naturally found in certain cold-water fish such as salmon, tuna and mackerel. They also derived in the body from Alpha Linolenic Acid (ALA), which is an omega-3 fatty acid found in certain seeds and plant based oils.

The Eicosapentanoic Acid tablets available as dietary supplements, EPA is recommended for patients with coronary artery disease and hypertriglyceridemia. EPA contains long chain fatty acids and are effective option for the treatment of the high TG levels. EPA not only protect good health, but also can reduce the risk of cardiac disease and exert powerful anti-inflammatory effects that can help treat certain diseases.

Key words

Eicosapentanoic Acid, Omega-3, Docosahexnoic Acid.



Understanding the Effect of Exposure to DC Electrical Field During Nucleation on Porosity and Flow Properties of Paracetamol Crystals



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Abstract

The objective of the present investigation is to study the extent of modification in shape and surface morphology of Paracetamol on porosity and flow property upon the exposure to the DC electrical field. The crystals of Paracetamol were prepared by exposure to the supersaturated solution of drug to the electrical field during nucleation phase (EN-crystals) at 70 °C that modified the shape and surface of EN-crystals. The extent of alteration in shape and surface (porosity) depends upon the exposure to the DC electrical field of varying duration of exposure, and distance between the electrodes. The alteration in shapes and porosity on the surface of crystals was studied with the aid of scanning electron microscopy. The effect of an electric field on crystallization of drug molecule has drawn attention of many researchers and has been studied extensively. The crystal shape of Paracetamol prepared under the electrical field is changed, and their surface is porous in nature. Varying the duration of exposure alters size and shape of the crystals. In the present study, Paracetamol crystal growth and alteration in flow properties are methodically studied as a function of intensity and exposure of electric field and found that, electric fields could be one of the control variables for alteration of crystal size, porosity and flow properties.

Keywords

Electro Crystallization, Electric field, Silver electrode, Gold electrode, Surface morphology, Paracetamol



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Comparison & Compilation of RA & QA Requirements for Marketing Authorization/Registration Requirements for Herbals & Nutraceuticals Across the Emerging Markets



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Abstract

Herbals and Nutraceuticals is a broad term that is used to describe the product that derived from natural source or food source. Herbal preparations are the basis for finished herbal products and may include comminuted or powdered herbal materials, or extracts, tinctures and fatty oils, expressed juices and processed exudates of herbal materials. The primary objective of this study is to understand the Marketing Authorization/Registration process of Herbals and Nutraceuticals in Emerging Market i.e. India, Singapore & Saudi Arabia. In India, Herbal Medicines are being used in Ayurveda, Siddha, Unani, Homeopathic system of medicine whereas, in Singapore, Health supplements and Traditional medicines are, therefore, not subjected to pre-market approvals and licensing for their manufacture, importation, and sales, unlike medicine which contains potent medicinal ingredients. Generally, there are no particular regulation/guidance documents regarding this product in the world, different countries have different registration procedures, therefore this study gives an idea about the registration procedure of the above countries.

The main aim of the study is to understand the various differences between the registration processes in Emerging Market.

Keywords

Herbals, Nutraceuticals, Marketing Authorization



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PRSS-1 Gene Mutations in Etiopathogenesis of Pancreatic Cancer



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Abstract

The pancreas was found to be an accessory organ of the digestive system that synthesizes the digestive proenzyme trypsinogen, whereas the so formed trypsinogen will be converted into trypsin with the help of enzyme protease and enterokinase in the duodenum. The genomic amplification or chromosomal aberration which alters the PRSS-1 (Protease Serine-1) gene results in chronic pancreatitis, which further causes pancreatic cancer. The equilibrium of the protease and anti-protease is altered by the RI22H (A Sub-Mutation of PRSS-1) which promotes the onset of pancreatic cancer. Gene conversion is the major phenomenon which creates the nucleotide changes that affect the exon part of the PRSS-1 gene. SPINK 1 gene mutation plays an important role in stimulating the expression of PRSS 1 mutation that leads to result in pancreatitis. Genetic factors, Alcoholism, smoking, lack of the anti-oxidants were some of the factors, which causes the PRSS-1 gene mutations in turn resulting in pancreatic cancer.

Keywords

Mutation, Gene conversion, PRSS -1 gene, Pancreatic cancer.



Micro Needle Patches as Drug and Vaccine Delivery Platform



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Abstract

Background: Transcutaneous delivery is the ideal method for delivering therapeutic reagents or vaccines into skin. With their promise of self-administration, cost-effective and high efficiency, micro needle patches have been studied intensively as therapeutic and vaccination delivery platform that replaces injection by syringe. This study aims to summarize the recent advancements of micro needle patches in application for drugs and vaccine delivery.

Methods: We reviewed the most of recently published papers on micro needle patches, summarized their evolution, classification, state-of-the-art capabilities and discussed promising application in drugs and vaccine delivery.

Results: With the rapid development of nanotechnology, micro needle patches have been improved by switching from un dissolving to dissolving micro needles, and their safety has also improved dramatically. As a drug delivery tool, micro needle patches can deliver bioactive molecular of different physical size. Additionally, micro needle patches can be coated or encapsulate with DNA vaccine, subunit antigen, inactivated or live virus vaccine. Combining clinical results with the results of patient interview, micro needle patches are found to be feasible and are predicated to soon be acceptable for the medical service.

Conclusion: In this study, we summarized the evolution, current and future application of micro needle patches as delivery vehicle for drugs and vaccines.



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Biography

I am Abdul Rahman MUSHARAF, studying B. Pharmacy 3year in Smt. Sarojini Ramulamma College of Pharmacy.(2019 - 2023) I have completed my schooling from police line high school (2016-2017). I have completed my intermediate as Bipc student in Prathibha junior college (2017-2019). My Aim is to work in the department of Research and development. My hobbies are playing Cricket, Developing Communication skills, Exploring new places.



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Colon Drug Delivery Systems



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Abstract

Colon is an important part of our body. Certain drug or peptides have the ability to treat several diseases which are related to the colon with less adverse effect. Drug and chemical substances like Hydroxypropyl Methylcellulose (HPMC), pectin, alginates, and polymethacrylate have shown a very promising action on colon drug delivery systems. Targeted drug delivery in the colon is very important for the local treatment of various bowel diseases such as Crohn's disease, colonic cancer. The main target of CDDS is drug release & absorption should avoid the stomach and small intestine & only released in the colon. Mostly it is administered orally, and rectal for the shortest route.

CODESTM (Colon Drug Targeted Delivery System) is a new approach in the field of CDDS. It's a combined approach for pH-dependent & microbial-triggered CDDS. It uses a unique mechanism involving lactulose. In these tablets, the tablet is coated with lactulose that is over-coated with Eudragit 6 & sub-coated with Eudragit, preventing it from the stomach. The acid-soluble material protects from the alkaline pH of the small intestine. After reaching the colon, the bacteria enzymatically degrade lactulose into organic acid, which helps in the surrounding pH and soluble coating & subsequent drug release. The colonic region of the GIT is a very important and essential for drug delivery & absorption. CDDS offers benefits to patients in terms of both local & systemic treatment.

Keywords

CODESTM (Colon Drug Targeted Delivery System), Eudragit, polymethacrylate, colon cancer



Early Recognition of CNS Complications in Multiple Sclerosis: A Pharmacovigilance Study



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Abstract

In the past decades, several new and successful Disease-Modifying Treatments (DMTs) for Multiple Sclerosis (MS) have become available. Selection of DMTs based on potential benefits must be balanced with rare to frequent, and potentially serious, adverse events seen with the newer drugs. In this study we ruled out current role of MRI in safety monitoring during Pharmacovigilance of patients treated with (selective) immune suppressive therapies for MS. MRI, particularly brain MRI, has a pivotal role in the early diagnosis of CNS complications that potentially are severely debilitating and may even be lethal. Early recognition of such CNS complications may improve functional outcome and survival, and thus knowledge on MRI features of treatment-associated complications is of paramount importance to MS clinicians, but also of relevance to general neurologists and radiologists.

Biography

I am studying bachelor of pharmacy in smt. Sarojini Ramulamma collage of pharmacy Mahabubnagar from the academic year 2019_2023 .and I have completed my schooling from rainbow school 2016 Mahabubnagar and college at prathibha junior college 2017 to 2019 pass out and I have chosen b pharmacy as my further course because I am more interested in this field as this helps to explore about medicine and further I want to choose Pharmacovigilance as my job purpose.



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Introduction of Super Saturable Self-Emulsifying Drug Delivery Systems



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Abstract

Self-Emulsifying Drug Delivery Systems (SEDDS's) are a key strategy to extend the Bioavailability (BA) of formulations of poorly water-soluble drugs. However, SEDDS's have bound limitations, which includes in -vivo precipitation of drugs, poor IVIVC (In-Vivo, In-Vitro Correlation) due to lack of predictive in vitro tests, issues in handling of liquid dosage forms and physio – chemical stability of drug and vehicle components. To beat these limitations, which restrict the potential usage of such systems, the Supersaturable Self-Emulsifying Drug Delivery Systems (Su-SEDDS's) have gained attention based on the fact that the incorporation of Precipitation Inhibitors (PI's) within SEDDS's helps maintain drug supersaturation after disintegration and digestion in the gastro intestinal tract. Supersaturable systems maintained a higher amount of drug in a supersaturated state in gastric medium on contrast with conventional systems (SEDDS's) and were stable in intestinal medium. This improves the bioavailability of drugs and brings down the variability of exposure. Polymers, Surfactants and Cyclodextrins are used as Precipitation Inhibitors. Polymeric Precipitation Inhibitors includes PolyVinylPyrrolidone (PVP), D- α -Tocopherol Polyethylene Glycol 1000 Succinate (TPGS) Hydroxy Propyl Methyl Cellulose (HPMC) and Eudragit etc. Additionally, the formulation of Su-SEDDS's has helped to beat disadvantages of liquid and capsule dosage forms. Finally, the Su-SEDDS provides a constructive approach for enhancing the dissolution and bioavailability of a drug with a low level of emulsifying excipients and provides a reference for better stabilization and also safety of SEDDS's.

Keywords

Supersaturable Self-Emulsifying Drug Delivery Systems, Precipitation Inhibitors, Bioavailability.



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**Drug Utilization Evaluation and ADR of Antibiotics in
Various Departments of Ateritiary Care Hospital of Andhra
Pradesh**



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Abstract

Aim: The main aim of this study was to study prescribing pattern of antibiotics in various departments as anti-biotics today are commonly prescribed drugs in a hospital set up. The emergence of antibiotics resistant bacteria is a major problem throughout the world and a rational use of antibiotics is therefore very important. Irrational use of antibiotics can cause increase in adverse drug reaction, leading to antibiotic resistance and increase in the treatment cost.

Methodology: This was a prospective observational study conducted for duration of 4 months (March 2021 – June 2021) in 320 patients.

Results: The current study on gender categorization revealed that the overall study population was predominantly male population. Age wise distribution was analysed and found that most of the patients were in the age group of 61-80 years followed by 41-60 years. Department wise distribution was analysed and found that General surgery and general medicine with 40% and 10% respectively and it was followed by Pulmonology with 28% and Orthopedics and gynecology with 12% and 8% respectively. The current study reports on major class of antibiotics prescribed among patients were Cephalosporins followed by Penicillins. The most commonly prescribed antibiotic was Amoxicillin (25%) followed by Ceftriaxone (21%) during the hospital stay. During the study most of the prescription had single antibiotics prescribed (48.6%). Study on duration of therapy of antibiotics shows that majority of patients take 4 to 5 days for the therapy which is 34% and 24% respectively. Followed by 2 to 3 days which is 8% and 20% percent and 10% of patient population took more than 5 days. Categorization based on co morbid conditions was analysed and found that most of the patients were having Diabetes, hypertension followed by gastro intestinal disturbances. Study on Adverse effects was analysed and found that majority of effects was found to be gastro intestinal disturbances such as vomiting, diarrhea, nausea, abdominal pain. Other adverse effects observed were loss of appetite and allergic reactions were mostly observed in penicillins and other natural antibiotics. The rational use of antibiotics was studied and observed that 68% of the prescriptions



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were rational where as 32% was found to be irrational which was responsible for drug interactions and other major adverse effects leading to expensive therapy.

Conclusion: Most commonly prescribed antibiotic in the study population was Amoxicillin followed by Ceftriaxone. The commonly observed ADR in the study population were Constipation, Itching, Vomiting, Giddiness, Abdominal pain, and decreased potassium level, these ADR's can be prevented by proper monitoring during drug administration and through educating the healthcare professionals regarding commonly occurring ADR'S and for rational prescription.

Biography

Amit Kumar, Associate Professor, Department of Pharmacy Practice, Aditya College of Pharmacy, Surampalem, East Godavari District, Andhra Pradesh, India. Having ten years of rich experience of teaching Pharm.D, B.Pharmacy and M.Pharmacy (Pharmaceutical Technology) students. Have good knowledge of subjects like Pharmacotherapeutics, Clinical Pharmacy, Hospital Pharmacy, Pharmacology, Toxicology, Clinical Research, Pharmacoepidemiology, Pharmacoeconomic, Physical Pharmacy, Advanced Physical Pharmaceutics & Industrial Pharmacy, Biopharmaceutics & Pharmacokinetics, Applied Biochemistry, Human Anatomy & Physiology, Pharmaceutical Jurisprudence. Have good knowledge of medical and pathological terminology. Know how to deal with medical professionals and paramedicals in a hospital and clinical setup. Have profound knowledge of pharmaceuticals uses, sales and marketing. Have experience in clinical research as clinical research coordinator. Have published 14 articles in various national and international journals and been project guide for 36 Pharm. D students, 26 B.Pharm students and 8 M.Pharm students.



Evaluation of In-vitro Anti-inflammatory Activity of Co-crystals of Etodolac



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Abstract

Co- Crystallization is an effective tool to tailor APIs to modulate physicochemical properties without loss of biological activity. Pharmaceutical cocrystallization can offer tremendous control over physicochemical properties like solubility, stability, hygroscopicity of drug molecule with non ionizable functional groups. . Etodolac is a non-steroidal anti-inflammatory drug which belongs to BCS class II. Its poor aqueous solubility results in low bioavailability. Literature survey shows that only few works were done in the bioavailability enhancement of Etodolac. So here an attempt is made to enhance the solubility of Etodolac and to evaluate its anti-inflammatory potential. The present investigation deals with solubility enhancement of Etodolac through co crystallization using Succinic Acid as cofomer. The cocrystals were prepared using liquid assisted grinding since it is a green technique. The prepared cocrystals were characterized by various techniques like Powder XRD, FTIR, DSC etc. The aqueous solubility was determined and it was compared with that of parent drug. The invitro anti-inflammatory property of Etodolac cocrystal was determined using inhibition test for Cyclooxygenase and lipoxxygenase (COX and LOX Assay method) . The anti-inflammatory activity was compared with that of parent drug. A dramatic increase in anti-inflammatory property was observed. So cocrystallisation approach is a promising alternative for solubility enhancement and increased therapeutic potential

Biography

Currently working as Assistant professor of Pharmacy at Government Medical College, Kerala India. Graduated M Pharm in Pharmaceutical Chemistry from University of Kerala in 2000. Presently a PhD scholar at University of Kerala. My current research interest include solubility enhancement of BCS class II pharmaceuticals through co crystallization technique.



US FDA Regulatory Framework for Generic Peptides Referring to rDNA Origin Reference Products



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Abstract

Peptides are polymeric molecules having 40 or less amino acids. Peptides have been used as therapeutic compounds for the treatment of various disorders since 1920s. Initially, these were isolated from animals. Currently, most of the therapeutic peptides are either synthetic or produced by rDNA technology. Given the continuously improving synthesis technology and availability of robust characterization tools, it is now possible to synthesize a generic therapeutic peptide for a reference product which is of rDNA origin. The manufacturing of synthetic generic peptides is generally considered more advantageous than recombinant generic peptides due to low risk of immunogenicity and absence of host cell derived biomolecules. This article compares the approval process of generic peptides for a reference product of rDNA origin in the United States especially in light of US FDA guideline “ANDAs for certain highly purified synthetic peptide drug products that refer to listed drugs of rDNA Origin”. This guideline provides recommendations for evaluating whether an ANDA submission is appropriate for a synthetic peptide referring to previously approved glucagon, liraglutide, nesiritide, teriparatide, and teduglutide of rDNA origin. The requirements for ANDA submissions for synthetic generic peptides and 505(b) (2) submissions for generic peptides of rDNA origin are compared.

Biography

Ankit Chincholkar is a PhD research scholar at Datta Meghe College of Pharmacy, Sawangi, Maharashtra. His area of research is concerned with regulatory requirements for biosimilars. He is currently working as an Analytical Research Scientist with CuraTeQ Biologics, Hyderabad.



***In Vitro* Interaction Study of Resveratrol with Selected SGLT2 Inhibitors by Equilibrium Dialysis Method using UV Spectroscopic Method**



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Abstract

In the current, work we studied the possibility of displacement interaction between resveratrol and selected SGLT2 inhibitors (dapagliflozin, empagliflozin) using the UV spectroscopic method for the first time. Free fraction and percentage binding of drugs in the mixture to BSA were calculated. The *in-vitro* displacement interaction study of SGLT2 inhibitors with resveratrol and the interaction of resveratrol on SGLT2 inhibitors were also carried out. The binding interaction of the drugs with the protein was confirmed by molecular docking studies. The stability of all the three drugs at different physiological pH conditions (empty stomach pH 1.2, simulated gastric pH 4.5, blood pH 7.4, and intestinal pH 9) was also carried out.

Keywords

SGLT2 inhibitors (sodium-glucose cotransporter 2 inhibitors), BSA(Bovine serum albumin)



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COVID-19 Vaccine Development: A Pediatric Perspective



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Abstract

Purpose: Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), the Novel Coronavirus that causes coronavirus disease 2019 (COVID-19), has caused substantial morbidity and mortality. Multiple vaccine candidates with reassuring safety and efficacy profiles have advanced to phase 3 clinical trials in adults. The purpose of this review is to describe the burden of COVID-19 in children, to update pediatricians about adult COVID-19 vaccine clinical trials, to discuss the importance of COVID-19 vaccine trials in children and to instill confidence in the established vaccine development and licensure processes.

Recent findings: Children of all ages are at risk for SARS-CoV-2 infection and severe disease manifestations. Children are also susceptible to downstream effects of COVID-19, including social isolation and interruption in education. Developing a pediatric COVID-19 vaccine could prevent disease, mitigate downstream effects, and enable children to re-engage in their world.

Biography

Ayman Naseer is a student from Mahabubnagar, Telangana pursuing Pharm.D (Doctor of Pharmacy) from Smt. Sarojini Ramulamma College of Pharmacy, Mahabubnagar (Batch of 2018-2024). He has a keen interest in the pharmacokinetics & pharmacodynamics of Drugs. He aims to provide better medication adherence to patients and focus on designing optimal therapeutic regimens free from clinically significant Drug interactions and ADRs for enhanced patient care.



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Covid-19 and Mucormycosis (Black Fungus): An Epidemic within the Pandemic



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Abstract

The second wave of the COVID-19 pandemic has affected India significantly with country reporting more than 400,000 cases in the month of May 2021 and health system almost collapsing. This was attributed to the new mutant strain also called as the 'Delta Strain' which led to high surge of cases across the country. As the country was stabilizing over this situation, another imminent threat in the form of Covid Associated Mucor Mycosis (CAM) challenged the already burdened health system of India. Also called as 'Black Fungus,' cases of CAM began to rise rapidly in the last week of May 2021 with multiple states reporting steady rise in the number of cases. Based on the published literature, India contributed to approximately 71% of global cases of CAM from December 2019 to start of April 2021, with majority of the cases occurring during the second wave. The present paper focuses on the epidemic of CAM during the second wave in India highlighting the causes, symptoms and various treatment modalities that have been adopted to cure the disease. Also, spotlight has also been thrown on some other nations where cases of CAM have begun to emerge. Some key recommendations are also mentioned which can prove vital towards disease prevention.

Biography

I am from Mahabubnagar district. I am pursuing my studies from Smt. Sarojini Ramulamma College of pharmacy year 2018 - 2024. I am studying Doctor of Pharmacy and want to become a Drug inspector. An expert in monitoring and executing efficiency, safety, quality and usefulness of drugs



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In Silico Antiviral Activity Prediction of Bioactive Compounds from Azadirachta Indica Against SARS-Coronavirus



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Abstract

COVID-19 caused by novel SARS-coronavirus 2 belonging to family Coronaviridae, is a global public health emergency infecting many people all around the world, especially in India. There is a need for a novel drug that counters SARS-CoV2 is the prime requirement at this time. Our research work was aimed to assess bioactive compounds found in Azadirachta indica as a potential inhibitor of COVID-19 Mpro by Docking studies. COVID-19 Mpro was docked with bioactive compounds, and docking was analyzed by Autodock. The binding energies obtained from the docking of COVID-19 Mpro with Azadiradione, Beta-sitosterol, Epiazadiradione, Epoxyazadiradione, Myricetin, Nimbaflavone, Nimbinene, Nimbione, Nimbocinolide, Quercitrin and Vepnin or any other phytochemical constituents obtained from Azadirachta indica were found to be in moderate to good values as per the in-silico studies for the treatment of SARS-coronavirus infection. In present study we found that Azadiradione, Epiazadiradione, Nimbione, and Vepnin have the greatest potential to act as COVID-19 protease inhibitors. However, further research is necessary to explore their prospective medicinal use in vitro and in vivo conditions.

Keywords

COVID-19 Mpro, Azadirachta indica and Docking



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RP-HPLC Method for Simultaneous Estimation of Metformin, Saxagliptin and Dapagliflozin



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Abstract

An isocratic HPLC method has been developed for the simultaneous analysis of metformin, saxagliptin and dapagliflozin. Efficient separation of metformin, saxagliptin and dapagliflozin was achieved through RP-HPLC using Waters XBridge column C18 (150 X 4.6 mm, 5 μ m) at 30 °C as a stationary phase and acetonitrile and buffer potassium dihydrogen phosphate of pH 5.5 and in the ratio of (40:60 % v/v) as mobile phase with a flow rate of 1 mL/min and detection at 229 nm. The retention time values for metformin, saxagliptin and dapagliflozin under optimized method were found to be 2.31, 3.25 and 4.32 min respectively. The developed method was validated for system suitability, specificity, linearity, accuracy, precision, sensitivity, LOD, LOQ and robustness as per ICH Q2 (R1) guidelines. Hence, the proposed RP-HPLC method for simultaneous analysis of metformin HCl, saxagliptin and dapagliflozin can be fruitfully applied for routine quality control analysis of these drugs in API and marketed pharmaceutical dosage forms.

Key words

Metformin, Saxagliptin, Dapagliflozin, HPLC.



Evaluation of Antiulcer Activity Using Zinc Oxide Nanoparticles of *Centella Asiatica* Leaf Extract



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Abstract

In this study, *Centella asiatica* leaf extract and its zinc oxide nanoparticles (ZnONPs) was synthesized. The anti-ulcer activity of both extract and nanoparticles were evaluated and compared using ethanol induced ulcer model. Characterization of ZnONPs were carried out using various techniques such as UV-Visible absorption spectroscopy, Fourier transforms infrared (FTIR), Zeta Potential, Scanning Electron Microscopy (SEM) and Particle Size Analysis. The Phytochemical study of *Centella asiatica* confirmed the presence of carbohydrates, flavonoids, tannins, proteins and amino acids, alkaloids, and sterols. The investigation was carried out in rats in which the gastric ulcers were induced by oral administration of ethanol at a dose of 8ml/kg, the animals were faster for 24hrs before the induction of ulcer, after 6hrs of ethanol administration the development of ulcer was confirmed and further study was conducted. The activity of the extracts was assessed by comparing and determining the ulcer index in the Test groups with that of control groups. The ethanolic extract of *Centella asiatica* on the experimentally induced ulcer rats showed a significant reduction of ulcer score when compared with control group. The investigation shown that the zinc oxide nanoparticles have potent antiulcer properties.



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Vitamin D as a Potential Adjuvant Therapeutic Option in Severe Covid 19



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Abstract

Coronavirus Disease (COVID 19) has turned out into the global pandemic and now a leading cause of death. Therapeutic options available to treat the disease are very less. Social distancing and lockdown are the only ways using to prevent this disease from community transmission. Cytokine storm was found to be the major cause of morbidity in patients affected with severe SARS-CoV 2 virus. In COVID-19 pandemic, the cytokine storm is noted to be a common cause in patients with severe-to-critical symptoms. Cytokine storm comes into action when the immune system goes out of hand and as a result there is an uncontrollable inflammatory response. Vitamin D is a well known immune modulator, antioxidant, and anti-inflammatory agent. Vitamin D acts as a immune modulator in both innate and adaptive immune system. It improves the immunity and protects against respiratory tract infections. This Presentation highlights the importance of using Vitamin D supplements as an adjuvant in suppressing cytokine storm in COVID 19 patients.

Keywords

ARS-CoV 2, COVID 19, cytokine storm, vitamin D.



Mechanism of Drug Induced Renal Failure



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Abstract

A rapid reversible decline in renal function causes Acute renal failure. This may lead to decrease in Glomerular filtration rate and the body not able to eliminate nitrogenous wastes over a period of time. There are multiple reasons for this renal failure which makes the mortality rate of patients over 25-75%. Therefore lot of advanced experimental animal models were developed especially rodents, which were used to understand the mechanism of kidney diseases and their progression and also to identify the target sites for undergoing treatment. These experiments show pathophysiological, ultrastructural and functional renal impairment like necrosis, tubular desquamation, increased levels of blood urea and serum creatinine. Through these experiments gentamicin, cisplatin, doxepin, aspirin, acetaminophen, glycerol, CCl₄, adenine, potassium dichromate, etc were found to cause nephrotoxicity. This review gives the mechanism of different nephrotoxic agents in an animal model that causes renal failure. Through this we can know about the prevention and treatment of drug induced nephrotoxicity.

Keywords

renal failure, nephrotoxicity



Proniosomal Gel as an Alternative Strategy to Enhance Localized Delivery of Paclitaxel



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Abstract

The development of proniosomes, a promising drug carrier has emerged as an approach to stabilize the niosomal drug delivery system without damaging its characteristics. These can be hydrated and turned into niosomes before usage. This is an approach for maintaining physical stability and vesicle integrity. The current study is attempting to develop a Paclitaxel (PTX) proniosomal gel to provide sustained drug release to the affected tissues. The goal is to see if proniosomes can be used to formulate PTX in a local delivery system. Given the topical delivery potential of proniosomal gels, this unique vesicular system as a PTX carrier is developed intending to achieve sustained drug release and high local effect in the skin. Proniosomes were made from coacervation phase separation method and then tested for encapsulation effectiveness, particle size, zeta potential, and shape. To find the most effective delivery mechanism, in vitro release behavior, ex vivo penetration through rat abdomen skin, in-vitro cytotoxicity, hemolytic toxicity, skin irritation, and skin deposition were studied. The results suggested that release of PTX from pure PTX solution and PTX Carbopol gel was rapid while in the case of proniosomal gel it showed extended-release up to 24 hrs and showed percent skin permeation 2.52-fold higher than PTX solution and 3.17-fold higher than plain PTX Carbopol gel. Findings of this study suggested that the proniosomal gel could be a potential formulation for local paclitaxel delivery with improved drug delivery and lower toxicity

Keywords

Niosomes, Proniosomes, Paclitaxel, Transdermal delivery, localized delivery



Cytotoxic Effects of Bioactive Compounds from *Amaranthus tricolor* (L) Against Human Breast Cancer



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Abstract

Amaranthus tricolor (L) is a highly nutritious leafy vegetable, belongs to the family Amaranthaceae. Scientifically the leaves of the plant proven for astringent, antibacterial, antioxidant, antinociceptive, antihyperglycemic and diuretic activities. This study was conducted to determine anticancer activity of bioactive compounds from methanolic extract of *Amaranthus tricolor* (L) (ATME) leaves against human breast cancer. The bioactive compounds were isolated by chromatographic techniques and structures were elucidated by spectroscopy. The structural interpretation of isolated compounds was determined as a flavonol glycoside 24-methylene cycloartanol and a gallic acid derivative methyl 3,4,5-trihydroxybenzoate. The compound 24-Methylene cycloartanol was docked with human oestrogen receptor and methyl 3,4,5-trihydroxybenzoate with human cyclin B and confirmed them as anticancer lead molecules. The compounds were identified for antioxidant property by DPPH method. They showed strong radical scavenging property in dose dependent manner. The IC₅₀ values of 24-methylene cycloartanol, methyl 3,4,5 trihydroxy benzoate & standard ascorbic acid were found to be 31.03, 23.37 & 14.29 µg/mL respectively.

The *in-vitro* cytotoxic activity was performed on human breast cancer MCF 7 cell lines by MTT (3-(4,5-dimethyl thiazol- 2-yl)-2,5- diphenyl tetrazolium bromide) assay. The compound 24-methylene cycloartanol inhibited the growth of cancer cells with IC₅₀ value 16.93 µg/mL whereas methyl 3,4,5 trihydroxybenzoate with IC₅₀ value 12.02 µg/mL and cisplatin with IC₅₀ value 4.586 µg/mL. The findings from the study indicated that the methanolic extract of *Amaranthus tricolor* (L) leaf possess vast potential as a medicinal drug in the treatment of cancer.

Keywords

Amaranthus tricolor (L), human breast cancer, MCF 7 cell lines.

Biography

Dr. P. Sowjanya, Professor & Head, Department of Pharmaceutical Biotechnology, Dean – Internal Quality Assurance Cell (IQAC) has been working at Vignan Pharmacy College, Vadlamudi since 2006. She has 16 years of academic career in pharmacy. She worked as Assistant Professor in Bharath Institute of Pharmacy, Hyderabad from 2005 to 2006. She published more than 31 review & research papers in reputed journals, *h*-index 7 and 126 citations. She also has one patent and two book chapters published. She has supervised more than 30 research projects at undergraduate



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level. She was awarded as the best poster presenter in 65th IPC held at Amity University, Noida New Delhi, December 2013, 66th IPC held at Hitex, Hyderabad, Telangana State, January 2015 and 67th IPC held at JSS University, Mysuru, December 2015 and successfully recorded a glorious hat-trick. She also received Junior Scientist Award in an international conference, 9th Annual Convention of Association of Biotechnology and Pharmacy organized at KL University, Vaddeswaram, Guntur (Dt) in the year 2015. She conferred with a honour “Inspiring Role Model” for her outstanding contribution to Pharmacy Education and Teaching Learning Process on the Occasion of International Women’s Day in 2018 by Hindu College of Pharmacy, Guntur. She was awarded with “Overall Best Academician Award” in 2019. She is a life member of Association of Pharmaceutical Teachers of India (APTI), Indian Pharmaceutical Association (IPA) and supporting member of Association of Ayurvedic Professionals of North America inc., United States of America.



In Vitro* Antioxidant, *In-vitro* α-Amylase Inhibition, *In-vitro* and *In-vivo* Anticataract Activity of Ethanolic Flower Extract of *Tecoma gaudichaudi



Dr. GVN Kiranmayi

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Abstract

The aim of present study to evaluate *In-vitro* antioxidant, *In-vitro* α-amylase inhibition, *In-vitro* and *In-vivo* anti-cataract potential of ethanolic flower extract of *Tecoma gaudichaudi*. Antidiabetic activity was evaluated by against alpha-amylase by spectrophotometric assays. Antioxidant activity was determined by 2,2-Diphenyl-1-Picrylhydrazyl (DPPH) method, reducing power method, phosphomolybdenum assay and hydroxyl radical scavenging assay. Different concentrations of extract were made using Dimethyl Sulfoxide (DMSO) and subjected to α-amylase inhibitory assay. The *In-vitro* anticataract potential of *Tecoma gaudichaudi* was determined using glucose induced cataractous goat eye lens. In *In-vivo* group, cataract was induced in rats by 30% galactose diet alone (control) or with the addition of *Tecoma gaudichaudi* (treated group). The results indicates the dose dependent *In-vitro* antioxidant activity against 2,2-Diphenyl-1-Picrylhydrazyl (DPPH) method, reducing power method, phosphomolybdenum assay and hydroxyl radical scavenging assay comparable with that of standard Ascorbic acid and also appreciable α-amylase inhibitory activity with an IC₅₀ values comparable with that of standard Acarbose. An *In-vitro* study was conducted which reported that the lens group treated with the plant extract (500µg/ml) exhibited reduction in the opacity compared to the lens in the negative control. The study of anti-cataract potential of *Tecomagaudichaudi* exhibited increase in total protein content, aldose reductase inhibition activity and a decrease in the level of malondialdehyde compared to negative control. *Tecoma gaudichaudi* can delay the onset and progression of cataracts in an experimental rat model of Glucose induced cataracts *In-vitro* and galactose induced cataracts *In-vivo*.

Keywords

Free radicals, *Tecoma gaudichaudi*, Ascorbic acid, Acarbose, α-Amylase inhibition, Anti-cataract.



A Study on Prescription Pattern of Anti-Hypertensive Drugs at Various Tertiary Care Hospitals in Telangana



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Abstract

The study was aimed to investigate the prescription pattern of anti-hypertensive drugs to patients suffering from hypertension at tertiary care hospitals in Telangana. In a planned retrospective study, hypertensive patients who attended out-patient departments of major tertiary care institutions in Telangana were studied. From October to December of 2021, the study lasted three months. A total of 70 prescriptions were collected, with the data being examined. The participants in this study were all under the age of 18 and had been diagnosed with hypertension. Co-morbidities such as Congestive heart failure, chronic renal disease, diabetes, hypothyroidism, dementia, and other disorders were also associated. Each prescription had the following information: name, gender, age, recorded blood pressure (both systolic and diastolic), name of drugs, dose, frequency, and kind of therapy (monotherapy and combination therapy). Each generic name was counted individually for brand-name. Following that, each generic name was categorized to its primary antihypertensive medication. The mean age of the patients was 57 ± 10 years with range 20 to >70 years. 60% of patients were male and 40% of patients were female. Angiotensin Receptor



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Blockers 22 % and Beta- blockers 22% were the frequently used classes of drug for monotherapy 20%. The most frequently prescribed drug regimen was found to be Dual therapy 46% followed by Mono therapy 40% and Triple therapy 12% respectively. Diabetes Mellitus is the most prevalent comorbidity among hypertensive patients, accounting for 20% of all cases. Polypharmacy was found in 33% of prescriptions. 117 drug-drug interactions were noted from a total of 70 prescriptions.

Biography

I am Fariya Kaleem, a student of Sultan-ul-Uloom College of Pharmacy, pursuing B- Pharmacy (4th year). My previous year aggregate was 79.8%. I last attended the Symposium held on Medicine Therapy Management conducted by Sultan-ul-Uloom College of Pharmacy and CliMed Research Solutions in collaboration with Indian Pharmaceutical Association and Association of Community Pharmacists of India.



Appraisal of Disease-Modifying Potential of Calcium Channel Blockers as Anti-Arthritic Agents: New Indication for Old Drugs

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Abstract

Background: Calcium channel blockers exhibit documented anti-inflammatory potential. Thereby, present investigation was accomplished with an aim to explore antioxidant and anti-arthritic potential of verapamil, diltiazem and amlodipine, giving a second chance to existing drugs.

Methods: Antioxidant activity of selected drugs was screened by hydrogen peroxide radical scavenging assay and reducing power assay. For validation of anti-arthritic potential of verapamil, diltiazem and amlodipine, molecular docking was being conducted targeting HtrA1, JAK1, COX-2, i-NOS and PGE2 to establish the correlation between experimental and theoretical findings.

Results: Amlodipine exhibited significantly higher antioxidant activity than the verapamil and diltiazem. Hydrogen donating reaction in addition to electron releasing property might be responsible for better antioxidant potential of amlodipine. Molecular docking analysis demonstrated strong binding interaction of amlodipine with HtrA1, JAK1, COX-2, i-NOS and PGE2 than verapamil and amlodipine thus providing a good correlation between experimental and theoretical results.

Conclusion: Thus, current study is suggestive that amlodipine exhibits strong antioxidant and anti-arthritic potential and thus can be considered as a candidate for drug repurposing as anti-arthritic agent.

Keywords

Verapamil, Diltiazem, Amlodipine, Antioxidant, Molecular docking



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Regulatory Framework for the Registration and Commercialization of Orphan Drugs



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Abstract

Rare or orphan diseases are defined in the United States as diseases and conditions that have an incidence of < 200,000 patients, or elsewhere in the world as having a prevalence ranging from < 1:2000–< 1:50,000. Approximately 80% of the thousands of defined rare diseases have an underlying genetic basis and approximately three-fourths affect children. Many of these rare diseases lack treatments or cures and are fatal, making new treatments potentially transformative for the lives of patients. However, there are several unique challenges surrounding the development of orphan diseases treatments. Low patient numbers, an incomplete understanding of the disease pathology, phenotypic heterogeneity, and a lack of established endpoints are barriers to efficient and effective clinical trials, which can make meeting regulatory requirements for drug approval challenging. According to the pharmaceutical industry, a number of pharma-specific strategic and tactical components must be addressed before Orphan Drugs may be effectively marketed. Patient recruitment is the first major challenge that must be addressed during the product/project lifecycle, which begins with the clinical trial stage and continues throughout the remainder of the product/project lifetime. The marketing of orphan drugs for rare diseases is a one-of-a-kind case study that exemplifies the pharmaceutical industries move to specialised therapies, as well as how pharma companies must respond differently to these new problems of Orphan Drugs for Rare Diseases.



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**Formulation and Evaluation of Pulsatile Drug Delivery
System of Atorvastatin Calcium**



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Abstract

The goal of this study is to develop a pulsatile drug delivery system depending on core tablet coated with inner swelling layer and outer rupturable layer. The main core having Atorvastatin calcium with excipients like micro crystalline cellulose and spray dried lactose. The core tablet then coated with cross carmellose sodium as inner swellable layer followed by coating of ethyl cellulose as rupturable layer. Evaluation of prepared tablets was done by %water uptake studies and % cumulative drug release. A lyophilic particulate material, magnesium stearate was included in the formulation which reduces the mechanical strength as well as lag time and the lag time of dosage form can also retarded with increasing quantity of swelling polymer. The uptake of water by the tablet is decreased by increasing the polymer coating.

Keywords

Atorvastatin calcium, Ethyl cellulose, Croscarmellose sodium, Lag time



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Transferosomes: An Updated Review

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Abstract

In this era medical field has various advancements for the effective and safe treatment along with better patient compliance. And novel drug delivery system is capable of providing effective and better compliance to patients. So, Novel drug delivery systems have gained much interest in recent years owing to their so many advantages along with the new recent advancement in the effective delivery of drugs. Transferosomes are a novel approach to the Transdermal drug delivery system that is most productive for the delivery of drugs through the skin because of the safety and convenience of drug administration through this route. Transdermal drug delivery overcomes the number of problems associated with the oral route of administration such as solubility problems, first-pass gastrointestinal absorption, and hepatic metabolism. Transferosomes are the novel nano-vesicles for the targeted, non invasive and non-allergic delivery of drugs via the transdermal route. They have a bilayered structure that facilitates the encapsulation of lipophilic, hydrophilic as well as amphiphilic drugs. Transfersome contains phospholipid and edge activator which makes it highly ultra deformable, so it can easily deform and squeeze themselves and easily cross the skin barrier. The Present review aims to describe the transferosomes, their mechanism of action, advantages, methods of preparation and evaluation parameters, marketed preparations available of transferosomes, and their recent applications.

Biography

Miss Jasveer kaur is a student in the pharmaceutics department of the ASBASJSM, College of Pharmacy, Bela (Punjab). She is pursuing a master's in pharmaceutics. She has done her bachelor's degree from Himachal Pradesh Technical University.



Anti-Estrogenic Potential of *Plumeria Acuminata*: An In-Vivo Study of Anti-Fertility Herb



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Abstract

Background and objective: Numerous phyto-chemicals with ability to interfere in the Endocrine physiology can lead to adverse health impacts in humans and animals. Presented study of ethanolic extracts from plant *Plumeria acuminata* leaves and roots for anti-fertility activity in wistar rats is based on this concept as the *Apocynaceae* family members have exhibited several features similar to anti-estrogenic drugs.

Methods: Crude ethanolic extracts from leaves and roots of *P. acuminata*, prepared through cold maceration process, were profiled for phyto-chemicals. Except normal control group, Ethinyl Estradiol (EE) was given at 0.1 mg/kg, s.c., to all immature females rats. Based on the LD₅₀ values, dose of 100, 200 and 400 mg/kg, p.o., test items were given daily from day 1 to 6. After euthanizing animals on Day 7, morphological, hematological, hormonal, and histological parameters were analyzed.

Results: Significant changes in the above measured parameters, i.e., ~15-60% alterations in ovarian and extra-ovarian hormones, ~10-38 % reduction in reproductive organ weight, ~13-42% alteration in uterus diameter, ~19-27% reduction in endometrium thickness leading to failure in its preparation for efficient receptivity, when observed from histologically.

Conclusion: Obtained anti-estrogenic results can be ascribed to existence of plumericin, sterol and lupeol triterpene groups of phytochemicals existing in leaves and roots ethanolic extracts, assemble them a compelling applicant for natural anti-estrogenic medicines.



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Biography

Jay Rabadia is a Ph.D. candidate at the RK University, Rajkot, Gujarat. He has received his M. Pharm (Pharmacology) degree from RGUHS, Bangalore. He has worked at Jai Research Foundation for ~4 years and currently placed at Sun Pharmaceutical Industries Pvt Ltd as a senior executive. During this period he has authored six research articles. He is active researcher from research and development community and interested in contributing to the pharmaceutical advancements. His expertise includes in *in-vivo* experimentation and molecular biology techniques.



Regulation in Emergency Approval of Vaccines with Reference to Covid -19 – A Review



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Abstract

The Drug regulatory authority of any country evaluates and approves drugs, vaccines in particular when their benefits prevail over the risks for their intended use. In this article we review the standard DCGI (Drug-Controller Authority of India) approach to vaccine evaluation, against its current approaches to assessment of vaccines to control and prevent COVID-19 pandemic. The DCGI has drawn different means to fast-track vaccine accessibility before approval, such as Emergency Use Approval, and to provide resources to high-priority products and permit more flexibility in the data required for accelerated approval, based on alternate indicators of effectiveness. Among the eight COVID-19 vaccines that are currently under various stages of clinical trials in India, four were indigenous. Typically, a vaccine candidate usually undergoes Pre-clinical (animal) studies and further three sequential phases of development in humans, which includes, Phase I, Phase II, and Phase III. After successful completion of Phase III trials and following approval of the vaccine, Phase IV Postmarketing Surveillance Studies (PMS) are used to continue to monitor the vaccine for safety and efficacy in the population. DCGI has authorised restricted emergency use of Covaxin, manufactured by Bharat Biotech and Covishield (the name employed in India for the Oxford-AstraZeneca vaccine) produced by Serum Institute of India. There are always uncertainties, even among few scientific communities that the above vaccine candidates have been rushed through the various pre-clinical and clinical trial process without adequate due diligence. This review has been conducted to understand the various pathways, these vaccines had travelled to affirm it is safe and effective before it is rolled-out to the public by DCGI.

Keywords

DCGI, COVID -19, Covaxin, Covishield.



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**Advances in Drug Design, Development and Novel
Nanotechnology-Present and Future Prospects**



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Abstract

A variety of approaches is employed to identify chemical compounds that may be developed and marketed. The current state of the chemical and biological sciences required for pharmaceutical development dictates that 5,000–10,000 chemical compounds must undergo laboratory screening for each new drug approved for use in humans. Of the 5,000–10,000 compounds that are screened, approximately 250 will enter preclinical testing, and 5 will enter clinical testing. The overall process from discovery to marketing of a drug can take 10 to 15 years. This section describes some of the processes used by the industry to discover and develop new drugs. Applications of nanotechnology for treatment, diagnosis, monitoring, and control of biological systems has recently been referred to as "nano medicine" by the National Institutes of Health. Research into the rational delivery and targeting of pharmaceutical, therapeutic, and diagnostic agents is at the forefront of projects in nanomedicine. These involve the identification of precise targets (Cells and Receptors) related to specific clinical conditions and choice of the appropriate nanocarriers to achieve the required responses while minimizing the side effects. Mononuclear phagocytes, dendritic cells, endothelial cells, and cancers (Tumor Cells, as well as Tumor Neovasculature) are key targets. Today, nanotechnology and nanoscience approaches to particle design and formulation are beginning to expand the market for many drugs and are forming the basis for a highly profitable niche within the industry, but some predicted benefits are hyped. In the future, a world where medical nanodevices are routinely implanted or even injected into the bloodstream to monitor wellness and to automatically participate in the repair of systems that deviate from established norms could be imagined. These nanobots could be personalized by tailoring them to patient genotype and phenotype to optimize intervention at the earliest stage in the course of disease expression.



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Formulation and Evaluation of Salbutamol Pulsincap for Controlled Drug Delivery



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Abstract

The current study aims to develop and test a salbutamol pulsincap formulation. In recent times, there is vast gaining of interest in the pulsatile drug delivery systems. Controlled drug delivery formulations in oral route are commonly employed because of the convenience of dose form. The purpose of this work provides more precise, spatial and temporal delivery while also enhancing patient compliance. Salbutamol is an adrenergic receptor agonist with a brief duration of action that acts by relaxing the smooth muscle of the airway. It is used to treat asthma in which usually symptoms occurs around 4.00 am. Salbutamol is administered by the use of an instruments like inhaler or nebulizer, but it is also commonly available as a tablet form, or in a liquid form, and also in a Parenteral. Humans' circadian rhythm governs a wide range of bodily activities, including physiology, and behaviour, sleep patterns, hormone synthesis, and other processes. Salbutamol pulsincap formulated with insoluble capsule body and design of hydrogel plug using various types of hydrophilic polymers at various concentration were performed. Salbutamol pulsincap was evaluated for specially treated formaldehyde capsules- solubility test, test for identifying free formaldehyde and release studies of Salbutamol pulsincaps-In-vitro. As a result, Salbutamol pulsincap formulated



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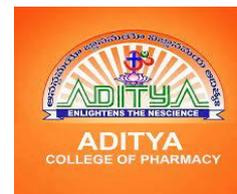
with various concentrations of hydrogel plug of gelatin and HPMC K4M and were optimised using various techniques. It may be evident that formulated Salbutamol pulsincap may be very effective in controlling the precipitation of asthmatic attack at night or during early morning, in the patients by making the drug to release with a lag time of 5hrs.

Keywords

Salbutamol Beta Blockers, Chrona Pharmacotherapy, Circadian Rhythm, Salbutamol Pulsincap, Controlled Drug Delivery



Exploring of Hypoglycemic & Anti-Diabetic Activity of Ethanolic Leaf Extract of *Gymnema Sylvestre* in Albino Rat



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Abstract

Gymnema Sylvestre familiarly known as **Madhunashini** in Sanskrit is explored for its biological activity. The Ethanolic leaf extract of *Gymnema sylvestre* at a dose 150 and 300 mg/kg body weight produce significant lowering of blood glucose levels in normal rats, 28.5% at 4th hour interval. Alloxan at a dose of 150 mg/kg body weight given intraperitoneally to rats induced Diabetes. These Diabetic rats were treated with 150 and 300 mg/kg body weight of Ethanolic leaf extract of *Gymnema sylvestre* produce significant lowering of blood glucose level by 34% in diabetic rats. These results were compared with standard drug Glibenclamide. Lipid profiles of diabetic rats were determined in all these rats groups.

Keyphrases

Gymnema Sylvestre, Hypoglycemic activity, Anti-Diabetic, Alloxan, Glibenclamide.



Design and Development of Mucoadhesive Buccal Tablets of Atazanavir Sulfate for Effective Management of HIV



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Abstract

Purpose: Atazanavir Sulfate (ATV) is a novel and potent protease inhibitor used to treat HIV. Atazanavir (ATV) due to its intense lipophilicity, its oral delivery encounters several problems such as poor aqueous solubility and rapid first-pass metabolism resulting in negative impact on bioavailability. Unboosted Atazanavir sulfate is minimally absorbed through oral making Atazanavir sulfate suitable as mucoadhesive buccal tablets via buccal route.

Method: ATV buccal tablets were prepared using SCMC (Sodium Carboxy Methylcellulose) and crospovidone as polymer and disintegrant respectively by direct compression method. Further the ATV buccal tablets were optimized by CCD design where the concentration of SCMC (X1) and concentration of disintegrant (X2) were selected as dependent variables. Hardness (Y1), % swelling index (Y2) and disintegration time (Y3) were selected as independent variables. *In-vitro* drug release was carried out for three optimized formulations F1, F8, F9 and among three formulations F1 had greater drug release of 96% which was later investigated for *ex-vivo* permeability studies where the selected F1 formulation showed the highest cumulative percentage drug release of 65.45% at end of 4 hours when compared to the pure drug suspension.

Conclusion: ATV buccal tablets could be a promising buccal drug delivery system as it is safe and effective alternative to the existing conventional drug delivery.



Designing and *In Vitro* Characterization of Pulsincap to Promote Floating Drug Delivery System of Dofetilide



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Abstract

In the present research work floating pulsatile drug delivery system of dofetilide were prepared using various grades of methocel polymers. Initially analytical method development was done for the drug molecule. Absorption maxima was determined based on that calibration curve was developed by using different concentrations. Gas generating agent sodium bicarbonate concentration was optimized. Then the formulation was developed by using different concentrations of polymers of various grades of Methocel. The formulation blend was subjected to various pre-formulation studies, flow properties and all the formulations were found to be good indicating that the powder blend has good flow properties. Among all the formulations the formulations prepared by using Methocel K 4 M were unable to produce desired drug release; they were unable to retard drug release up to 12 hours. Whereas the formulations prepared with Methocel K 15 M retarded the drug release in the concentration of 60 mg (F6) showed required release pattern i.e., retarded the drug release up to 10 hours and showed maximum of 98.97 % in 12 hours with good floating lag time and floating buoyancy time. The formulations prepared with Methocel K 100 M showed more retardation even after 12 hours they were not shown total drug release. Hence, they were not considered. The optimized formulation dissolution data was subjected to release kinetics, from the release kinetics data it was evident that the formulation followed zero order kinetics.

Keywords

Dofetilide, Methocel K 15 M, Methocel K 4 M, Methocel K 100 M.

Biography

The present research work relates to an Pulsatile drug delivery systems of dofetilide tablet, it was prepared by using the single unit systems i.e, capsular systems. The process in the preparation method of pulsatile drug delivery of dofetilide tablet by having the significant improvement in release kinetics. Dofetilide tablet form of pulsatile drug delivery is prepared by using single capsular method with enhanced bioavailability and improved rate of release kinetics to attain the zero order kinetics.



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Screening of Neuroprotective Effect of *Myristica malabarica* in Chlorpromazine Induced Parkinson's Animal Model



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Abstract

The purpose of the present study is to determine the antioxidant and neuroprotective effect of methanolic extract of *Myristica malabarica* in Chlorpromazine induced Parkinson's animal model. *Myristica malabarica* was researched for its antioxidant and anti-Parkinsonian activity. For 21 days, rats were given methanolic extracts of *Myristica malabarica* and a standard drug, Syndopa. During the treatment period, the behavioural evaluation, such as cataleptic activity and locomotor activity, were measured. On the 21st day, the animals were sacrificed, and their brains were isolated and homogenised to determine biochemical markers such as Dopamine, Catalase, Superoxide dismutase, brain glutathione levels, and Malondialdehyde (MAD) levels. The methanolic extract of the *Myristica malabarica* was found to increase the neuroprotective impact in a dose-dependent manner. MEMA's antioxidant activity is owing to malabaricone A, B, C, D, and flavonoids directly scavenging free radicals. The disease control group was shown to have a severe cataleptic response, as well as decreased motor co-ordination, locomotor activity, and decreased dopamine, catalase, superoxide dismutase, and glutathione levels and increased MAD levels. Significant increases in locomotor activity, motor co-ordination, increased levels of dopamine, catalase, glutathione, superoxide dismutase, and lower levels of MAD were observed in the group treated with Syndopa 10mg/kg, MEMA 200 mg/kg, and MEMA 400 mg/kg. Methanolic extracts of *Myristica malabarica* demonstrated good antioxidant and neuroprotective effects in rats with Chlorpromazine-induced Parkinson's disease.



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Biography

I am Mazher Unnisa Mohsin, pursuing my Post Graduation from Sultan-ul-Uloom College Pharmacy, in the field of Pharmacology. I've completed my Bachelor's from Bojjam Narasimhulu Pharmacy College for Women, with an aggregate of 8.32. I've participated in one day seminar on 'PHARMACISTS ARE OUR MEDICAL EXPERTS' and was awarded with best poster presentation. Participated in Science Exhibition and Technology Demonstration entitled "IMPORTANCE OF GCP GUIDELINES AND ITS ROLE IN CLINICAL TRIALS."



A Longitudinal Study on the Effect of Assisted Clinical Pharmacy Services on Overall Quality of Life in Patients with Renal Calculi



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Abstract

A study is proposed to evaluate the Quality of Life (QOL) of patients with renal calculi followed by the effect of assisted clinical pharmacy services on patients with this urologic disorder. This study was conducted in 150 patients for a period of 10 months in three phases, as PHASE-I - Selection of departments/hospital, PHASE-II - Collection of data and PHASE-III - Analysing data and submission of reports. The data discusses about the age distribution, gender distribution, social habits, comorbidities, assessment and comparison of QOL before and after counselling. To assess QOL we adopted the WHO-BREF assessment questionnaire (WHO100) which consists of 26 questions that focuses on physical health, psychological, social and environmental relationship of the patient. By this study, its proven that patient counselling has a significant impact in improving the quality of life of patients with Renal calculi.



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Current Challenges and Future Directions-COVID-19 and Clinical Trials



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Abstract

Background: The outbreak of coronavirus disease (COVID-19) has posed a major threat to people's lives across the globe. Clinical trials were not untouched by this. The coronavirus pandemic has abhorrently affected the day-to-day clinical trial activities at sites.

Methods: The status of various ongoing clinical trials was assessed through a literature search, which also includes clinical trial portals. Our evaluations were based on these observations.

Results: Multiple challenges were present in clinical trials as recruitment, retention, the safety of trial subjects, protocol compliance, and this made the world to re-think to incorporate newer strategies and to cope with this untoward situation.

Conclusion: Digitalization of clinical trials as virtual management of adverse events, remote monitoring visits, and web-based consulting with trial subjects are potential directions that can be applied to better manage clinical trials worldwide.

Biography

I am studying my bachelor of pharmacy in Smt. Sarojini Ramulamma college of pharmacy from the academic year of 2019-2023. Completed my ssc in the year 2016 from Apex central school. And done my intermediate at Prathibha junior college by perceiving BIPC group from the academic year of 2016-2018. My ambition is to become a doctor but unfortunately I am going with the B. Pharmacy. But I am now much interested to get in to know about medical coding.



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HIV- Retroviral Drugs Inhibitor



M.A. Bari

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Abstract

The part of HIV Genomic portion of RNA transcriptase DNA, with the help of Reverse transcriptase enzyme (Unique enzyme), the DNA split to m-RNA and Genom RNA make New viriaons it is unusual function retro is backward direction this drugs are retro viral drugs. The virus Envelope (lipid bilayer) having the Gp-160 split into Gp-41 (transmembrane protein) and Gp-120 (Docking protein) Gp-120 touches the CD 4 positive cell of macrophages or T- lymphocytes. Macrophages having the co-receptor these are chemokine receptors-CCR 5 and T- lymphocytes having the co- receptor is CXCR4 once stick to bind Gp-120 and remaining Gp-41 is pull the cell membrane and viral membrane both are lipid bilayers. Gp-120 block the CCR5 the drug is MARVIRACK one thing I love to mention there is no proper vaccination is not developed why because gene nucleotide sequence is altering any antibody to recognise, genetic variation is happening. Next is molecular membrane touched the Gp-41 fused the inhibition of Anti fusion drug is ENFUVIRTIDE. In the virus Matrix protein (P 17) is there in the inner portion capsid is ICOSAHEDRAL it is true Viral genetic material in the capsid P7 protein the both are nucleocapsid protein to serve the GAG gene RNA is reverse transcriptase RNA dependant DNA polymerase . this RNA not complement to each other Reverse transcriptase ,Integrase ,Protease enzymes made the gene pool of the enzymes , this gene is POL gene. NRTIs inhibitors are Lamivudine, Didanosine, Zidovudine. NNRTIs inhibit the Drug is NEVIRAPINE the Stop proviral DNA Replication to Integrase the drug is RALTIGRAVER protease inhibitors work to inhibit drugs are Indanavir, Ritonavir, Darunavir, Saquinavir.

Biography

M.A. Bari, Completed my Intermidiante in government junior college, mahabubangar. Now I am studying B. Pharmacy IV year in Smt Sarojini Ramulamma College of Pharmacy, Mahabubnagar, I want study to M. Pharmacy in pharmacology.



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Advances in Diabetes Management: Use of SGLT-2 Inhibitors beyond Glycemic Control



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Dr. Atul A. Phatak

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Abstract

Context: In this narrative review, we discuss the overall benefits (in patients with or without T2DM) of newer anti-diabetic drugs, SGLT2 inhibitors, beyond glycemic control.

Evidence Acquisition: The literature published in PubMed, Scopus, Google Scholar were reviewed up to January 2022.

Results: In the care of diabetic patients, preventing CV events is a critical problem. Diabetic nephropathy is the primary cause of end-stage renal disease worldwide. SGLT-2 inhibitors show blood glucose lowering effect, independent of insulin. SGLT-2 inhibitors have been shown to improve cardiac and kidney outcomes in persons with & without T2DM. They decrease the risk of CV outcomes (CV death, hospitalization for HF, major atherosclerotic event, non-fatal MI) & renal outcomes (progression of albuminuria, doubling of serum creatinine, renal replacement therapy, renal function over time). The BP reduction is due to a combination of diuresis, nephron remodeling, reduction in arterial stiffness, increase in serum electrolyte levels and weight loss. It also decreases level of HbA1c & serum uric acid.

Conclusions: Given the suboptimal glycemic and CV risk control in T2DM, novel therapies such as SGLT2 inhibitors seem to have improve glycemic control and CV and renal outcomes and also remain useful in gout patients and obese diabetic patients.

Abbreviations used:

SGLT-2 = Sodium Glucose Co-transporter Type-2

T2DM = Type 2 Diabetes Mellitus

CV = Cardiovascular

MI = Myocardial Infarction

HF = Heart Failure

BP = Blood Pressure



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Biography

My name is Shraddha Rajesh Lakambare. I was born 8th Sept 1998 in Pune. I scored 86% in 10th & 68% in 12th std. I'm graduated (B. Pharm.) from BVDU's Poona college of pharmacy with 8.69 CGPA & GPAT 2020 Qualified. I have interest in P'cology & P'ceutics subjects. I'm studying in S.Y. M. Pharm. in dept. of P'ceutics of Savitribai Phule Pune University affiliated P. E. Society's Modern College of pharmacy, Nigdi, Pune, Maharashtra. Now I'm doing industrial project (as my M.Pharm. thesis) on Formulation development of SGLT-2 inhibitors under the guidance of Dr. Atul A. Phatak.



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Artificial Organs: Replacement, Recovery and Regeneration



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Abstract

Artificial organs are used in medical practice to replace an organ or failing function. Many prostheses have been developed and are increasingly efficient, which can not only recover a lost function but also sometimes do better than the organ or joint replaced. Biotechnology and miniaturization of devices has enabled the development of genuine artificial organs such as artificial heart, which aims to replace the natural organ that is definitively and irreversibly altered. The other artificial organs include the artificial liver, artificial pancreas, immunologic, metabolic and neurologic support, artificial lungs. Renal Assist Device (RAD) is also one of the remarkable innovations that have the scope of offering a significant clinical impact. However, these prostheses are not able to totally and indefinitely replace the loss of function of all vital organs and artificial organs can only be used to bridge the time to transplantation. Further research into these organs and development can be a revolution and can make the medical field much advanced.

Keywords

Artificial organs, prosthesis, biotechnology, RAD, vital organs.



A Potential Tool for Topical Delivery: Invasomes



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Abstract

In recent years, ever-increasing scientific knowledge and modern high-tech advancements in micro- and nano-scales fabrication technologies have impacted significantly on various scientific fields. Vesicular drug delivery systems are fascinating carriers utilized for drug targeting to improve their therapeutic efficacy. These vesicular systems, deliver the drugs at predetermined rate by controlling and sustaining release as per the requirement. Invasomes, liposomes, ethosomes, niosomes, transferosomes, pharmacosomes, colloidosomes, herbosomes and sphinosomes are the numerous vesicular drug delivery systems especially utilized for transdermal drug delivery. Invasomes are novel vesicular systems that exhibit improved transdermal penetration compared to conventional liposomes. These vesicles contain phospholipids, ethanol, and terpene in their structures. These components confer suitable transdermal penetration properties to the soft vesicles. The main advantages of these nanovesicles lie in their ability to increase the permeability of the drug into the skin and decrease absorption into the systemic circulation, thus, limiting the activity of various drugs within the skin layer. In nutshell, that enhanced transdermal penetration of drugs using invasomes provides an appropriate opportunity for the development of lipid vesicular carriers.

Keywords

Liposome, Invasome, Vesicular system, Topical delivery, nanocarrier

Biography

My name is N. SessaSarvani, student Department of Pharmaceutics, Gokaraju Rangaraju College Of Pharmacy, Affiliated to Osmania university. I completed my Bachelors of Pharmacy from Nalla Narsimha Reddy Group Of Institutions, Affiliated to Jawaharlal Nehru Technological University, Hyderabad. I have attended various conferences and have a strong zeal to develop my knowledge in my profession. My hobbies are reading various kinds of books such as novels, philosophies, etc... and have a interest on playing outdoor sports like badminton, kabbadi, cricket. I know multiple languages Telugu, Hindi, English, Tamil.



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Pencillin Antibiotics--- Cell Wall Development and Cell Wall Inhibiting Drugs



Nadia

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Yakhub Pasha

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Abstract

The Pencillin family of antibiotics remains an important part of cell wall synthesis Inhibitors. Narrow spectrum Antibiotics Pencillin-G and Pencillin-V use the administration is different mode of action Which is the acid stable; The alkyl (R) group how to Action on Beta lactam Ring. Very very Narrow spectrum how to become Antistaphylococcus Antibiotics not need for either Gram positive or Gram negative for only distrust Staphylococcus cell. The Broad Spectrum Firstly Smart Pencillins -Amoxicillin, Ampicillin not much Alkyl side chain Toxic chemical substances release Beta Lactamases distrust the lactam ring. The body guards of Just to use combination of a Beta Lactamase inhibitors (Clavulonic acid, Sulbactam, Tazobactam)is how to effect the Beta lactum ring and survival. The search for a pencillin with additional Antimicrobial Activity against the Enterobacteriaceae and Pseudomonas aeruginosa led to the development of the Carboxypenicillin (Carbenicillin and Ticarcillin) and Ureidopenicillins (Mezlocillin, azlocillin, piperacillin). How to approach the Beta lactum inhibitors to disrupt the pencillinases. The development of an ideal pencillin that is rapidly bactericidal, nonsensitizing, non-toxic, bioavailability and resistant to Beta Lactamases and that has a high affinity for pencillin binding proteins The cell wall developed in the cytoplasm of the bacteria especially New born condition. the sugar moiety substance and peptide group condensed to peptidglycone these peptidglycone are how to develop from cytoplasm to exterior part of the bacteria. sugar moiety having especially Monosaccharides to NAM and NAG individually coming to the cytoplasm to react with UDP only NAM unit have peptido groups. Cytoplasmic membrane having the BPP stict to each other's BPP after mature flip out side NAM-NAG unit continuation to over around the bacteria form bacterial cell wall especially Gram positive 80-100 layers Gram negative 2-3 layers but Gram negative lipid bilayer having porions ... especially required to enter porions Gram positive cocci allow to react porions operation to force full attack destroy the gram negative bacteria.



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Adjuvant Cancer Chemotherapy in the Management of Breast Cancer – An Overview



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Abstract

Breast cancer is the most common and devastating disease. Various types of anticancer drugs are available to treat different types of tumors with drug categories. A chemotherapy schedules which includes a treatment regime of anticancer drugs that are given at repeated intervals, termed as chemotherapy cycles. Chemotherapy can be given on various schedules depending upon two major aspects. The first aspect includes patient factors including weight, age, and medical history. The second one mainly consists of breast cancer factors including grade, stage, subtype, non-invasive or invasive, and disease history. In chemotherapy the patient receive the drug at repeated intervals, like once a week, once every 2, 3 or 4 weeks. During the chemotherapy, the patient may be administered with either single anticancer drug or a combination of different chemotherapy drugs. The most common method (or) the standard surgical procedure is the Radical Mastectomy. Adjuvant chemotherapy is the commonly used method in clinical practice that aims at providing the potential benefits in patients with cancers especially breast cancer. This review will give the clear view about the various Adjuvant chemotherapeutic regimens which were in clinical practice in the Management of the Breast Cancer through Cancer Chemotherapy.

Keywords

Breast Cancer, Chemotherapy, Mastectomy, Adjuvant Therapy.



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Insilico Evaluation of Kaempferol-3-O-beta-D Xylopyranoside from *Ricinus Communis* Linn



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Abstract

Aim: The aim of this study is to find the anxiolytic activity of *Ricinus Communis* of the flavonoid compound Kaempferol-3-O-beta-D xylopyranoside with the translocator protein (18kDa) by molecular docking.

Method: The docking study was done for Kaempferol-3-O-beta-D Xylopyranoside from *Ricinus communis* using the translocator protein (18kDa). The Translocator protein ligands are promising candidates for fast-acting Anxiolytic drugs. *Ricinus communis* have been widely used in the traditional medicine such as abdominal disorders, arthritis, backache, muscle aches, chronic headache, sleeplessness. Kaempferol-3-O-beta-D Xylopyranoside is found in the dried leaves of the *Ricinus Communis*. *Ricinus Communis* is classified as the most poisonous plant on earth of humans. Anxiolytic agents treat the symptoms of anxiety, fear, uneasiness, muscle tightness and fear. Anxiolytics work by targeting key chemical messengers in the brain. Docking is a method which predicts the preferred orientation of one molecule to a second when a ligand and a target are bound to each other to form a stable complex. For this analysis, Autodock tools v1.5 and auto dock v4 program and molegro molecular viewer v2.5 were used. For the present study, the crystal structure 18kDa translocator protein were retrieved from the Protein Data Bank (PDB) and used for the computational analysis. The ligand was docked to target protein complex 18kDa Translocator protein using autodock tools.

Result: The electrostatic map and affinity of all atoms present were computed with grid spacing of 0.35Å. The result were evaluated by sorting the different orientation of ligands with respect to Kaempferol-3-O-beta-D Xylopyranoside -18kDa translocator protein interaction, which developed by molegro molecular viewer v2.5



Green Synthesis and Characterization of Silver Nanoparticles Using Psidium Guajava Leaves and Evaluate Its Antidiabetic Activity



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Abstract

In the present study, *Psidium guajava* leaf aqueous extract and silver nanoparticles were prepared using the green synthesis method. Both extract and nanoparticles were evaluated and compared for their antidiabetic activity using Streptozotocin (STZ) induced diabetic model using wistar rats. Nanoparticles were characterized using UV-visible spectrophotometry for determining absorption band, Fourier transform infrared spectroscopy for identifying functional groups, Scanning electron microscopy was used to define size and morphology and Zeta potential for determining stability and surface charge. The result showed that the prepared nanoparticles are spherical and have 58.5nm in size with long term stability. The in-vivo activity was carried out for 21 days, at the 21st day the blood glucose level, body weight, lipid profile parameters and histopathology were assessed. A significant result has been observed in all groups but *Psidium guajava*- Silver nanoparticles (PGAg NPs) at 300 mg/kg ($p < 0.01$) showed a significant reduction in blood glucose levels and have a significant increase in body weight and standardization of lipid profile parameters compared to STZ induced diabetic rats. From the findings of this study, we concluded that the PGAg NPs have potent antidiabetic activity and also can be used as a promising phytomedicine for the treatment of diabetes



Neuroprotective Role of Superfoods from Different Traditional Medicines and Diets

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Abstract

Secondary metabolites in medicinal and food plants are a category of bioactive molecules that have the potential to benefit human health. Functional food, whether processed or not, that can assist in the attainment of particular operational objectives inside the human body and play an essential role in the prevention of neurodegenerative disorders and health promotion, according to scientific studies. Because of their high concentration of bioactive chemicals, which have specific biological properties and effects in the human body, functional foods may have favorable impacts.

Processed functional foods include calcium-fortified milk, omega-3 fatty acid-fortified juices, probiotic-fortified yoghurt, and phytosterol-fortified margarines. Exposure to these phytochemicals may have health benefits, such as protection against chronic degenerative disorders like cancer, cardiovascular disease, and neurological diseases, which are all common in Western industrialized countries. Simultaneously, recent scientific studies corroborate the potential beneficial effects of a variety of traditional foods, including tea, blueberries, pomegranate, berries, hippophaes, and many others, which are referred to as "superfoods." The emergence of a slew of chronic degenerative diseases, including cerebrovascular disease, cardiovascular disease, diabetes, obesity, osteoporosis, and cancer, has prompted researchers to look for ways to protect human health by adopting optimal dietary patterns.

In this review, we focus on the neuroprotective active components in some traditional treatments and diets' superfoods. The antioxidant and anti-inflammatory activity of target molecules found in superfoods will be emphasized because oxidative stress and neuro inflammation caused by neuroglial activation at neuronal levels, microglial cells, and astrocytes are key factors etiopathogenesis of neurodegenerative disorders.

Keywords

Super foods, neurodegenerative diseases, Ayurvedic medicine, nutritional therapy; Traditional Chinese Medicine



The Role of Human Antigen R (HuR) in the Control of Blood Pressure, Myocardial Infarction and Other Cardiomyopathies



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Abstract

Myocardial infarction is one of the fundamental driver of death in developed nations, particularly in the aging population. Consequently, extending the comprehension of the molecular mechanisms of MI is critical for the advancement of MI cure. The presence of cardiovascular fibrosis frequently demolishes the physiological capacity of the failing heart. Cardiovascular fibrosis is described by ongoing activation of fibroblasts into myofibroblasts, excessive extracellular matrix proteins deposition, bringing about diminished myocardial contractility and compliance. Hypertension assumes an essential part in the line of cardiovascular illness and has been recognized as the principle hazard factor prompting death. Different neurohumoral factors control blood pressure by influencing blood volume, cardiovascular output and peripheral resistance.

Absence of HuR (Human Antigen R) in smooth muscles can cause BP to rise.

- CUGBP*-and ETR-3-like variable (CELF) proteins are a group of RNA-restricting proteins that assume a key part in RNA metabolism.
- Absence of HuR will increase the contractile reaction of vascular smooth muscle cells.
- HuR binds to the adenylate-uridylylate rich component in the 3'untranslated region of RGS (regulator of G-protein signalling) protein mRNA, subsequently expanding the stability of RGS.
- Up-regulation of HuR gene expression lessens the contraction of vascular smooth muscle cells and brings down BP.



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*CUG triplet repeat, RNA binding protein 1, also known as CUGBP1, is a protein which in humans is encoded by the *CUGBP1* gene.

Biography

Rhamsha a 3rd year student at Chettinad School of Pharmaceutical Sciences . She is building her primary research interest towards human antigen R (HuR) and its role towards control for diseases



Review of Antiviral Medicinal Herbs with Special Emphasis on Covid-19



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Abstract

The Coronavirus Disease-2019 (COVID-19) pandemic caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), has engulfed the whole planet and without an actual medication, it looks difficult to put an end to this worldwide health crisis. Natural products have been utilized since ancient times and have been shown to be beneficial over time. Pure compounds extracted from therapeutic plants, such as *Tinospora cordifolia*, *Withania somnifera*, *Ocimum sanctum*, *Glycyrrhiza glabra*, *Piper longum*, *Curcuma longa*, *Allium sativum*, *Zingiber officinalis*, *Coriandrum sativum*, *Azadirachta indica*, and *Embllica officinalis*, etc. have shown a promising coronavirus inhibitory effect. Several molecules, including glabridin, liquiritin, flavonoids, triterpene, glycyrrhizin, aliphatic compounds, sesquiterpenoids, β -sesquiphellandrene, zingerone, β -phellandrene, citral, zingiberene, bisabolene, shogaols, cineol, farnesene, gingerols, withasomniferols A-C, withanone, withasomniferin-A, withasomidienone, withanolides A, linalool, flavonoids, camphor, eugenol, estragole, methyl chavicol, tannins, glycyrrhizic acid, alkaloids, saponins, fatty acids, glycosides, and essential oils, etc. extracted from plants might be potential COVID-19 medication candidates. In present scenarios, COVID-19 is one of the most serious public



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health threats, and it must be controlled as soon as possible. Abundant studies have been conducted around the world to develop antiviral drugs that are effective against SARS-CoV-2 but still, there is an urge for finding a potent drug with a specific target. Various medicinal plants and their isolated constituents summarized in this review are shown to have potent antiviral properties. However, more detailed and mechanism-based studies linked to a specific lead compound should be focused on in further research.



Quality by Design Approach for Domperidone Immediate Release & Itopride Gastro Retentive Bilayer Tablets in Gastro Esophageal Reflux Disease



Roshani Prajapati

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Abstract

Bilayer tablets have been enhancing patient ease and compliance over the past decade. By physically separating APIs and medication release profiles, a bilayer tablet can help to avoid chemical incompatibilities and manufacture different medication release profiles (Immediate release with extended release). Because of the quick transit of the formulation through the Gastrointestinal Tract (GIT), it is difficult to obtain therapeutic levels in the body: additionally, some medications must function locally due to gastric pathology, but their stay in the stomach is limited. Through antidopaminergic and anti-acetylcholinesterase activities, the bilayer tablet of Itopride gastroretentive & domperidone quick release formulation promotes the synergistic effect of gastric motility. During the production of bilayer tablets, the traditional hit-and-miss procedure was applied. Excipients were chosen based on the amount of time it takes for the medicine to be released, known as floating lag time. Because both domperidone and itopride have absorptive properties in the same UV range (280nm), HPLC was used to design and validate analytical methods. Floating lag time, bioadhesive strength, swelling index, and cumulative drug release were all improved in the optimized batch. The most optimal after a stability study, the formulation can be used to make a bilayer tablet containing itopride gastroretentive and domperidone immediate release for a synergistic benefit in GERD.

Biography

I am Roshani Prajapati Part Time PhD Scholar in Pharmaceutics at DIT University. As well as I am working as Asst. Production Manager in Everest Pharmaceuticals Bhaktapur-Nepal. I have completed my M.Pharm from Uttarakhand Technical University –Dehradun (2020) & B.pharm From Kathmandu University-Nepal(2014). My Favourite Quote is “ God does watch over us and does notice us, but it is usually through someone else that he meets our needs.” After completion of my PhD I want to become Professor to explore knowledge & my working experiences to future pharmacy students.



Formulation and Evaluation of Gastric Floating Drug Delivery System of Anti-Emetic Drug Netupitant



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K. Keerthi Sai

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Abstract

Gastric Retentive Floating Drug Delivery System (GFDDS) enables the prolonged continuous input of the drug to the upper parts of the Gastrointestinal (GI) tract and improves the bioavailability of medications with narrow absorption window. The design of the delivery system is based on the controlled release formulation with floating and swelling features in order to prolong the gastric retention time of the drug delivery systems which improves bioavailability of Netupitant (only 60%). In the present study an antiemetic, Netupitant is selected as drug candidate, guar gum, sodium CMC, HPMC15 KM are studied along with other excipients like PVP K30 (binder), sodium bicarbonate, microcrystalline cellulose were used in different concentrations to get the desired controlled release profile over a period of 12 hrs. All the formulations were evaluated for buoyancy lag time, duration of buoyancy, dimensional stability, drug content and *in vitro* drug release profile. Based on the *in vitro* studies carried out for the optimized formulation by dissolution the performance of the developed formulation promises to be efficient in controlling the drug release rate with the guar gum, a natural polymer.

Biography

I am working as Assistant Professor in the Department of Pharmaceutics for the past 5 years. I am currently pursuing my Ph. D in novel packaging techniques. I received an award for academic excellence and honored with KK Acharjee National Award in the year 2010. Novel drug delivery and packaging techniques are my area of expertise. I feel honored to participate in this seminar as I can share my views in front of student and teaching fraternity.

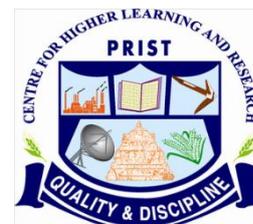


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Bioanalytical Method Development and Validation of Elexacaftor, Ivacaftor and Tezacaftor using HPLC in Human Plasma



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Abstract

A simple, precised, accurate method was developed for the estimation of Elexacaftor, Ivacaftor and Tezacaftor in human plasma using the Lumacaftor as internal standard by RP-HPLC (Reverse Phase-High Performance Liquid Chromatographic) technique. Chromatographic conditions used are stationary phase Azilent (250 x 4.6 mm, 5 μ), Mobile phase 0.01N Potassium di-hydrogen phosphate (pH: 3.5) : Acetonitrile in the ratio of 70:30(v/v) and flow rate was maintained at 1.0ml/min, detection wave length was 250nm, column temperature was set to 30°C and diluent was mobile phase Conditions were finalized as optimized method. Retention time of Ivacaftor, Elexacaftor and Tezacaftor were found to be 2.391min, 3.208min and 3.644min. %CV of the Elexacaftor, Ivacaftor and Tezacaftor was found to be 0.08%, 1.05% and 3.59%. %Recovery was obtained as 96.41%, 95.029% and 98.21% . The linearity concentration is in the range of 435-17400ng/mL of Elexacaftor , 60-2400ng/mL of Ivacaftor and 300-1200ng/mL of Tezacaftor ($r^2 = 0.999$) .The lower limits of quantification were 435ng/mL of Elexacaftor , 600ng/mL of Ivacaftor and 300ng/mL of Tezacaftor which reach the level of both drugs possibly found in human plasma. Further, the reported method was validated as per the ICH guidelines and found to be well within the acceptable range. The proposed method is simple, rapid, accurate, precise, and appropriate for pharmacokinetic and therapeutic drug monitoring in the clinical laboratories.

Keywords

Elexacaftor, Ivacaftor and Tezacaftor; RP-HPLC



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Precision Medicine

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Abstract

Precision medicine, also referred to as personalized medicine, holds great promise to improve healthcare. Precision medicine is a medical model that proposes the customization of healthcare, with medical decisions, treatments, practice of products being tailored to a group of a one-drug-fits-all models. Precision medicine is a theory for rational therapeutics as well as practice to individualize health intervention.

This presentation shares the insights of precision health, precision medicine revolution, trial and error medicine VS precision medicine, techniques used in precision medicine, use of Bioinformatics in process of precision medicine and use of In vitro diagnostic assays. List of diseases which can effectively cured by precision medicine, impact of pharmacogenomics in precision medicine and future pharmacy, policies for implementation of precision medicine, Advantages and complex biological mechanistic & ethical issues of precision medicine, list of software's used for precision medicine, top companies working in the field of precision medicine.

Precision medicine may eliminate life-threatening adverse reactions and improve efficacy of drugs. It will be the future of the medical field.



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Biomarkers of Cardiovascular Disease: A Review



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Abstract

Cardiovascular Disease (CVD) is a leading cause of death worldwide, and its prevalence is increasing in comparison to past decades as the global population ages. Over the years, steadily responsive screening techniques, a greater focus on early detection and diagnosis, and advancements in therapies have contributed to increasingly successful network clinical outcomes in biomarker discovery and development related with cardiovascular disease. The focus of this review is on a number of interesting biomarkers that provide both indicative and predictive information. In the early hours after the onset of symptoms, the tissue-specific myocardial biomarker cardiac troponine, high-sensitivity assays for cardiovascular troponine, and the cardiovascular fatty acid binding protein are utilized to assess myocardial infarction. IM and extinction are predicted by high-sensitivity C-sustainable protein, fibrinogen, and uric acid, as well as growth differentiation factor-15. Pregnancy-related plasma protein A, myeloperoxidase, and metalloproteinase matrix are all risk factors for acute coronary artery disease. Lipoprotein-related phospholipase A2 and secretive phospholipase A2 are anticipated to cause incidents and recurrent cardiovascular events. Finally, high levels of natural peptides have been shown to predict death and heart failure. The evaluation of micro-RNA, for example, is being researched in a growing number of new fields.

Keywords

Cardiovascular disease, Biomarkers, Risk emerging, MicroRNAs.



Preparation of Inter-Polymer Complex as a Controlled Release Matrix Tablet: Effect on In-vitro Drug Release Characteristic



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Abstract

Nicorandil is a nitrate derivative of nicotinamide and is used in the treatment of hypertension and angina pectoris. Controlled release drug delivery systems are designed to manipulate the drug release for achieving specific clinical objectives that are unattainable with conventional dosage forms. The formation of the Inter-Polyelectrolyte Complexes (IPEC) between chitosan and sodium alginate was investigated, using turbidimetry and viscosity measurement. The structure of the prepared IPEC was investigated using Fourier Transformed Infrared Spectroscopy (FTIR) and Differential Scanning Calorimetry (DSC). In the present study the different IPEC were prepared by using solution of chitosan and sodium alginate in water, which when mixed in different ratio resulted in the formation of complex. These IPEC and their solutions were analyzed by various tests like fourier transformed infrared spectroscopy, differential scanning calorimetry, viscosity measurement, and pH measurement. These IPEC's were subjected to size reduction and further processed for sustained release formulation using nicorandil as a model drug. The Matrices showed excellent sustained release property as compared to single polymer and physical mixture of the polymer.

Keywords

Nicorandil, inter-polyelectrolyte complexes, chitosan, sodium alginate, sustained release drug delivery system.



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Approaches in Modification of Natural Polymer to Improve Functionality and Application in Drug Delivery



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Abstract

This study investigated the utility of chemically modified Xanthan Gum (XG) for controlled drug delivery of Lornoxicam. Lornoxicam belongs to an oxicam class of nonsteroidal anti-inflammatory drug. Chemical modification of xanthan gum was carried out by using thiol-esterification reaction employing Thioglycolic Acid (TGA) in the presence of catalytic amount of hydrochloric acid. The reaction mixture was refluxed at 80 °C for 2.5 hours. The above reaction mixture was cooled and precipitated by the addition of methanol. The grafted gum were evaluated using SEM, FT-IR, XRD and DSC. The controlled release applications of thiolated gum evaluated with crude xanthan polymer by formulating tablets containing Lornoxicam as a model drug.

The results of FT-IR, DSC and X-ray diffraction studies confirm that grafting was obtained. FT-IR study showed that in thiolated Xanthan gum additional peaks were observed, those which were not present previously in crude Xanthan gum. The bands closer to 2568.00 cm⁻¹ and 2584.70 cm⁻¹ reflects the presence of SH stretch of thiol group. Sustained release tablets of Lornoxicam were prepared by direct compression technique using crude, thiolated xanthan gum. The physical properties of compressed tablets were in compliance with the official limits. Swelling index of modified xanthan gum was high compared to native xanthan gum. In-vitro release study conducted using phosphate buffer (pH 6.8) revealed a sustained release profile (24 hours) of Lornoxicam from thiolated xanthan gum as compared to crude xanthan.

Thiolation xanthan gum sustained the release of Lornoxicam over a prolonged period and could be a promising Lornoxicam carrier in oral delivery.



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Role of Eco-Pharmacology in Pharmaceuticals



Sanjaana Arun

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Abstract

More than thousands of decades pharmaceuticals and mankind have accompanied together and been helpful but may also have caused hazards to the people living. Eco-pharmacology a novel concept of emerging science. Pharmaceuticals can enter the surroundings by any route or contact. The major issue is unused medications. Hospitals drug manufacturing units have significant amount of drug present. Safe drug disposables are an emerging concern to found. Active pharmacological metabolites enter the aquatic ecosystem by any route and once entered they undergo biodegradation. Green pharmacy aims zero waste which offers great benefits to the ecosystem. It is mainly to evaluate the environmental risk for every new drug. Ministry of environment, India classified that pharmaceutical industry as 'Red Category' as it emits hazardous waste to our environment. As per the national drug control policy USA. Take the prescription drugs out of the original container. Do not dispose the medications in the toilet or sink it will result in the aquatic system.

Keywords

Ecosystem, Pharmaceuticals, Hazards, Unused, Disposals



Formulation and Evaluation of Liposomes for the Treatment of Cervical Cancer

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Abstract

Cervical cancer is the third most prevalent cancer in women globally and is especially leading in developing countries due to lack of screening, prevention and control programs. Localized drug delivery is a mode to deliver the drug from a dosage form to a particular site in the biological system, where its total pharmacological effect is desired. Localized delivery of 5-FU will give sustained drug exposure to tumor cells and increase its tumor penetration and decrease the rate of replication of tumor cells. In this study we have developed 5-FU based liposomal formulation by modified ethanol injection method and evaluated the same. The 5-FU loaded liposomal formulation was optimized based on two parameters, Entrapment Efficiency (%EE) and percent in vitro drug release. In the prediction of percent entrapment efficiency and percent drug release the Percent Relative Errors (PRE) was found to be low and optimization study displayed that the Phospholipid (PL90H) and Cholesterol (CH) with a ratio showed an enhancement in rate and extent of in vitro release of 5-FU from design-optimized 5-FU liposomal formulations.

Keywords

cervical cancer, liposomes, 5 FU (5- fluorouracil), tumor, chemotherapy.



Novel Spectrofluorimetric Method for the Estimation of the Percentage Protein Binding of Perampanel



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Abstract

A new, rapid and highly sensitive method was developed for the quantitative spectrofluorimetric estimation of perampanel (PER) in its pure form. PER is a selective and non-competitive AMPA (α -amino-3-hydroxy-5-methyl-4-isoxazole propionic acid) receptor, antagonist. The proposed analytical method is based on the measurement of fluorescence intensity for PER at 432 nm after exciting by 293 nm. PER was successively analyzed in the concentration range of 1–200 ng mL⁻¹ with a lower detection limit (LOD) of 0.7 ng mL⁻¹ and quantitation limit (LOQ) of 2.1 ng mL⁻¹. The suggested method was validated according to ICH guidelines. The binding interaction of the drugs with the protein was confirmed by molecular docking studies. The percentage protein binding of PER by the equilibrium dialysis method was studied with the developed spectrofluorimetric method. The stability of all the three drugs at different physiological pH conditions (empty stomach pH 1.2, simulated gastric pH 4.5, blood pH 7.4, and intestinal pH 9) was also carried out.



Synergistic Antihyperglycemic Activity of Tridaxprocumbens- Zinc Oxide Nanoparticles in Streptozotocin-Induced Diabetes Mellitus in Rats



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Abstract

The present study aims to synthesize and characterize Zinc Oxide Nanoparticles (ZnO NPs) using *Tridax procumbens* Leaf Extract (TPE) for studying its antidiabetic activity. Antidiabetic activity of TPE and ZnONPs was carried out in a Streptozotocin (STZ) - induced diabetic rat model. A single dose of STZ (55 mg/kg, i.p.) had been used to induce diabetes mellitus. TPE and *Tridax procumbens*- Zinc Oxide Nanoparticles (TPZnO NPs) at the dose of 100 and 200 mg/kg and the standard drug Glibenclamide 10 mg/kg, were administered as a single dose per day orally to diabetes-induced rats for 21 days. Various parameters such as blood glucose, changes in body weight, lipid profile, glycated haemoglobin, and histopathology of rat's liver and pancreas were assessed. In the diabetic rats, TPZnO NPs produced a significant reduction in blood glucose levels and also prevented further loss of body weight. TPZnO NPs produced beneficial effects on the lipid profile and glycated haemoglobin. The histopathological assessment revealed that synthesized TPZnO NPs are safe, non-toxic, and biocompatible with potential in the treatment of diabetes. A significant effect has been observed in all the doses, comparatively TPZnO NPs at a dose of 200



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mg/kg/day ($p < 0.001$) showed a more significant result. Thus, from the results of the present study, it is concluded that synthesized ZnO NPs from leaf extract of *Tridax procumbens* have potent antidiabetic activity.



Screening of Antioxidant and Neuroprotective Effects of *Luffa cylindrica* (l) Roem against Scopolamine Induced Memory Impairment in Mice



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Abstract

The purpose of the present study is to determine the Antioxidant and Anticholinesterase activity of Aqueous (AQ) and Ethyl Acetate (EA) extracts of *Luffa cylindrica* in scopolamine induced Alzheimer mice model using interceptive and exteroceptive tests. The Antioxidant and Anticholinesterase activity of *Luffa cylindrica* was studied in scopolamine induced Alzheimer mice model. Mice were subjected to treatment with AQ and EA extracts of *Luffa cylindrica* and standard drug for a period of 7 days. The behavioural assessment i.e., elevated plus maze and locomotor activity were assessed during the treatment period. The animals were sacrificed on 8th day, brains were isolated and homogenised for the estimation of biochemical parameters such as Acetyl Choline (ACh), Catalase, Superoxide Dismutase (SOD), Lipid Peroxidation (LPO), Reduced Glutathione (GSH). It was observed that EA extract decreased the Transfer Latency (TL) in a dose dependent fashion closely approximating the effect of standard drug Donepezil. The AQ extract of *Luffa cylindrica* also decreased the transfer latency though not as much as the EA extract. On the other hand there was improved in the locomotor activity. Mice treated both AQ and EA extracts of *Luffa cylindrica* showed increase in the levels of ACh, Catalase, SOD, GSH and decreased LPO significantly. It may be concluded that AQ and EA extracts of *Luffa cylindrica* showed a good antioxidant and neuroprotective activity against scopolamine induced memory impairment in mice.



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Biography

I am Syeda Maliha Arshiyan, pursuing my Post graduation from Sultan-ul-Uloom College of Pharmacy, in the field of Pharmacology. I've completed my Bachelor's in Pharmacy from Deccan School of Pharmacy, and achieved a CGPA of 8.47. I've scored 97.7% and a state rank of 86 in the PGCET competitive exam.



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Antifertility Activity of Leaves of *Tabernaemontana Divaricata* (LINN) R.Br in Female Rats



Taqiuddin

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Abstract

The petroleum ether, ethanolic and aqueous extracts of leaves of *Tabernaemontana divaricata* (Linn) R.Br. were found to possess significant estrogenic activity at dose of 400mg/kg as indicated by significant increase in uterine weight compared with the control in a dose dependent manner. However, petroleum ether extract at dose of 200 mg/kg body weight and 400 mg/kg body weight and ethanolic extract at dose of 400 mg/kg body weight when compared with standard (Ethinyl estradiol) found to possess greater effect than that of standard but not statistically significant. All the three extracts (petroleum ether, ethanolic and aqueous) have shown significant Anti-implantation and early abortifacient activity at dose of 400 mg/kg body weight. However, the activity shown by aqueous extract was found to be less significant than other two extracts.

Keywords

Tabernaemontana divaricata (Linn) R.Br. leaves, Estrogenic activity, Antiimplantation and abortifacient, Ethinyl estradiol



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Non-viral COVID-19 Vaccine Delivery Systems



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Abstract

The novel corona virus known as Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) has spread rapidly around the world, causing tens of millions of cases and more than one million deaths in less than a year since its discovery in December 2019. Since then, companies and research institutions have raced to develop SARS-CoV-2 vaccines ranging from traditional viral and protein-based vaccines to more cutting-edge vaccines such as DNA- and mRNA-based vaccines. Because of differences in antigen design, adjuvant molecules, vaccine delivery platforms, and immunisation method, each vaccine has a different potency and duration of efficacy. In this review, we will introduce a few of the most promising non-viral vaccines that are currently in clinical trials and discuss delivery strategies to improve vaccine efficacy, duration of protection, safety, and mass vaccination.

Keywords

coronavirus, mRNA-based vaccine, protein-based vaccines, non-viral vaccines



Alternative and Complementary Therapies for Prevention and Treatment of Osteoporosis



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Abstract

Osteoporosis is an age-related metabolic disease, characterized by reduction of bone mass and damage to the bone microstructure. The potential consequences of osteoporosis are increased morbidity and mortality from fractures; therapy is therefore directed at strengthening bone and preventing fractures. Current conventional treatment options have potential serious side-effects. There are potential complementary and alternative therapies for preventing and treating osteoporosis. Yoga has been shown in some studies to be beneficial for a variety of aspects of osteoporosis and may help with improvement in bone density. Traditional medicinal herbs have been shown in several animal and human studies to have beneficial effects for both preventing and treating osteoporosis. An emerging field in the treatment of osteoporosis is Pulsed Electromagnetic Field (PEMF) therapy to increase bone density. Acupuncture has been widely applied to manage osteoporosis because of the clinical benefits like pain relief, quality of life promotion, and increased bone-mineral density. Good posture and weight-bearing exercise are reported to contribute to good bone health and for reducing fall risk, and, therefore, fracture risk. Research shows that diet and lifestyle are the building blocks for optimal bone health. In patients with established osteoporosis, some of the alternative and complementary therapies discussed may be found to help treat various aspects of the signs and symptoms of this condition.

Keywords

Osteoporosis, Alternative and complementary therapies, Yoga, Traditional herbs, Acupuncture, exercise.



Anti- Amnesic Activity of Ethanolic Flower Extract of IXORA Coccinea



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Abstract

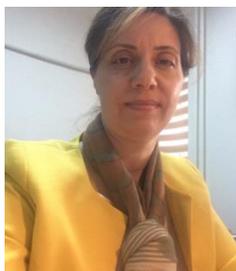
Usage of medicinal plants for the treatment of various diseases had been started from 1500 BC onwards. Loss of cognition is one of the age-related mental problems and a characteristic symptom of neurodegenerative disorders like Alzheimer's. Various natural drugs are used for treatment of Alzheimer's and Parkinsonism, but Available drugs provide symptomatic treatment with known side effects. So the present study is aimed to evaluate anti-amnesic activities of ethanolic flower extract of *Ixora coccinea* on mouse model as an attempt to search for new compounds against Alzheimer's disease-related memory impairment. *Ixora coccinea* is a common flowering shrub native to Southern India and Sri Lanka. Traditionally it is used as hepatoprotective, antimicrobial, anti-oxidant, anti-nociceptive, and anti-inflammatory activities. Decoction of roots was used for nausea, hiccups, and anorexia. Numerous activities were reported on the entire plant and various parts of the plant like root, leaf, and flower. The anti-amnesic activity was screened by the stair case method and elevated plus maze method. The staircase method has been widely used in measuring perceptual learning. The Elevated plus-maze method was used in measuring memory. The results indicate that ethanolic flower extract of *Ixora coccinea* might be useful as anti-amnesic agent to delay the onset and reduce the severity of symptoms associated with dementia and Alzheimer's disease.

Biography

This is BNB Videhi, working as Associate Professor in Aditya College of Pharmacy, Surampalem. I have 7 years experience in teaching graduate and post graduate students pursuing pharmaceutical sciences



Preparation of Quercetin Microsphere Formulations by Solvent Evaporation Method and Evaluation of the Formulation Factors



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Abstract

Quercetin, a flavonoid found in fruits and vegetables, has unique biological properties that may improve mental/physical performance and reduce infection risk. These properties form the basis for potential benefits to overall health and disease resistance, including anti-carcinogenic, anti-inflammatory, antiviral, antioxidant, and psychostimulant activities, as well as the ability to inhibit lipid peroxidation, platelet aggregation and capillary permeability, and to stimulate mitochondrial biogenesis.

Microspheres are three-dimensional delivery microsystems, containing drugs in dissolved form or dispersed form. These substances decrease the interfacial tension between the lipophilic and hydrophilic phases of the emulsions and simplify formation of microspheres, which is the reason why they are in microsphere formulation. Polymers and dispersing agents are the basic components of microsphere formulations. Dispersing agents in microsphere formulations affect the surface properties, particle sizes and release behavior of microspheres.

In order to increase the bioavailability of quercetin, which is in BCS class IV for its poorly water-solubility and poor permeability, there has been many studies conducted on nanoparticulate systems. The present study aims to rationalize the use of Tween 80 and Span 80 by preparing quercetin microspheres and study their effects on different characteristics of the microspheres.



Efficiency of Maceration Versus Soxhlet Methods for Extraction of *Euphorbia Nivulia Buch Ham.* Leaves in Study of Acoustic Parameters Derived from Ultrasonic Velocity Measurement



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Abstract

The plants are the natural reservoirs of structurally different bioactive compounds. Primitive man utilized plants as medicinal agent without the awareness of science behind their chemical composition. Now a days, it has been successfully promoting its therapies with science based approach all over the developing countries. The development of new herbal medicines initially started with the process of extraction which is one of the most significant step in analysis of medicinally active plant products. Here in the present work, two methods namely Maceration and Soxhlet extractor were used for the Extraction of leaves of *Euphorbia Nivulia Buch Ham.* The result obtained from these method compare to evaluate their suitability and efficiency in studying various acoustic parameters calculated from Ultrasonic Velocity Measurement.

Keywords

Maceration, Soxhlet extractor, *Euphorbia Nivulia Buch Ham.*, Ethanol, Ultrasonic Velocity Measurement, Efficiency.



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Saponines Secondary Metabolite and their Physical uses as Pharmaceutical Excipients



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Abstract

Perspective of the traditional medicines plants or herbs, animals, minerals, microbes Are the mainly source of the crude drug and as innovation point of view it not only have chemical uses as API from the crude drug but also it shows some physical uses as excipients in the pharmaceutical preparation as by This perspective I will put my thesis. By the mean of A particular plant that's is sapindus mukorossi (ritha)

S.mukorossi is well known day by day for this chemical uses as respect to uses in cosmetics and their traditional uses like in migraine, constipation relaxant, antacids etc.. But it also have some properties like nanoemulsifying property and have also potential biosurfactant activity. By decreasing the interfacial tension between two immiscible surface of the liquids

Keyword

p.excipients, S.mukorossi, emulsifying, biosurfactant



Synthesis of New Hydrazone Derivatives bearing Imidazolidine Moiety as Monoamine Oxidase Inhibitors



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Begüm Nurpelin Sağlık

Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Anadolu University, Eskişehir, Turkey and Doping and Narcotic Compounds Analysis Laboratory, Faculty of Pharmacy, Anadolu University, Eskişehir, Turkey

Abstract

Monoamine Oxidase Enzymes (MAO-A and MAO-B) play an important role in the metabolism of endogenous and exogenous amines. MAO-A inhibitors can be used for the treatment of depression and anxiety, while MAO-B inhibitors are useful in the treatment of Parkinson's and Alzheimer's diseases (1). Hydrazones comprise $-NH-N=CH-$ highly active skeleton that have proved to be useful substances in the development of new drugs (2). Besides, imidazolidine nucleus comprises an important class in the heterocyclic chemistry and it possesses different pharmacological activities (3). The aim of this study is to combine two pharmacophoric groups: imidazolidine ring and hydrazone moiety, thereby enhancing the potency of biological activity. Hence, we synthesized new hydrazone derivatives bearing imidazolidine ring and the structures were elucidated by IR, 1H NMR, ^{13}C -NMR, and mass spectroscopy. Synthesized compounds were tested for their monoamine oxidase inhibitory activity. Compounds bearing electron donor groups such as methyl, hydroxyl and halogen substituents such as chloro on the phenyl ring exhibited the most potent MAO-B inhibitory activity. The IC_{50} value of compound carrying chloro substituent was found $0.078 \mu M$ (IC_{50} value = $0.037 \mu M$ for selegiline). This compound can be a lead molecule for further investigations.

Biography

Fatih Tok is an assistant professor at the Faculty of Pharmacy of Marmara University. His research is focused on the synthesis and development of new compounds showing anticancer, antidepressant, anticonvulsant activity in drug research. He graduated from Marmara University Faculty of Pharmacy in 2013. He obtained a first class honours degree in Faculty of Pharmacy at that year. He gained a doctoral degree from Marmara University, Department of Pharmaceutical Chemistry in 2018. He carried out numerous projects supported by TÜBİTAK and University resources. He is the author of many scientific articles both in Turkey and abroad.



Novel Drug for Primary-Progressive Multiple Sclerosis



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T.Sowmya

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Abstract

Primary progressive multiple sclerosis is autoimmune disease of Central Nervous system that affects about 4,00,000 people in the US. Sclerosis have relapsing symptoms and experience episodes lasting days or weeks of symptoms such as numbness or tingling, weakness of leg or arm and unsteadiness, patients with gradually worsening disease are considered to have Primary progressive multiple sclerosis ocrelizumab is the first anti _CD 20 Monoclonal antibody approved for treatment of PPMS. Depletion of B cells by anti _CD 20 Monoclonal antibodies has proved to decrease the activity of relapsing_ remitting ms. Ocrelizumab is given intravenously once in a six months.

Keywords

Anti_CD 20 Monoclonal antibody, primary progressive multiple sclerosis, ocrelizumab, relapsing remitting multiple sclerosis

Biography

My name is G. Pravalika Iam from Mahabubnagar district. I am pursuing my studies from Smt. Sarojini Ramulamma College of pharmacy year 2018 - 2024. Iam studying Doctor of Pharmacy and want to become a Drug inspector. An expert in monitoring and executing efficiency, safety, quality and usefulness of drugs.



Influence of Kollicoat® IR Concentration on the Dissolution of Dried Hesperetin Nanosuspension



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Abstract

Hesperetin (HPT) is a flavonoid belongs to BCS class II with low solubility and high permeability. Consequently, it has low dissolution rate hence oral bioavailability also low. Nanosuspension is a simple formulation strategy to increase drug dissolution due to particle size reduction. However, nanosuspension needs to be dried to obtain solid form which can be transferred into capsules. The use of stabilizing agent is important to stabilize nanosuspension particle size, preserve the particle size during drying, and increase dissolution of dried nanosuspension. Nanosuspension was prepared by dissolving Kollicoat® IR 20% w/w and 50% w/w in 90 mL aquadest, separately. 13 g HPT was then dispersed and milled with 0.5 mm yttrium-stabilized zirconium beads to produce nanosuspension. HPT nanosuspension obtained was dried at 45°C then evaluated for its release at pH 6.8 and characterized for its crystallinity using thermal analysis. Results showed that HPT nanosuspension stabilized Kollicoat® IR 20% w/w and 50% w/w had particle size 151 nm and 168 nm, respectively. Dissolution of dried HPT nanosuspension stabilized Kollicoat® IR 50% w/w significantly increased the HPT dissolution but not for Kollicoat® IR 20% w/w. Thermal analysis of dried HPT nanosuspension stabilized Kollicoat® IR 50% w/w tend to have amorphous form.



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Biography

Maria L.A.D Lestari is a lecturer and also a researcher. Her research interest is increasing solubility and dissolution of BCS class II drugs using nanosizing methods in particular nanosuspension and delivering the nanosuspension into solid form as the final dosage form. She also focuses on the manufacturing process of solid dosage form including modification of the excipients.



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Herbal Nano Drug Delivery for Targeting Breast Cancer- Novel Transdermal Patches



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Abstract

Breast cancer being second common cancer in mankind and first type in women. After diagnosis of breast cancer most of the treatment therapies include surgery, chemotherapy and many more in which patients suffer through many physical and psychological changes and even after treatment there are many side effects which makes life miserable. In order to reduce side effects and pain, Therefore, an alternative or novel approach to treat or prevent it can be done by herbal medicine in the form transdermal patch allows the delivering of anticancer drugs to targeted cancer cell as effectively as possible without side effects and reducing the dosage of drugs by using nanotechnology. Nutraceuticals which we consume on daily basis which have very high beneficial values for health due to the presence of phytochemicals are considered for the treatment for the breast cancer in the form of Herbal Nano transdermal formulation. However, transdermal application has limitation due to the remarkable barrier properties of the outermost layer of skin, stratum corneum. This layer is mainly consisted of lipids, has no blood flow, and thus plays a key role in limiting the diffusion of drugs to the bloodstream.

Biography

I Dr. M. Sandhya Rani, working as Assistant Professor(c) in Centre for Pharmaceutical sciences, IST. did my master studies at Kakatiya university campus, Warangal, having good research abilities, worked hard and progressed steadily. I'm having both UG & PG teaching experience of about 11 years and guided PG students for their project work. I have volunteered the seminars and symposia conducted in the department. I have good number of publications about, 27 in number in reputed and indexed journals with good impact factor and presented 18 research papers in national/international conferences.



Protective Aptitude of *Borassus Flabellifer* Root Extracts Against Paracetamol-induced Liver Toxicity and *Mycobacterium Tuberculosis* (H37RV)



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Pinapothu Devakusuma

Aditya College of Pharmacy, India

Abstract

Borassus flabellifer is a doug palm or palmyra palm treenative to south India. Different parts of the plant have been using as food and in traditional medicine. The root parts are used for phytochemical analysis and evaluation of hepatoprotective and anti-tuberculosis activities. Hepatoprotective activity of Borassus flabellifer root extracts were studied on paracetamol induced liver toxicity in rats and antituberculosis activity on Mycobacterium tuberculosis [H37 Rv strain] quantitative determination using Microplate Alamar Blue assay (MABA) method. The phytochemical analysis of different extracts of *B. flabellifer* roots showed the presence of sterols, terpenoids, glycosides, carbohydrates, proteins, flavonoids, alkaloids, phenols, tannins, saponins and oils. The methanolic extract showed more phenolic and alkaloid contents on their quantification. Ethyl Acetate, Chloroform and Methanol extracts of *B. flabellifer* showed the dose-dependent percentage protection on paracetamol-induced liver toxicity. The methanol extract showed more activity and is comparable with standard drug Liv 52 on altered liver biomarker enzymes AST (SGOT), ALT (SGPT), ALP, total bilirubin and total protein levels with percentage protection 70.58%, 68.91%, 69.30% 71.18% and 70.73%. The ethyl acetate extract showed more anti-tuberculosis activity than methanol extract with MIC 6.25µg/ml but the extracts showed lower activity compared to standard drugs ciprofloxacin, Streptomycin and pyrazinamide of the MIC values are 6.25, 3.125, 3.125 µg/ml.

Biography

I am Dr. Veda Priya Gummadi currently working as Assistant Professor at Aditya College of Pharmacy, Surampalem. Previously I worked as Guest faculty at A.U College of Pharmaceutical Sciences, Andhra University. I was awarded my doctoral degree in the year 2018 in the Department of Pharmacognosy & Phytochemistry, Andhra University, Visakhapatnam.



Treatment of Arthritic Pain with the Sting of *Urtica Diocia* and their Phytoconstituents and Pharmacological Effects: A Current View of an Ancient Healing Plant



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Abstract

The global incidence of age-related diseases of bone, joint, and muscle is steadily rising and it is seriously affecting the health of people. Overall 27.6% prevalence arthritis across world are universally reported with symptomatic arthritis in 60 years and higher age group. Herbal medicines are used for the treatment of various ailments from ancient times and it is not an exaggeration to say that the use of the herbal drugs is as old as mankind. Nowadays, researcher shows a great interest in those medicinal agents that are derived from plants because the currently available drugs are either have certain side effects or are highly expensive. *Urtica dioica* is known as stinging nettle which is a perennial herb belonging to the family of Urticaceae that has been utilized for quite a long time against a variety of diseases and has a long history of traditional systems of medicines since ancient times especially for joint pain, arthritis in numerous nations on the planet, especially in the tropical and subtropical regions. *Urtica dioica* is a notable from everyone for the dermatitis it causes when contacted, because of biochemical mediators such as histamine and acetylcholine. Its extracts are significant regions in drug development with lots of pharmacological activities in numerous nations. The leaf extract of stinging nettle was one of the herbal remedies which are utilized in experimental work and to show their different pharmacological activities like analgesic, anti-inflammatory activities. Phytoconstituent studies revealed the presence of numerous important and valuable chemical compounds including flavonoids, phenolic compounds, tannins, sterols and terpenoids which are isolated from this plant. As per the current treatment strategies mostly NSAIDs are prescribed for pain related to arthritis. Though, several scientific studies and related clinical research are proven that *Urtica Diocia* is a potential candidate for the management of arthritis related pain. This review presents comprehensive analyzed information on the treatment of arthritic pain with the sting of *Urtica Diocia* and their Phytoconstituents and pharmacological aspects.



Assessment of Antidiabetic Activity of Dried Juice of Andrographis Paniculata Leaves in Alloxan Induced Diabetic Rats



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Abstract

Andrographis paniculata is an annual herb known as Kalmegh in Hindi. Cultivated in Southeast Asian countries for its medicinal uses. Present study was carried out to investigate the anti-diabetic potential of dried juice of A.paniculata leaves in alloxan induced diabetic rats. Three doses 50mg/kg, 100mg/kg and 200mg/kg of dried juice of leaves were orally administered to the diabetic rats to evaluate blood glucose lowering effect. Metformin hydrochloride drug 120mg/kg was used as a reference standard. After single administration of dried juice of leaves with 50 mg/kg dose there was significant reduction of blood glucose level at 3rd and 5th hour of administration and the % reduction was 24.8 and 37.51 respectively. Similarly 100mg/kg of extract dose showed significant reduction in blood glucose level at 1st, 3rd and 5th hour of administration with % reduction of 20.6, 35.2 and 48.28 respectively whereas 200 mg/kg dose caused significant reduction in blood glucose level after 1st, 3rd and 5th hour of intervals and the % reduction was of 21.48, 41.0 and 52.6. All doses of dried juice showed the maximum% reduction in blood glucose level after 5th hour of administration 37.51%, 48.28% and 52.6% respectively as compared with diabetic control. The reduction in blood glucose level was a dose dependent one and the results were comparable with that of the reference standard drug Metformin hydrochloride.

Keywords

Andrographis paniculata, Anti-diabetic, Metformin hydrochloride, Blood glucose level.



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Life Style Disorders and New Diet System



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Abstract

According to the World Health Organization, **Health** is defined as “a state of complete physical, mental and social well being and not merely the absence of disease and infirmity. Health can be promoted by encouraging healthful activities, such as proper diet system, regular physical exercise, adequate sleep, cleanliness, meditation, healthy lifestyle and by reducing or avoiding unhealthful activities or situations, such as smoking, tobacco and alcohol consumption or excessive stress. Some factors affecting health are due to individual choices, such as whether to engage in a high-risk behavior, while others are due to structural causes, such as whether the society is arranged in a way that makes it easier or harder for people to get necessary healthcare services. Still other factors are beyond both individual and group choices, such as genetic disorders

To achieve good health, healthy food and disciplined lifestyle is necessary. For this, New Diet System (NDS) is introduced in India by Shri B V Chauhan, Gujrat. Its salient features include raw foods (vegetables, fruits, nuts & seeds, fresh herbs & spices, water), enemas and fasting (especially dry fasting). The many patient who were suffering from diseases over a long period of time have stopped taking the medicines by adapting it systematically. The new diet system resulted in curing as well as management of many diseases like: Acidity, Colitis, Arthritis, Migraine, Indigestion., High blood pressure, Cholesterol, Jaundice, Malarial fever, Obesity, Thyroid, Constipation, Low



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blood pressure, Ulcer, Eczema, Anaemia, Asthma, Bleeding piles, Diabetes, Bronchitis, Burning of the feet, Calculi, Conjunctivitis, Psoriasis, Skin Diseases etc.

Keywords

World Health Organization, Health, lifestyle, New Diet System, Diseases.



Application of Subcritical Water as a Green Solvent for Extraction of Biologically Important Molecules



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Abstract

The rise in use of dietary supplements and functional foods based on plant material with great biological potential is depicted as part of a trend empowering consumers to manage their day-to-day health needs.

Significant progress has been made in the processes of isolating biologically active compounds from natural sources, primarily thanks to new scientific knowledge related to the mechanisms of separation of compounds from complex matrices. Over the past decade, the application of hydrothermal processes based on the application of water in the subcritical state has become promising alternative to traditional organic solvents extraction from both environmental and technological perspectives. Subcritical water is recognized as an effective solvent for extraction of proteins, carbohydrates, lipids and value-added compounds from various plant materials and agro-food waste due to its unique physical and chemical properties primarily low dielectric constant and high ion product, and low environmental impact.

Potential use of SWE for extraction of biologically active molecules, preparation of ready-to-use extracts and use of SWE-based extracts to design new functional foods and nutraceuticals will be considered herein.



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Biography

Nataša Nastić, PhD works as a Research Associate at the Faculty of Technology, University of Novi Sad, Serbia. Her formal education was complemented with research work and stay at Universities of Granada and Seville (2013 and 2014), CIDAF, Granada (2013 and 2016), Yildiz Technical University, Istanbul, and iBET, Oeiras (2021). Her expertise includes the experience in the extraction and isolation of biologically important molecules of natural origin, improvement, and implementation of modern extraction techniques. She has published 13 scientific papers in leading international scientific journals with impact factor and participated in the number of international and national scientific meetings.



5-O-Acetylpinostrobin as Potential Agent of Breast Cancer with Estrogen Receptor Alpha: Cytotoxic Activity and Molecular Docking Study



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Abstract

Breast cancer is currently one of the most common causes of death in women all over the world. Estrogen Receptor Alpha (ER- α) plays a major role in breast cancer pathogenesis because about 75% of breast cancers are associated with estrogen receptor expression. The purpose of this study was to determine the cytotoxic activity of a pinostrobin derivative, 5-O-acetylpinostrobin, against breast cancer and normal cells, as well as to determine its interaction with ER- α by molecular docking. Cytotoxicity was tested using the MTT method against T47D and Vero cells. Molecular docking was determined using the MVD Ver.5.5 program. The results showed that the IC₅₀ and CC₅₀ values of the 5-O-acetylpinostrobin were 0.34 mM and 1.16 mM, respectively. The selectivity



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index value of 5-O-acetylpinostrobin is greater than pinostrobin, with an SI value of 3. Molecular docking results showed an interaction between the ligand and ER- α (PDB ID: 5W9C) through the formation of hydrogen bonds with Arg394; Thr347; Ala350 and clarified by the binding affinity with a slightly different rerank score of 5-O-acetylpinostrobin (-85.3151 kcal/mol) and co-crystal ligand OHT_601 (-95.1011 kcal/mol). It can be concluded that 5-O-acetylpinostrobin has the potential as an anti-breast cancer candidate with estrogen-alpha expression that works selectively.

Keywords

5-O-acetylpinostrobin, Breast cancer, Estrogen, Cytotoxic, Molecular docking

Biography

Tri Widiandani is a lecturer at Faculty of Pharmacy, Universitas Airlangga. She obtained her bachelor's degree in pharmacy at Faculty of Pharmacy. She was further pursued her Specialist of Hospital Pharmacy and Doctoral degree at Faculty of Pharmacy, Universitas Airlangga. Her main courses is Medicinal Chemistry. Her research is focuses on virtual modeling, synthesis of biologically active compounds especially for cancer targeted.



Comparative Evaluation of In Vitro Antimicrobial and In Vivo Wound Healing Activity of Ethanolic and Ethyl Acetate Extracts of *Abutilon Indicum* Root



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Abstract

The present study was aimed at comparing the in vivo wound healing and in vitro antibacterial activity of *Abutilon indicum* roots. Wound healing is a complex phenomenon which consists of three stages inflammatory, proliferative, and remodelling. Traditionally, *A. indicum* is used for wound healing. There is no specific scientific data available for the wound healing activity of *Abutilon indicum* root. The present study was designed to investigate the same. The wound healing activity of ethanolic and ethyl acetate extracts of *A. indicum* was evaluated in incision and burn wound models. The parameters studied include tensile strength, epithelialisation period and rate of wound contraction. *A. indicum* also possesses antimicrobial activity. Ethyl acetate and ethanolic extract of *A. indicum* was tested against both Gram positive, Gram negative and fungal organisms using agar well diffusion method. From the results, it was concluded that ethyl acetate extract of *A. indicum* root had greater wound activity and antimicrobial activity than the ethanolic extract.



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Protective Effect of *Terminalia Bellerica* Chloroform Extract for Its Anti-Ulcer Activity



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Abstract

Peptic Ulcer is most common disorder of humans. A number of drugs including protonpump inhibitors and H₂receptor blockers are available for the treatment of peptic ulcer, but clinical evauation of these drugs has shown incidence of replaces, side effects like arrhythmias, impotence, gynacomastia, hypergastronomia and homeopoetic changes and drug interactions. The aim present study was protective effect of terminalia bellerica chloroform extract for its anti ulcer activity. Chloroform extract of TB, showed the presence of flavanoids, glycosides, tannins terpenoids and saponins. The phytoconstituents present in the extract could be the possible agents involved in the prevention of gastric lesions induced by aspirin.



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In Silico Analysis and Evaluation of Anti-Inflammatory and Antifungal Phytochemicals as Potent Inhibitors of Dengue Virus



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Abstract

Dengue fever is one of the emerging pandemic disease caused by virus dengue virus. They usually prevail in tropical and subtropical regions. There are four serotypes present in dengue virus such as DENV1, DENV2, DENV3 and DENV4. There is no specific treatment for treating dengue. Early detection and preventive care could involve in curing the patients. Medicinal plants are ideal alternatives to combat DENV infection as it has long been utilized in traditional medicine besides showing virucidal properties. We have selected moreover 30 phytochemical constituents containing traditional medicinal plants that were available in India which have been known for their activities like anti-inflammatory, antifungal. By using computational approaches like pass prediction, molinspiration, molecular docking, virtual screening, ADMET and GUSAR, to predict whether these phytochemicals have the ability to act on NS1 Protease (PDB ID: 4O6B) and thereby inhibit their replication in host body cells in the case of dengue fever.

Keywords

Dengue virus, NS1 Protease, Traditional medicinal plants, Molecular docking, Virtual screening, ADMET



Formulation and Evaluation of Herbal Shampoo



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Abstract

The study aimed to formulate a pure herbal shampoo and to evaluate and compare its physicochemical properties with both marketed synthetic and herbal shampoo. The herbal shampoo was formulated by adding the extracts of Alma, shikakai, reetha and *Citrus aurantifolia* in different concentration proportion to a 10% aqueous gelatine solution. Small amount of methyl paraben was added as a preservative and pH was adjusted using citric acid. Several tests such as visual inspection pH, wetting time, % of solid contents, foam volumes and stability, surface tension, detergency and dirt dispersion etc., were performed to determine the physicochemical properties of prepared shampoo. The formulated herbal shampoo was clear and appealing. It shows good cleansing and detergency, low surface tension, small bubble size and good foam stability after 5 minutes, the prepared shampoo and commercial shampoos showed comparable results for % solid contents also. The results indicated the formulated shampoo is having excellent conditioning performance.



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New Medication for Cystic Fibrosis



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Abstract

Cystic Fibrosis (CF) is a genetic disorder that results in a multi-organ disease with progressive respiratory decline that ultimately leads to premature death. Cystic fibrosis caused by mutations in the Cystic Fibrosis Transmembrane Conductance Regulator (CFTR) gene, which codes for the CFTR anion channel. Established CF treatments target downstream manifestations of the primary genetic defect, including pulmonary and nutritional interventions. Areas covered: CFTR modulators are novel therapies that improve the function of CFTR, and have been approved in the past five years to mitigate the effects of several CF-disease causing mutations. This review summarizes currently approved CFTR modulators and discusses emerging modulator therapies in phase II and III clinical trials described on clinical trials.gov as of April, 2017. Results of relevant trials reported in peer-reviewed journals in Pubmed, scientific conference abstracts and sponsor press releases available as of November, 2017 are included.

Conclusion:

The current scope of CF therapeutic development is robust and CFTR modulators have demonstrated significant benefit to patients with specific CFTR mutations. We anticipate that in the future healthcare providers will be faced with a different treatment paradigm, initiating CFTR-directed therapies well before the onset of progressive lung disease. Keywords: CFTR modulator; Cystic fibrosis; clinical trials.



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Biography

My name is M. Pranitha I am from Hyderabad. I am pursuing my studies from Smt. Sarojini Ramulamma college of pharmacy, Mahabubnagar, Year 2018-2024. I am studying Doctor of pharmacy and want to focus on becoming an Clinical pharmacist and Pharmacovigilance. Want to provide patient care that optimizes the use of medication and promotes health, wellness and disease prevention.



Evaluation of Antibacterial Activity of Various Extracts of Leucas Biflora Flowers



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Abstract

The plants of genus *Leucas* (Lamiaceae) are used to treat a variety of diseases traditionally and a variety of phyto-constituents have also been isolated from these *Leucas* species. The isolated phytoconstituents belong to category of ligands, flavonoids, coumarins, steroids, terpenes, fatty acids and aliphatic long chain compounds which are reported to possess anti-inflammatory, antidiarrhoeal, antimicrobial, antioxidant, analgesic, insecticidal activities. The aim of current study is to evaluate antibacterial activity of different extracts of flowers of *Leucas biflora* (Lamiaceae). For this the Petroleum ether, Ethyl acetate and Ethanol extracts of flowers in various concentrations (200, 400, 600 and 800 µg/ml) were subjected to screening for in vitro antibacterial activity against on various pathogenic gram positive and gram negative bacteria like *Staphylococcus aureus*, *Escherichia coli*, *Bacillus subtilis* and *Klebsiella pneumoniae*. Culture of these bacteria were grown in nutrient broth at 37°C and antimicrobial assay was performed by Disc diffusion method and zone of inhibition was measured. Amoxicillin antibiotic was used as reference standard drug. The Petroleum ether extract and the ethanol extract did not show significant antibacterial activity whereas all the four concentrations of Ethyl acetate extract exhibited significant antibacterial activity against all the four strains of bacteria and the results were comparable with that of reference standard drug.

Keywords

Leucas, antimicrobial, phytoconstituents, extracts, antibacterial.



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Press Coated Pulsatile Drug Delivery System: A Novel Approach



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Abstract

Pulsatile drug delivery system is defined as rapid and transient release of certain drug molecules within a short period immediately after a pre determined release period i.e. lag time. Pulsatile Drug Delivery Systems (PDDS) are basically time Controlled drug delivery systems in which the system controls the lag time and drug is released in an immediate or extended release fashion. These systems are based on Circadian rhythms of the body. The release of drug molecule depends on polymers used, their solubility and matrix system within the dosage form. These drug systems have many layers which keep the drug safe until the circadian rhythm activated by trigger or activating agent. The lag period may vary as per the requirement in the disease condition. A press coated pulsatile drug delivery system is suitable for oral administration. It is a time control pulsatile drug delivery based on eroded or soluble barrier coating.

Keywords

pulsatile drug delivery systems, Circadian rhythms, lag time.



Why Herbal Medicinal Plants used in Thrombosis?- A Mechanistic Review



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Abstract

Herbal remedies are used to treat a large variety of diseases, including blood-related disorders. However, a number of herbal preparations have been reported to cause variations in clotting time, this is mainly by disruption of the coagulation cascade. Thrombosis is one of the major causes of morbidity and mortality in a wide range of vessels diseases. Due to the high prevalence of thromboembolic disorders investigations are being carried out on new antithrombotic agents with limited adverse side effects in which herbal medicines are considered as alternative remedies. A traditional medicine has a good potential for pharmacotherapy based on its own principles and development of drugs. However, it still has a limitation in its function and efficacy. Thus, it is necessary to study the mode of action of traditional medicinal herbs as alternative therapeutic agents. In this review, we focused on our current understanding of the regulatory mechanisms of traditional medicinal herbs in thrombosis. Among the proposed plants *Lantana camara*, *Allium sativum*, *Rosmarinus officinalis*, *Boswellia serrata*, *Sesamum indicum*, *Matricaria chamomilla* and *Carthamus tinctorius* have been the most researched plants in modern antithrombotic studies while some plants such as *Ginkgo biloba*, *Zingiber officinale*, *Paullina ulmaria* etc helps to prevent the clot formation. It seems review can help to design future researches for antithrombotic drugs discovering with more effectiveness and safety.

Keywords

Antithrombotic; Herbal medicine; *Lantana camara*; Thrombosis.



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Pharmacogenomics- Future of Medical Practice



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Abstract

Pharmacogenetics has been defined as the examination of variance in drug response as a result of heredity. While the past term is by and large used comparing to characteristics concluding medicine assimilation, the last choice is more broadbased term that consolidates all characteristics in these I o genome that could choose drug response. All through the last 12±18 months, incalculable articles have displayed on pharma-co genomics in various journals. Similarly, three new journals with the term 'pharmacogenomics' (Pharmacogenomics, The American Journal of Pharmacogenomics and The Pharmacogenomics Journal). The fact that pharmacogenomics is viewed as a significantly critical area for creating drug treatment and suggesting later on. We start one more review series of articles on the area of pharmacogenetics/pharmacogenomics, the importance (or not) of this area in regards to both their clinical practice and investigation. Pharmacogenetic approaches are foremost part expected to accomplish a "change" in medicine. While the usage of sub-nuclear innate ways of managing contamination investigation will give us new entryways for consistently more assigned and, preferably, additional convincing meds, these progressions will be formative in nature and will, for their affirmation, really require the cautious cycle that finding and encouraging another drug includes. It is furthermore quintessential for the affirmation of these ensures that we support a game plan and more reasonable suppositions in everyone running wild through talk and information.

Keywords

drug-response, genetics, pharmacogenetics, pharmacogenomics, pharmacology.



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Formulation and Evaluation of Polyherbal Tablets



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Abstract

In the present study a polyherbal tablets was prepared using *Moringaolifera* (leaves), *Zingiberofficinalis* (rhizome) and *Spirulina platensis* or *maxima* (blue green algae) by the direct compression method. The powders of these herbal drugs were prepared, and characterized on the basis of pre-formulation parameters like angle of repose, loose bulk density, tapped bulk density, carr's index, compressibility index and Hausner ratio etc. Pre-formulation study of the powders showed that all the evaluated parameters were within the acceptable limits. The tablets are formulated using selected polymers. They were evaluated for various parameters like Hardness, Friability, Disintegration time etc. Among seven formulations prepared (F1 to F7), F3 showed appreciable results. Herbal remedies popularized because of their efficacy, easy obtain ability, low price and somewhat being lacking of serious toxic effects. This research is oriented mainly in two directions. Firstly, the active constituents of plants that have long been known for their therapeutic properties have been investigated and the second sphere of basic research has led to the detection of new varieties of medicinal plants or herbs and new crude drugs from the other remote areas of the world where fresh species with unknown substances still remain to be looked into it. Each and every traditional medicine, drugs of Ayurveda, Unani and Siddha need to be tested and validated scientifically.

Biography

This is S. Swathi working as Associate professor with 10 years experience in teaching graduate and post-graduate students of pharmacy.



Extraction and Characterization of Keratin from Waste Human Hair for the Development of Nanoparticles for Drug Delivery



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Abstract

Keratin has been widely investigated in the production of nanocarriers for active pharmaceutical compounds in various biomedical applications due to its intrinsic features such as biodegradability, biocompatibility, resistance to thermal degradation, mucoadhesion, and a myriad of other attractive properties. It is a major structural protein in mammals and birds in nails, hair, wool, scales, and feathers. A significant research gap associated with keratin is the lack of extraction protocol that preserves the protein's intrinsic mechanical and chemical properties. The present research attempts to cost-effectively extract keratin protein from discarded human hair without losing its chemical conformation and miniaturize it to nanoscale for drug loading and delivery. The hair samples were collected, cleaned, and were delipidated by submersion in methanol:chloroform solution (1:2 v/v) for 24 hours and finally dried overnight. Following this, we performed a rigorous optimization of process parameters (temperature and time) to formulate a lysis solution that achieved a high protein yield % and significant similarity with its native chemical configuration. The obtained solution is filtered, centrifuged, and dialyzed to remove dissolved particulates. The dialyzed extract is lyophilized to obtain pure keratin powder. This powder is resuspended in PBS pH 7.4 and then sonicated to produce nanoparticles. The extracted protein was evaluated for amide functional groups using FTIR-ATR. Protein quantification was determined using the Lowry assay, and its molecular weight was analyzed using SDS-PAGE. All our results indicate the production of pure keratin, which is akin to its natural chemical conformation in human hair. The developed protocol provides an economical and sustainable way to recycle human hair to develop carriers nanoparticles for drug delivery.

Biography

Mr. Sunny Mukherjee is presently pursuing his Master's in Technology from the National Institute of Technology, Jalandhar in the Department of Biotechnology under Dr. Mahesh Kumar Sah (Biomaterials and Tissue Engineering). He has completed his Bachelor's in Technology from Amity Institute of Biotechnology, Amity University Kolkata, in 2019. After graduation, he pursued



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industrial pharmaceutical research and development in biocompatibility evaluation of drugs and medical devices (*in-vitro* / *in-vivo*) at Liveon Biolabs, Bangalore, for one year and six months before returning to academia in 2021. He has also assisted in several projects in Nanobiotechnology at Calcutta University, Amity University Kolkata.



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Pharmacognostical Standardization of Selected Medicinal Plants



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Abstract

Background: *Cassia auriculata*, *Centella asiatica* and *Zingiber officinale* are belongs to the family Leguminosae, Apiaceae and Zingiberaceae respectively. These herbs possess abundant remedial benefits and are used traditionally to treat numerous illnesses. The standardization of crude drugs is essential to gain information on their identity and quality.

Objective: To evaluate organoleptic characteristics, microscopic structures, different physicochemical parameters of dried raw powder of *Cassia auriculata* leaf, *Centella asiatica* leaf and *Zingiber officinale* rhizome followed by its extraction and qualitative phytochemical investigation.

Materials and Methods: WHO recommended parameters were estimated for the standardization of plant materials. Dried raw powder of *Cassia auriculata* leaf, *Centella asiatica* leaf and *Zingiber officinale* rhizome were subjected to organoleptic and microscopic evaluation followed by Physicochemical evaluations such as loss on drying, ash values and extractive values. Further, the plant materials were extracted with hydroalcoholic solvent (Alcohol: Water ratio is 70:30) by cold maceration process and subjected to qualitative phytochemical investigation.

Results: The identity and purity of the plant material had been proven by its organoleptic characteristics like physical appearance, taste and odor. Detailed structural characteristics were obtained from Powder microscopy. Loss on drying gives information on the presence of water and volatile matters in the crude powder which is crucial for hygroscopic herbal substances. The quantity of ash left after incineration of the crude powder was noted. The amount of extract or active constituents present in a crude drug has been noted by extracting plant powder with solvents like water, alcohol and ether. Qualitative phytochemical analysis showed the presence of various phytoconstituents such as Carbohydrates, Proteins, Alkaloids, Glycosides, Phenolic compounds, Flavonoids, Tannins, Sterols, Saponins, and Terpenoids

Conclusion: This pharmacognostical standardization will provide referential information on the identity, quality and purity of the crude drugs.



Herbal Remedies: An Emerging Alternative for the Treatment of Pandemic Diseases



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Abstract

Pandemics are large-scale epidemics of infectious illness that may cause major economical, cultural, and political upheaval while also increasing illness and mortality across a huge geographic area. Evidence shows that pandemics have become more likely during the last century as a result of increasing international travel and connectivity, industrialization, agricultural expansion, and higher destruction of natural environment. Over time, emerging pathogen strains cause pandemics that raise suffering, death, and instability in countries. Flu, Plague, Cholera, HIV and current COVID-19 pandemic is caused by novel corona virus are some of the outbreaks caused by different type of pathogens. Unfortunately, given the lack of information and instruments to tackle the problem, managing new and developing infections is frequently challenging. Yet, the use of Herbal remedies to treat new and developing infectious illnesses has received much interest. Until the invention of antibiotics, herbal plants, their preparations, and extracted phytoconstituents reported to be efficient in reducing infectious diseases and were the only treatments available. Plant contains large types of complex metabolites like amino acid, alkaloid, tannin, flavonoid, terpenoid, glycoside that show different therapeutic activity. This review provides vital and useful information regarding herbal drugs and their effectiveness against various pathogens that cause major pandemics.

Keywords

Pandemic, Herbal remedies, Influenza, Cholera, COVID-19, HIV



Determination of *In - vitro* Antioxidant Activity of Polyherbal Anti Wrinkle Cream



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Abstract

Aged skin is an usual progression and a consequence of the continual decaying process. Air, harsh sun rays, other environmental pollutants or other mechanical and chemical insults, induce the generation of Free Radicals (FR) as well as Reactive Oxygen Species (ROS) of our own metabolism when human being exposed to it. FR are major causative factors in the induction of various skin diseases, including skin tumors, skin wrinkling and skin aging. Ultraviolet (UV) mainly produces FR/ROS through interaction with endogenous photo sensitizers which leads together to cumulative structural and physiological alterations and progressive changes in each skin layer as well as changes in skin appearance. Anti oxidative defense mechanisms/ natural scavengers of FR are the most effective path to eliminate and diminish the action of FR which cause oxidative stress leading to cellular damage and consequent age-related medical disorders (including wrinkling of skin). Topical application of antioxidants may be beneficial for protecting the skin against environmental factors. Antioxidant compounds play an important key ingredient in skin caring products such as creams and lotions. Polyherbal anti wrinkle creams (AW1, AW2, AW3 and AW4) were prepared with optimised vanishing cream base. *In - vitro* antioxidant activity of the prepared creams and standard Ascorbic acid were determined using DPPH scavenging assay, nitric oxide scavenging assay and hydrogen peroxide scavenging assay with the dilutions in the range of 100 to 500 µg/mL respectively, for a period of three months at room temperature. From the results obtained, AW2 and AW4 were chosen as they showed significant difference statistically with standard at the value of $p < 0.05$.

Keywords

Free radicals, Poly herbal Anti-Wrinkle cream and *in - vitro* Antioxidant assays



Pharmacognostic Characterization and Evaluation of Phytochemical, Antibacterial and Antioxidant Activities of *Tribulus Terrestris* Fruits



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Abstract

Background: The aim of the present study was evaluation of phytochemical, antibacterial and antioxidant activities of *Tribulus terrestris* fruits

Materials and Methods: Multifarious medicinal herbs have been employed over decades in spite of lack of scientific evidence of their restorative effects. Current research assessed the phytochemical, dual biological profiling namely, antibacterial and antioxidant activities along with Pharmacognostic characterization of *Tribulus terrestris* fruits (Ttf). Antibacterial effect was tested on various bacterial species (both gram positive and gram negative). The susceptibility of selected bacterial species towards the different extracts of Ttf as compared among themselves as well as standard (marketed anti-bacterial agents). The antioxidant activity also tested with various extracts of Ttf. Among the different extracts examined, methanolic extract was most effective against all the bacterial strains. This study interestingly focused on the bioactive compounds found in the methanolic extract that can be utilized for various purposes.



Virtual Screening for Potential Phytobioactives as Therapeutic Leads to Inhibit NQO1 for Selective Anticancer Therapy



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Abstract

NAD(P)H:quinone Acceptor Oxidoreductase-1 (NQO1) is a ubiquitous flavin adenine dinucleotide-dependent flavoprotein that promotes obligatory two-electron reductions of quinones, quinonimines, nitroaromatics, and azo dyes. NQO1 is a multifunctional antioxidant enzyme whose expression and deletion are linked to reduced and increased oxidative stress susceptibilities. NQO1 acts as both a tumor suppressor and tumor promoter; thus, the inhibition of NQO1 results in less tumor burden. In addition, the high expression of NQO1 is associated with a shorter survival time of cancer patients. Inhibiting NQO1 also enables certain anticancer agents to evade the detoxification process. In this study, a series of phytobioactives were screened based on their chemical classes such as coumarins, flavonoids, and triterpenoids for their action on NQO1. The in silico evaluations were conducted using PyRx virtual screening tools, where the flavone compound, Orientin showed a better binding affinity score of -8.18 when compared with standard inhibitor Dicumarol with favorable ADME properties. An MD simulation study found that the Orientin binding to NQO1 away from the substrate-binding site induces a potential conformational change in the substrate-binding site, thereby inhibiting substrate accessibility towards the FAD-binding domain. Furthermore, with this computational approach we are offering a scope for validation of the new therapeutic components for their in vitro and in vivo efficacy against NQO1.



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Biography

I am a biochemistry research scholar from JSS Academy of Higher Education and Research, School of Life Sciences, Mysuru, since 2018.

An overwhelming prevalence of cancer had incited me to pursue my interest in research fields of cancer biology and in-silico CADD. My current research involves screening small molecules obtained from plant sources to combat certain types of cancer. Computer Aided Drug Design (CADD) is a very useful tool which can be used for small molecules designing, docking with proteins and mainly high throughput screening to find inhibitors to target certain over-expressed proteins in cancer cells. Although CADD is an efficient tool, wet lab work is most necessary to confirm the likeliness and efficacy of drugs.

With all these prospects in mind, my work for Ph.D. contains a mixture of in-silico and invitro studies on pursuit to delineate cellular mechanisms to improve cancer treatment.



Evaluation of In-Vitro Antioxidant and Pharmacognostical Study of *Rourea Minor* Stems



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Abstract

The main objective of the current study was to perform Pharmacognostical study, and determination of antioxidant activity of *Rourea minor* Gaertn. (Family: Connaraceae) young stems. The present study deals with Pharmacognostical characters of the stem, which were subjected to macro- and microscopical studies. HPTLC analysis was performed to standardize the phytochemical constituents of the extract. The antioxidant activity was determined in vitro using DPPH, NO and hydrogen peroxide method. The macroscopical study of the colour, shape, size, order, and surface characteristics were reported from the young stem. The microscopy study of the stem revealed the presence of Cortex, Periderm, Pith, phloem, Vessel elements, Fibers, Xylem, Cortex, and Crystal. Stem powder examination confirmed the presence Vessel elements, Fibers and axial parenchyma. Antioxidant activity revealed that the stems showed higher activity and ethanol extract seemed to be potent compared to the aqueous extract. The HPTLC fingerprinting revealed many peaks corresponding to the flavonoids and polyphenols in view of the mobile phase used. There was clear distinction between the peaks and similar constituents were noticed in stems and leaves. Keeping in view all the outcomes, it is evident that the plant can be used in future possible therapeutic actions.

Keywords

Anti-oxidant activity, Pharmacognostic study, Powder analysis, *Rourea minor*



Acceptance of COVID-19 Vaccines among Iraqi Pharmacy Students



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Abstract

This study aimed to evaluate COVID-19 vaccines acceptance and hesitancy among undergraduate pharmacy students of Iraqi public and private universities. A cross-sectional survey was conducted in May-June 2021 with randomly sampled pharmacy students from public and private Iraqi universities. The survey questionnaire consists of a total of 20 items evaluating acceptance of the currently available COVID-19 vaccines. A total of 346 respondents, (25.4%) male and 329 (74.6%) females, 50% were prepharmacy stages (first and second), 50% were pharmacy stages (third, fourth and fifth), (44.4%) of respondents reported that they would be completely or somewhat agree to take a COVID-19 vaccine, (7.2%) completely disagree to take COVID-19. (45.5) have previous COVID-19 infection, (54.5) have no previous infection, (48.6%). (9%) of infected cases were severe and hospitalized. (69%) of respondents were not yet vaccinated, (31%) vaccinated respondents. The preferences of vaccines among respondents were 49.1% Pfizer-BioNTech, (14.4%) Oxford-AstraZeneca, 6.6% Sinopharm and 29.9% stated that they will not take any vaccine. There was a significant association between female gender and acceptance of the vaccine. Moreover, the acceptance of vaccines was significantly associated with the previous infection. In conclusion, Iraqi Pharmacy students' current levels of COVID-19 vaccination and/or willingness to vaccination are insufficient. Female and previously infected students were more agreeable to take the vaccine. It is recommended to implement.



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Biography: Alaa Abdulhasan Abbas is a lecturer in the pharmacy department at AlSafwa University College. He received a bachelor's degree in pharmacy from Al-Mustansiriya University and a master's degree in pharmaceutical chemistry from Baghdad University, Baghdad, Iraq. His current field and interests are drug design and pharmaceutical care researches.



Design and Development of Intravaginal Nanocarrier Based Drug Delivery System for the Treatment of Endometriosis



Abhini Sreenath

DIT University, India

Abstract

Endometriosis is a gynecological disorder that affects up to 10% of women of reproductive age. Contraceptive hormones (oestrogen and progestin) have been used to relieve symptoms for many years. The usage of combination oral contraceptives has been the focus of a lot of research. As a result, there is increasing interest in using herbal therapy to treat endometriosis. Curcumin is a polyphenolic substance extracted from curcuma longa crushed rhizomes. This molecule has been linked to a variety of pharmacological activities, including antioxidant, anti-inflammatory, anti-proliferative, anti-carcinogenic, and anti-bacterial properties. Antioxidant chemicals are being delivered more effectively using nanoparticle technology. The goal of this study is to include curcumin-loaded nanospheres into the Carbopol polymeric tablet formulation for extended drug release and permeation for endometriosis treatment. The newly created formulation may improve medicine absorption deeper into the membrane, thereby eliminating the disease's periodic recurrence.

Biography

I am Mrs. Abhini Sreenath a Part Time PhD Scholar of Pharmaceutical science at DIT University. As well as I am working as Asst. Professor working in St. Mary's college of Pharmacy, Secunderabad affiliated to JNTUH. I have completed my M.Pharm from Azad college of pharmacy(JNTUH) –Hyderabad & B.pharm From RGUHS University-Bangalore. My Favorite Quote is “ Life has no limitations, except the ones you make.” After completion of my PhD I want to become a Professor and improve my knowledge & also want to guide students in all pharmacy aspects.



Magnetic Nanoparticle-Based Approaches in Cancer Therapy



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Abstract

Cancer is one of the leading causes of mortality worldwide even today. Failure in efficacy of the standard treatments (Chemo-, Radiotherapy and Surgery), and the severe side effects, resistance of tumor cells to chemotherapeutics has necessitated alternative therapeutic strategies. Magnetic Nanoparticles (MNPs) have been evaluated as promising materials for cancer treatment. Their magnetic properties provide a multimodal theranostics platform for cancer diagnosis as well as monitoring and therapy. MNPs can be functionalized by binding them to various substrates, including chemotherapeutic drugs, radionuclides, nucleic acids, and antibodies. They can be used for drug delivery, magnetic or photothermal induced local hyperthermia and photodynamic therapy aimed at killing cancer cells at the tumor site. MNPs may also be useful to challenge drug resistance. The combination of different options of these treatment modalities offers a synergistic effect and significantly reduces the side effects. The functionalized MNPs may be used to remove the unwanted cells from blood, including leukemia cells and circulating tumor cells that key factors in the metastatic process. Despite numerous successful studies, there are still some unpredictable obstacles relevant to the use of MNPs in cancer therapy. This review mainly focuses on application of MNPs in cancer treatment, covering future perspectives and challenges aspects.

Keywords

Cancer Therapy; Magnetic Nanoparticles (MNPs); Functionalization; Drug Delivery; Hyperthermia; Combination Therapy.



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Biography

Abishek is a 3rd year B.pharm student at Chettinad School of Pharmaceutical Sciences. He is a budding researcher, his primary research interests are novel drug delivery systems and advanced instrumentation techniques.



Development and Evaluation of Green Synthesized Silver Nanoparticles of *Citrullus colocynthis* Leaf Extract and Its Antimicrobial Activity



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Abstract

Background: The synthesis of nanoparticles from biologicals and extracts is evolving a new era of research interests in nanotechnology. Metallic nanoparticles are extensively used in the field of pharmacy and other medicine for delivery of drug effectively. Plant extracts are now used to prepare metallic nanoparticles. Metallic nanoparticles prepared using herbal extracts are more stable and the synthesis rate is faster and safer than the other process. So the aim of the present study was development and evaluation of herbal metallic nanoparticles using an environment friendly biosynthesis process and antibacterial activity using *Citrullus colocynthis* leaf extract.

Method: The silver nanoparticles of herbal extract of *Citrullus colocynthis* were prepared by green synthesis method. The characterization of herbal metallic nanoparticles was done by UV-spectra analysis; FTIR was used to confirm the synthesis of nanoparticles. The Herbal metallic nanoparticles were evaluated for antibacterial activity by disc diffusion method.

Results: The optical property of AgNPs was determined by UV-Visible spectrophotometer. The AgNPs has sharp absorbance with highest peak at 258nm. FTIR measurement was successfully done to identify the biomolecules and functional groups present in the herbal metallic nanoparticles as shown by the absorption peak. The antibacterial activity of aqueous and ethanolic extract of *C. Colocynthis* showed activities against both normal as well as resistant strain of *E.coli* and *K. Pneumoniae*. It was observed that Aqueous extract have prominent activity than ethanolic extract against resistant strain of *K. pneumoniae* and *E coli*.

Conclusion: The Silver nanoparticles of *C. Colocynthis* prepared by green synthesis method showed a significant antimicrobial activity against the subjected bacterial strains for both normal as well as resistant species and could be further used in treatment of infectious disease.

Keywords

Nanoparticle, *Citrullus colocynthis*, Metallic nanoparticle, Antimicrobial, activity, Bacterial strains



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Nano Technology in Drug Discovery, Development and Delivery Systems



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Nettem. Hima Bindu

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Abstract

In terms of drug discovery and development, the role of nanotechnology currently lies in improving diagnostic methods developing improved drug formulations and drug delivery systems for disease therapy. The drug discovery industry has become such a competitive market that continually faces challenge to find better drug discovery technologies. The breakthrough format of nanotechnology offers innovative solutions giving researchers greater analytical capacity, improved data quality and at same time consuming less sample volume in storage and screening of molecular, cell and tissue libraries. Nano delivery systems are relatively new but rapidly developing science where materials in the nanoscale range are employed to serve as to deliver the therapeutic agents to specific targeted sites in a controlled manner. Currently, now all pharmaceutical companies follow some technologies for discovering drugs which includes cloning, expressing human receptors etc. These innovative technologies provide high value of information in a limited time frame which minimizes the errors involved in target, lead and drug candidate selection.

Key words

Nanotechnology, drug discovery, development, cloning, Drug delivery system, target, lead, drug candidate.

Biography

Adimulam. Lohitha Lakshmi, Nettem. Hima Bindu We both are pursuing M. Pharmacy(Department of Pharmaceutical Analysis) at Sri Padmavati Mahila Visvavidyalayam (Women's university) Tirupati. we are currently giving a presentation on Novel technology in drug discovery, development and delivery systems in the INTERNATIONAL CONFERENCE ON CURRENT ADVANCES IN PHARMACEUTICAL INDUSTRY AND DEVELOPMENT.



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Nanomedicines for Infertility



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Sabitha.B

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Abstract

Infertility is a disease of the reproductive system in which clinical pregnancy does not occur after twelve months or more of regular unprotected intercourse, epidemiologically, within one year; approximately 25% of marriages do not get pregnant and suffer from these complications. Reproductive medicine is a field of science which searches for new alternative not only to help couples to achieve pregnancy and preserve fertility, but also to diagnose and treat disease which can impair the normal operation of the reproductive tract. A number of clinical trials involving the use of nanoparticles for the early detection of reproductive tract infections and cancers, targeted drug delivery and cellular therapeutics have been conducted but most of these trials are still at nascent stage. Nanoparticles have potential applications in reproductive biology. Treatment and imaging of reproductive system related cancers can be performed by engineered nanoparticles. Also some non cancerous diseases can be treated by nanotechnology eg: Endometriosis. Factors that mostly give rise to male infertility include testicular dysfunction, immune defense reaction, seminal tract disabilities are account about 40 percent of cases. About 50% of infertility is related to female factors including ovulatory factor disorders, endometriosis, polycystic ovary syndrome, hyperprolactinemia, anomalies of mucus, and tubal disease. The other ten percent include unknown factors. The unique properties of nanoparticles make them a reliable tool to help married people achieve pregnancy and better prevent infertility disabilities as a clinical treatment.



Nanomedicines for Intranasal Delivery of Levodopa: A Promising Approach towards Well-Being of Patients with Parkinson Disease

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Abstract

Parkinson's disease is the second most common neurodegenerative disease. L-DOPA is the most potent “gold standard” for its therapy although its efficacy is significantly reduced due to metabolism, along with side effects like irregular fluctuations in its plasma levels, neurotoxic effects, dyskinesias. The ability of nanocarrier systems to get surface modification to facilitate barrier crossing, improving targeting efficiency, attracted towards the utilization of nanomaterials as a potential and promising strategy to deliver Levodopa as nanomedicine. The intranasally administered nanoparticles induces Blood Brain Barrier (BBB) contact and triggers a successful BBB crossing thus circumventing the BBB and hepatic first metabolism passage. As conventional nasal formulations lacks some effectiveness therefore the use of nanomedicines with our synthesized novel PLGA polymer permitted more controlled release and prolonged duration of drugs, increasing surface area, and decreasing mucociliary clearance therefore slowing and targeting the release of levodopa prolonging its therapeutic effect and reducing the dosing. Thus, nanomedicine is an emerging cross discipline with positive prospect which involves employing nanoparticles to enhance the action of levodopa in parkinsonism treatment. Our study highlights the intranasal delivery of nanomedicine of levodopa as paradigm of Parkinson disease treatment.

Keywords

Parkinson Disease, Levodopa, Nanomedicine, Blood Brain Barrier, Drug delivery Systems.



Linear Discriminant Analysis and Artificial Neural Network Modeling of Molecular Descriptors of COX-2 – Targeted Non-Steroidal Anti-inflammatory Drugs (NSAIDs)



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Abstract

The large amount of chemical and biological data can furnish far-reaching research insights which can expedite the discovery and development of a new drug. Computational statistics and machine learning techniques have been applied in deciphering inherent chemical features that influence the therapeutic potential of a compound. An active area of research involves the development of next generation Non-Steroidal Anti-Inflammatory Drugs (NSAIDs). With over 1.5 billion people suffering from chronic pain and inflammation, this disease is a serious health problem worldwide. Establishing the quantitative relationship between anti-inflammatory activity and the key molecular features of known inhibitors of the drug target is crucial in the development of novel NSAIDs devoid of adverse side effects. In this work, Linear Discriminant Analysis (LDA), and Artificial Neural Network (ANN) methods were employed to develop quantitative models of inhibitory activity of cyclooxygenase-2 (COX-2), an enzyme that facilitates the production of inflammatory prostanoids. The models were used to predict the classification of an external set of compounds, the variants of known COX-2 inhibitors that were generated by isosteric replacement. The designer compounds that were predicted to be COX-2 active are rational goals of future organic synthesis and COX-2 inhibitory testing efforts en route to next generation of NSAIDs.

Keywords

anti-inflammatory drugs (NSAID), COX-2 inhibitors



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Biography

Liza T. Billones is an Assistant Professor of the Department of Physical Sciences and Mathematics, College of Arts and Sciences, University of the Philippines Manila, Philippines. Her research interest is in Statistics and Cheminformatics.

Dr. Alex C. Gonzaga is a Professor of the Department of Physical Sciences and Mathematics, College of Arts and Sciences, University of the Philippines Manila, Philippines. His research interest is in Statistics and Data Analytics.



Nepafenac-loaded Ophthalmic Nanocarriers with Pluronic F127 for the Treatment of Uveitis



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Abstract

Despite the fact that the eyes are one of the most accessible organs in terms of location in the body, drug delivery to eye tissues is particularly difficult. Precorneal loss factors are the main cause of poor drug bioavailability from ocular dosage forms. There is a definite need for effective topical formulations which is capable of enhancing drug penetration and sustaining therapeutic levels with a suitable frequency of application-an approach that can potentially result in an increase in side effects that would be unacceptably harmful. Many therapeutic techniques have been used to treat anterior uveitis, including corticosteroids and Nonsteroidal Anti-Inflammatory Drugs (NSAIDs). However, because of the constraints of conventional formulation, the successful delivery of these formulations is limited. In the current study, we have formulated polymeric micelles of nepafenac with Pluronic F127 which can be used in the treatment of uveitis. Its evaluation was done by various techniques such as particle size, PDI, Zeta potential, %EE, DSC. The IN-VIVO and EX-VIVO studies were performed using Franz diffusion cell and Goat Eye respectively. The obtained results showed, nepafenac loaded polymeric micelles have enhanced preocular penetration due to smaller particle size and improved bioavailability significantly when compared with marketed suspension. The finding of this study suggested that the nepafenac loaded polymeric micelles showed excellent entrapment efficiency (93.52 ±1.0%).

Key Words

polymeric micelles, Nepafenac, ocular drug delivery, drug penetration



Development and Validation of an HPTLC Method for the Simultaneous Determination of Rosuvastatin Calcium and Coenzyme Q10 Nanosponge in the Formulated Tablet Dosage Form



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Abstract

Rosuvastatin Calcium is an inhibitor of cholesterol synthesis in liver. The dose limiting side effect of this drug is myopathy which is found in about 1% of the patients. Coenzyme Q₁₀, an important component of Mitochondrial electron transport chain which is responsible for energy production in cell, is biosynthesized via the cholesterol synthesis pathway. Hence, one of the causes of statin associated myopathy is postulated as Coenzyme Q₁₀ deficiency. As the externally administered Coenzyme Q₁₀ has a bioavailability of only 20%, a Cyclodextrin based Nanosponge was prepared. A tablet dosage form was formulated with Rosuvastatin Calcium co-administered with Coenzyme Q₁₀ Nanosponge. A simple, precise and accurate HPTLC method was developed and validated for the evaluation of tablet using Merck, HPTLC plates coated with silica gel 60F254 as stationary phase and Acetone:Ethanol (7:3 v/v) as mobile phase. Densitometric evaluation of separated bands were performed at 256 nm using CamagTLC scanner-4 with visionCATS software. The R_f value of Coenzyme Q₁₀ was 0.316 ± 0.002 and that of Rosuvastatin Calcium was 0.916 ± 0.002. The validated calibration range was 800 – 4000 ng/spot for Rosuvastatin Calcium and 2400 – 12000 ng/spot for Coenzyme Q₁₀ (R² = 0.9908). LOD was 486 ng for Rosuvastatin and 1060 ng for Coenzyme Q₁₀. The results were validated statistically and by recovery studies as per the ICH guidelines.



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Nanoemulsion for Intra Nasal Drug Delivery to Treat Brain Cancer



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Abstract

The treatment of brain cancer is very challenging due to the most complicated type of cancer, which is difficult to manage due to the poor bio-availability of therapeutic drug at tumors sites, the high levels of protection of physiological Blood-Brain Barrier (BBB) and Blood Cerebrospinal Fluid Barrier (CSF). Improving the permeability of these barriers would enhance the disease's state. Intra nasal delivery provides a practical, non-invasive method of bypassing the Blood-Brain Barrier (BBB) to deliver therapeutic agents to the brain and spinal cord. This technology allows drugs that do not cross the Blood Brain Barrier (BBB) to be delivered to the Central Nervous System within minutes. When a drug delivered through the nose, the spray medication can enter the brain directly via the olfactory nerve. The nasal route of therapeutic drug administration has several advantages over the oral administration and intravenous administration, which include Non-invasive, self-administration, shorter time of onset action and higher bioavailability due to avoidance of hepatic first- pass metabolism. Nanoemulsion represents promising formulations to deliver therapeutic drug directly into the brain through intra nasal route. There are several researches are going on this to get effective treatments to treat the most complicated types of cancers.



Pharmacist's Role in Antimicrobial Stewardship Program Application in Pediatric Hospital



Dr. Sajid Majeed Hameed

Saladin Health Directorate – Head of Antimicrobial Resistance Control Unit, Iraq

Abstract

This presentation will be provided advanced understanding of several aspects regarding pharmacist's responsibilities to take prominent roles in antimicrobial stewardship program & participate in the infection prevention & control programs of health systems.

Objectives:

- 1- Definition of antimicrobials stewardship program
- 2- What are the 3 types of antibiotic stewardship interventions?
- 3- Illustration the goals & principle of antimicrobial stewardship program
- 4- Antimicrobial stewardship in hospital settings (UpToDate)
- 5- Illustration core elements of antimicrobial stewardship program
- 6- Why antimicrobial stewardship is important in residential care settings?

Antimicrobial stewardship is a coordinated program that promotes the appropriate use of antimicrobials (including antibiotics), improves patient outcomes, reduces microbial resistance, & decreases the spread of infections caused by multidrug-resistant organisms. Antimicrobial stewardship focuses on prescribers, be it physician, physician assistant, nurse practitioner, on the prescription and the microorganism, if any. At a hospital, it can be organized in the form of a committee that meets monthly. The day-to-day work is done by a core group, usually an infectious disease physician, who may or may not serve in hospital epidemiology and infection control, or/ and an infectious diseases or antimicrobial certified pharmacist, ideally but rarely aided by an information technologist.

Biography

My name is Sajid Majeed Hameed, senior in pharmacy practice. I enjoy using my skills to contribute to the exciting clinical pharmaceutical advances that happen every day. I graduated from the University of Philadelphia, faculty of pharmacy at Jordan in 2016 with a bachelor's degree in pharmaceutical sciences. After graduating from the university, I got the membership of the royal pharmaceutical society, British society of antimicrobial chemotherapy, and European society for clinical oncology, I was appointed to Saladin health directorate – as trainee pharmacist in general, I got training opportunity for antimicrobial stewardship program in Dubai 2-5 February 2020. I am



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interested in attending conferences as a speaker, especially on pediatric topics, the latest of which was the Arab Neonatal Group Conference in Dubai 23-25 September 2021. I gave two lectures on neonatal dermatological emergencies & neonatal screening program



The Levels of Interleukin-1 Family Cytokines and Oxidative Stress in Rheumatoid Arthritis Patients in terms of Disease Activity



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Abstract

TRheumatoid Arthritis (RA) is a systemic autoimmune disease that causes chronic inflammation characterized by pain, swelling, and irreversible damage to various joints, mainly synovial joints. The formation and development mechanism of RA has not been clearly elucidated yet. Many factors, including genetic and environmental factors, may contribute to the onset and progression of the disease. Interleukin-1 (IL-1) family cytokines are key signaling molecules in inflammatory diseases. These diseases are often the outcome of excessive oxidative stress which occurs by increasing inflammation, regulating apoptotic cell death, and disrupting immunity. Therefore, this study aimed to assess the levels of interleukin-1 family cytokines and oxidative stress status in RA patients with different disease activities. The mean plasma IL-1 β levels of the patient group were approximately 5.6-fold higher than the control group ($p < 0.001$). Plasma IL-18 levels were 4-fold greater in the RA group compared to the control group ($p < 0.001$). Patients with active disease had 1.9 and 1.5-fold higher IL-1 β and IL-18 levels than patients in the remission period, respectively. Similar to the results of the ILs, plasma reactive oxygen species increased considerably in RA patients compared to the control ($p < 0.001$). Among all groups, the highest levels of IL-1 β , IL-18, and reactive oxygen species were detected in the group of patients with active RA. Data from the



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present study exhibited that increase in the levels of oxidative stress and IL-1 family cytokines can contribute to higher disease activity.

Acknowledgments

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Surface Modified-Nanoparticles for Intranasal Delivery: Formulation and Characterization



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Abstract

Quercetin nanoparticles were produced in this study to overcome quercetin's poor aqueous solubility and to improve drug absorption to the nasal mucosa by increasing drug retention duration utilising a single emulsion approach. The mucoadhesive polymer Eudragit® RS 100 was chosen and employed in the nanoparticle formulations at various drug/polymer ratios. The entrapment efficiency, drug loading, particle size, mucoadhesive property, solubility analysis, in vitro drug release, in vitro drug diffusion, ex vivo permeation study, and histopathological study of the lyophilized nanoparticles were all evaluated. FTIR and XRD studies revealed molecular dispersion and conversion of the drug into amorphous form. SEM was used to examine the size and surface morphology of nanoparticles, which revealed that they were spherical in shape with a smooth surface. Up to 12 hours, in vitro drug release and ex-vivo permeability were determined to be $75.57 \pm 0.87\%$ and 67.79 ± 1.47 percent, respectively, Nanoparticles demonstrated adequate mucoadhesion; however, the mucoadhesive potential of optimised QCT NPs demonstrated a greater percentage of mucoadhesion (73.45 ± 1.16 percent) and had no detrimental effect on nasal mucosa. As a result, QCT NPs based on a Eudragit RS 100 could be a potential nasal administration system that improves penetration profile over time.

Keywords

Quercetin, Eudragit® RS 100, nasal drug delivery, single emulsion technique, solubility, in vitro mucoadhesion.



Nanorobotic Applications in Medicine: Current Proposals and Designs



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Abstract

Advances in technology have increased our ability to manipulate the world around us on an ever-decreasing scale. Nanotechnologies are rapidly emerging within the realm of medicine, and this subfield has been termed nanomedicine. Use of nanoparticle technology has become familiar and increasingly commonplace, especially with pharmaceutical technology. An exciting and promising area of nanotechnological development is the building of nanorobots, which are devices with components manufactured on the nanoscale. This area of study is replete with potential applications, many of which are currently being researched and developed. The goal of this paper is to introduce the emerging field of nanorobotics within medicine and provide a review of the emerging applications of nanorobotics to fields ranging from neurosurgery to dentistry.

Biography

I am studying B.pharmacy in Smt.Sarojini Ramulamma collage of pharmacy at Mahabubnagar from the academic year 2019_2023. I have completed my ssc in the year 2017at Z.P.H.School(government school). And done my intermediate in the year of 2017to2019. From prathibha junior college at Mahabubnagar. Hobbies: Listening music , drawing , reading books. My Aim is to become a medical coder. And I have participated UCPSPU_IPA international webinar in Palamuru University and I got the certificate.



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**Formulation and Evaluation of Spray Dried extract from
Cynara scolymus L**



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Abstract

Cynara scolymus L. is a well known medicinal plant native to the Mediterranean basin, with wide *spectrum of* therapeutic properties, including: antioxidant, hepatoprotective, cholesterol-lowering, antimicrobial and other effects, generally linked to their secondary metabolites *phenol-*derived structures. The paper aims to obtain a spray dried extract from leaves of *C. scolymus* L. and technological processes validation. The fluidized bed granulation technique is currently very often used in pharmaceutical industry because it allows the production of uniform granules. For this purpose the aeromatic fluidized air bed granulator Stearea I, with the following technical parameters: atom pressure 1.5 atm; flow 20-25 λ pm; fan 4; time 45 min and temperature 80°C, was used. The *C. scolymus* L. liquid extracts obtained by *ultrasound-assisted extraction* [1] were sprayed in 5 steps, after each step a respective amount of samples were taken for analysis. The series of granules were subjected to pharmaco-technical evaluation and to quantitative analysis by HPLC and spectrophotometric method for determination in subseries of polyphenol and flavonoid contents. This study showed that the granulate of *C. scolymus* L. present omogeneous physical characteristics and chemical content and induces the possibility of various processing of the granulated product for therapeutic purposes.



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Nanoparticles as an Effective Drug Delivery System in COVID-19



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Abstract

The worldwide healthcare industry has been grappling with a problem known as a Novel Severe Acute Respiratory Syndrome (SARS-CoV-2) since the end of 2019. Covid-19 is the abbreviation for Coronavirus Disease- 2019. It causes pneumonia and a respiratory infection in man that involves a cold, sneezing, and coughing. When it comes to animals, it causes diarrhoea and upper respiratory infections. Covid-19 spread from person to person via airborne droplets. Covid-19 was first introduced in the Wuhan market in China, and it quickly expanded around the globe. Nanoparticles, as we all know, are a revolutionary medication delivery system. They have a number of beneficial impacts, such as improving the drug's efficacy and safety. We look at nanoparticles in this review and see how they work in the Covid-19 drug delivery system. Chitosan is a biopolymeric nanoparticle with a high degree of concentration. It distributes medications to the exact location where they're needed. Chitosan nanoparticles were one of the methods used in a recent health crisis to distribute Covid-19 medicines, mainly in the lungs of the victims. The primary purpose of Covid-19 is to investigate nanoparticles and their future implications as a medicine delivery mechanism. Nanoparticles may be highly useful in the delivery of medications for the treatment of Covid-19, according to our present research. Many cases revealed that patients who received medications via nanoparticles experienced extremely little negative effects.

Keywords

covid-19, nanoparticles, drug delivery system, chitosan.



Nanoparticulate Orodispersible tablet Formulation of Amlodipine Besylate and Preparation Method



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Abstract

Amlodipine besylate is a sparingly soluble orally administered drug and the rate of absorption is often controlled by the rate of dissolution. Reports suggest that the drug has poor water solubility which may be challenging for developing liquid dosage forms of Amlodipine besylate. Hence in the present study, we sought to develop orodispersible nanoparticles to enhance the solubility by an anti-solvent evaporation using stabilizers as PVPK-30, Poloxamer-188, PVA, L-Arginine. We found that the particle size was ranging between 225.7nm-942.7nm and % DEE was 78% - 98% respectively. Among all the formulations, F8 stabilized with Poloxamer-188 and PVA has been found to show 99.2% drug release at the end of 10minutes in both 0.1N HCL and Phosphate Buffer (pH6.8). Through SEM studies we found that the particles were small with no aggregation. Further, the particles (F8) were compressed into tablets F8(f) through direct compression method and characterized based on some selected parameters in comparison with the marketed tablet. We have also observed a satisfactory amlodipine excipient compatibility through FT-IR investigation. DSC and XRD results have illustrated that the crystallinity of drug was lost in lyophilized powder and tablet converted to an amorphous form. Hence, we concluded that optimized formulation of amlodipine could improve the rate of absorption controlled by the rate of dissolution.

Biography

The present invention relates to an Amlodipine besylate orodispersible nanoparticulate tablet dosage form and its preparation method anti-solvent evaporation method and lyophilization. The process for the preparation of amlodipine nanoparticles with significant improvement of solubility and dissolution characteristics. Nanoparticulate orodispersible tablet form of amlodipine besylate is prepared by direct compression method with enhanced bioavailability and improved rate of absorption.



Investigate the Effect of Doxycycline Metal Ion Nanoparticle for Antibacterial Activity



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Abstract

The role of Antibiotic-Metal Complexes (AMC) in the field of modern pharmacy is constantly expanding. In the face of a growing number of drug-resistant bacteria, it is necessary to search for new, more effective and more broadly acting drugs. The complexes of antibiotics with metal ions offer great opportunities in this matter. Doxycycline is a broad-spectrum anti-infective drug indicated for the treatment of numerous infections. Doxycycline inhibits bacterial protein synthesis by reversibly binding to the 30S ribosomal subunit and preventing the association of aminoacyl-tRNA with the bacterial ribosome. Further inhibition of protein synthesis occurs in mitochondria through binding to the 70S ribosomes. The study provides a simple, cost effective and efficient routes for the synthesis of doxycycline with Ag, Cd, Ni, Pd, Zn metal ion nanoparticle with the help of reducing as well as capping agent. Characterization of nanoparticles was performed by UV spectrophotometer, SEM, EDX, FTIR analysis. Antimicrobial evaluation of the nanoparticles against E. Coli, Resistance E. Coli, K. Pneumoniae, Resistance K. Pneumoniae, S. Aureus were studied which reveals that it has excellent antimicrobial activity. The MIC ranged between 5 and 50 ug mL⁻¹. Doxycycline conjugated NPs exhibited more antibacterial effect than doxycycline alone.

Keyword

synthesis, doxycycline, MIC, analysis, metal ion, bacteria, resistance, nanoparticles



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Nanorobotics and Its Applications in Medicine



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Abstract

Nanorobotics is an emerging field of nanotechnology consisting of nanoscale dimensions which is predictable to work at an atomic, molecular and cellular level. To be precise nanorobotics refers to engineering involving designing and building nanorobots and devices ranging from 0.1-10 micrometers. The hypothetical devices have been described by the names such as nanorobots, nanoids, nanites or nanomites. These hypothetical nanorobots are extremely nanodevices which can transverse inside the human body. There are different types of nanorobots such as respirocyte, chromalloycyte, clottocyte, pharmacyte, microbivore and dentifrobots. These nanorobots consist of special nanosensors which can be programmed to diagnose and treat various vital diseases. Nanorobots are also helpful in the drug delivery, which is a very important aspect of treatment. There are many applications for nanorobotic systems but its biggest impact would be in the area of medicine. This article describes all the information about the nanorobots, their structure and design, their types and their applications in medical field.

Biography

I am Faria Naaz, pursuing my Post graduation from Sultan-ul-Uloom College of Pharmacy, in the field of Pharmacology. I've completed my Bachelor's in Pharmacy from Sultan-ul-Uloom College of Pharmacy, and achieved a CGPA of 7.5. I've scored 97.65% and a state rank of 133 in the PGCET competitive exam.



Immunotherapeutic Role of Rifabutin Loaded β -Glucan Microparticles for Targeted Mycobacterial Killing



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Abstract

TB is remains one of the most common deadliest infectious diseases it causes millions of deaths each year in the worldwide. Conventional anti TB therapy are not effective against the TB due to burst release and frequent clearance from the body that reduced the bioavailability of the drug. Now days Yeast derived β - glucan particle-based drug delivery has great therapeutic potential in drug delivery system. It is a natural biopolymer and predominantly found in microbial cell wall as a major constituent. Due to presence of intrinsic biomedical property, it will widely use in the different field such as cancer, diabetes, and TB. It is nontoxic, biodegradable, biocompatible in nature are used in anti TB drug delivery. These particles are Generally Regarded as Safe (GRAS) Approved by USFDA and EFSA. β -GPs are consist glucose residue (β -1-3 linked/1-6 branched). Size of β -GPs are (2 μ m - 4 μ m) Hollow, porous and spherical, it will use to nano embedding and encapsulation of the various anti TB drug (RIF, INH, PZA, and EMB) in targeted manner. β -GPs act as Pathogen Associated Molecular Pattern (PAMPs) and the surface 1-3 glucan compositions of these particles are recognised by the Innate Immune cells surface receptor Dectin-1, FC- γ , CR-3 etc and selectively up taken through receptor mediated phagocytosed. Nano embedding of β -GPs is achieved by the physical entrapment of the anti TB drug molecule within β -GPs and Pores is partially sealed by crosslinking of hydrogel. These anti TB Drug embedded β -GPs enhance the



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bioavailability (Controlled & Sustained Manner) of intracellular drug in targeted manner within macrophage and caused the mycobacterial killing.

Keywords

β -glucan, Dectin-1, Tuberculosis, drug delivery.



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Perspectives on Nano Nutrients to Treat Covid-19 Infections Before and After They Occur



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Abstract

Precision nanomedicine uses optimized therapeutic bio-compounds supported by bio-acceptable Nano systems to promote health by maintaining body structure, organ function, and regulating chronic and acute impacts. As a result, nano-nutraceuticals (made to destroy viruses, block virus binding to receptors, and so on) are becoming increasingly popular. COVID-19 pre/post-infection effects can be managed with the use of support immunity. To learn more about these approaches, in this mini-review, we look at optimal bio-active chemicals, their ability to influence SARS-CoV-2 infection, and other topics. Improvement in performance, aided by a precise nanomedicine approach, as well as difficulties and opportunities.

SARS-CoV-2 is not the only virus affected by such tailored pharmacologically relevant therapeutic payload; it also supports other viruses. Neurological functions, for example, are among the organs that have seen functional changes as a result of SARS-CoV-2. Hence, combining nutraceuticals with Nano pharmacology for increased efficacy through targeted delivery action can open a new path to better health.

Keywords

Nanomedicine, Nano-nutraceuticals, Nano pharmacology, Targeted delivery action.



Review on Enhancement of Bioavailability of Gold Nanoparticle



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Abstract

Nanoparticle is a small particle that range between 1 to 100 nanometer in size. Undetectable by human eye, Gold nanoparticles are the most extensively used nanoparticles due to their exceptional optical, electrical and thermal properties. Aim of nanoparticle formulation is to enhance the bioavailability of the poorly water soluble drug and reduce the uptake by reticuloendothelial system and target drug molecules to a specific organ. Gold nanoparticles have great role in drug delivery system and greater potential for many drug application including anti-tumor, gene therapy, AIDS therapy, radiotherapy, in the delivery of protein antibiotics, vaccines and as vesicle to pass the blood brain barrier. Solubility of the gold nanoparticles greatly influences by its particle size and ability to penetrate biological membrane and to give action. The presence of solid particle in nano range affects its solubility, dissolution as well as bioavailability. When the drug administered as a solid oral dosage form needs to first dissolve in Gastro Intestinal (GI) fluid then be absorbed through intestinal mucosa into the bloodstream from where it is distribute throughout the body but in case of poorly soluble drug. The methods like i.e solubilization, solid dispersion, micellar solubilization and complexation has leads to nanonization and nanoparticles formulation. Generally nanonization is the increase in surface area and concentration gradient of these poorly soluble compounds followed by an increases dissolution rate of the compound according to Noyes whitney equation. The drug dissolution rate directly proportional to its particles surfaces area in contact with the dissolution. Therefore the increase surface area of nanoparticles will consequently result in an enhanced dissolution as well as the saturation solubility of poorly water soluble drug (e.g Spirontactone Nanoparticles). The enhanced drug dissolution rate will turn results in improving its oral absorpation rate and bioavailability. In case of intravenous administration the nanocrystal can be formulated as nanosuspension for injection. The drugs which have high crystal energy i.e high melting point reduce the solubility of drug substance. By nanotechnology the drug is maintained in the required crystalline state with reduce particle size and this causes an increase dissolution rate and therefore improved bioavailability. Gold nanoparticles are one of the most extensively investigated metallic nanoparticles for several application. They are highly soluble, less toxic than other nanoparticlse and greater ability to penetrate the biological membrane. The



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exceptional electrical and thermal conductivity of gold make it possible to be administered as non-invasive radiofrequency irradiation therapy that produces sufficient to kill tumor cells.

Key words

Nanoparticle, Tumor, Surface area, Poorly soluble, Dissolution, Bioavailability.

Biography

IMDAD HUSEN MUKERI is a first-year Master of Pharmacy (Pharmaceutics) student at the Jawaharlal Nehru Technological University Hyderabad-500085, Telangana India. He had received a Bachelor of Pharmacy degree with an A+ Grade from Sam Higginbottom University of Agriculture Technology and Sciences, Prayagraj Uttar Pradesh India. He is currently awarded in 2021 for ICCR scholarship in the master's program at JNTUH. He has published one review and two research articles in different international journals. His current field of interest is Nano Formulation Development and evaluation. He was organizing more than five different webinars sponsored by the American chemical society on a different themes as a university students coordinator. Imdad H. Mukeri has received several first and second prizes for oral and poster presentations in Bachelor's time at university.



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Theranostics Nanomedicine: Recent Progress, Applications and Challenges



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Abstract

Theranostics has the potential to transform the diagnosis, treatment, and prediction of cancer, where novel drug delivery systems could be used to detect the disease at an early stage with immediate line of treatment. Many advancements have been made in diagnosis and treatment tools with the progress in modern medicine and technology. This field is driven by advancements in nanoparticle systems capable of providing the necessary functionalities. By utilizing these powerful nanomedicines, the concept of personalized medicine can be realized by tailoring treatment strategies to the individual. Theranostics are multifunctional nanomaterials that combine therapeutic and diagnostic functions in a single nanostructured system. Theranostic nanomedicines are highly suitable systems for monitoring drug delivery, drug release and drug efficacy. The incorporation of diagnostic and therapeutic agents within a single system provides the target site localization and accumulation of nanomedicines in organs. It provides a transition from conventional medicine to personalized medicine. Theranostics approach includes personalized medicine, pharmacogenomics, and molecular imaging to develop efficient new targeted therapies which will help in better and optimize drug selection along with monitoring the therapy response to increase drug safety and efficacy. This review summarizes the various recent nanocarriers developed for nanotheranostics, such as Polymeric, drug polymer conjugates, dendrimers, micelles, liposomes, metallic, inorganic nanoparticles, and carbon nanotubes.

Keywords

Theranostics, Nanomedicine, Nanoparticles, Personalized therapy, Liposomes, Targeting



Formulation and Evaluation of Timolol Maleate Proniosomal Gel for Ocular Drug Delivery



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Abstract

Background: The aim of the present study was to formulate and evaluate an ocular effective prolonged proniosomal gel derived niosomes formulations of Timolol maleate for the treatment of glaucoma.

Materials and Methods: Timolol maleate loaded proniosomal gel derived niosomes was prepared by phase co acervation method using Cholesterol, Lecithin, Span 60, Brij 72, and Tween 80 in different concentrations. Optimized batch of proniosomal gel derived niosomes was selected based on the results of entrapment efficiency and *in-vitro* release results. Timolol maleate proniosomal gel derived niosomes was prepared by dispersing proniosomes in to *in-situ* gelling system. Interaction studies were confirmed by Fourier Transforms Infrared Spectroscopy (FTIR) studies. The effect of surfactant and additives on entrapment efficiency and *in-vitro* drug release behaviour of Proniosomal gel derived niosomes was evaluated. co acervation method using Cholesterol, Lecithin, Span 20, Brij 72, and Tween 80 in different concentrations. Optimized batch of proniosomal gel derived niosomes was selected based on the results of particle size, polydispersity index, zeta potential results. Timolol maleate proniosomal gel was prepared by dispersing proniosomes in to *in-situ* gelling system.



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Drug-Device Combination Products: Regulatory Landscape



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Abstract

A combination products, is one which comprises of a medical device and a drug or a medical device and a biologic agent(s), leading to safer and more effective treatments. Many drug–device combination products, have demonstrated clinical success and result in a significant improvement in the quantity of human life. These inventions can especially benefit in patients suffering from serious conditions such as cancer, heart disease, multiple sclerosis and diabetes, among others. On the other hand, drug-device combination products have also introduced a new dynamic in medical product development and regulatory approval.

Due to the increasing integration of drugs and devices observed of late in the combination products, regulatory agencies have developed specific competences and regulations over the last decade. Manufacturers are required to fully understand the specific requirements in each country in order to ensure timely and accurate market access of new combination products, and the development of combination products involves a very clear understanding between manufacturers and regulatory agencies. The increased sophistication of the products brought to market has increased the need to develop drugs and devices collaboratively using resources from both manufacturer and regulatory agencies.



Formulation and Evaluation of Intranasal Mucoadhesive Nanoparticles of Agmatine for Epilepsy



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Abstract

The aim of present investigation is to develop and evaluate mucoadhesive nanoparticles of Agmatine for intranasal drug delivery in epilepsy. Agmatine-Phospholipid Complex (Ag-PLC) loaded nanoparticles were formulated by emulsion-solvent evaporation method. This formulation was then characterized using various physicochemical methods including percentage yield, particle size, zeta potential, drug content, entrapment efficiency, in-vitro diffusion and ex-vivo distribution studies were performed. The agmatine nanoparticles with 0.2% chitosan and phospholipid formulation had a particle size 367.33 nm, which was suitable for nasal administration. Agmatine loaded chitosan nanoparticles showed drug content in the range from 30.22±1.21% to 43.54±1.25%, drug entrapment efficiency from 97.43±1.83% to 98.17±1.50% and zeta potential was found to be -2.84 mV respectively. Results of in-vitro drug diffusion studies indicated that the rate and extent of drug release from nanoparticles were significantly retarded with an increase in polymer concentration. The drug release was found to be 91.58 ± 2.74 which was relatively high compared to other batches. This is particularly important for prompt absorption of drug to reach the desired drug concentration in plasma after nasal administration. Thus, intranasal administration of agmatine loaded mucoadhesive nanoparticles may be appropriate and valuable drug delivery system for the chronic and acute attacks of epileptic seizures.

Key words

Agmatine, Nanoparticles, Intranasal administration, Mucoadhesion, Epilepsy



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Nanotechnology for Surgeons



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Abstract

Surgeons are constantly looking for minimally invasive ways to treat their patients, as recovery is faster when a lesser trauma is inflicted upon a patient, scarring is lessened and there are usually fewer complications in the aftermath of the operation. Through nanotechnology, tiny biosensors can be constructed which could take these factors into account, thus shortening a patient's recovery period and saving hospitals money, reducing infection rates within the hospital, reducing the waiting lists for operation, and allowing doctors to treat more patients in the same period. One of the greatest achievements of nanotechnology in surgery will be what we call the "ideal graft"; that is, biocompatible and durable "repairs" of parts of the body like arteries, joints or even organs. At first, these repairs will be used for healing, but soon afterwards, they will be used for transcendence: to enhance current human abilities.

Biography

I am studying in Smt. Sarojini Ramulamma College of pharmacy. My schooling in Lumbini high school and Apex central school completed my intermediate in Shraddha Junior college, my aim to become a good pharmacist.



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Cubosomes - A Novel Drug Delivery System



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Abstract

Cubosomes are one of the recent drug delivery system characterized by a honey comb structure that encompasses two continuous layers of water and lipid. They differ from liposomes as they can encapsulate water soluble, lipid soluble and also amphiphilic molecules particularly proteins and peptides. Cubosomes also offer a high particle volume, large breaking resistance and good biodegradability. Cubosomes are preferred for the delivery of poorly water soluble drugs and to have a sustained release of drugs. Owing to their bio-adhesive property, this mode of delivery can be conveniently used for the topical and mucosal drug delivery systems. This thermodynamically stable preparation is characterized by its viscous nature and hence finds wide application in the oral, topical and intravenous drug delivery system. As cubosomes resemble epithelium cells, drugs entrapped in cubosomes can penetrate easily resulting in the enhanced bioavailability. Novel mucosal and ocular drug delivery systems with enhanced bioavailability and tolerance were reported by earlier researchers. Enhanced brain delivery of drug was also achieved through the intranasal delivery of drug using the cubosomal model for the treatment of Alzheimer's disease. The properties like kinetically stable lower viscosity, greater endurance to heat and better storing stability at room temperature makes them superior than that of liposomes.

Biography

Katta. Manogna and K. Lakshmi, Department of Pharmaceutical Chemistry, Chettinad School of Pharmaceutical Sciences, Chettinad Academy of Research and Education, Chettinad Health City, Kelambakkam - 601 103, TamilNadu, India.



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The Application of Nanotechnology as a Strategy for Essential Oil-Based Formulations with Antimicrobial Activity



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M.S. Umashankar

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Abstract

One of the major challenges in the treatment of infections is the resistance of bacteria and fungi to numerous antimicrobial agents; this necessitates the search for and discovery of new sources of antimicrobial substances. Essential oils are aromatic oily liquids derived from various plant parts. These compounds, which are known for their medicinal properties, primarily antimicrobial, can easily undergo oxidation reactions, resulting in allergenic products and/or products with lower biological activity. Because of their ability to improve the solubility, stability, and efficacy of essential oil-based formulations by maintaining therapeutic drug blood levels, these oils have been nanoencapsulated in drug delivery systems. Polymeric nanoparticulate formulations, for example, have been extensively studied and shown to significantly improve essential oil antimicrobial activity. Similar findings were obtained in studies focusing on lipid carriers, such as liposomes, solid lipid nanoparticles, and nanoemulsions. In addition, other novel carriers have been used, yielding intriguing results.

Key words

Nanotechnology, Essential Oils, Antimicrobial activity, and Drug delivery systems.

Biography

Mr. Koushik Yetukuri is a Ph.D. candidate in the Department of Pharmaceutics at SRM Institute of Science and Technology in Chennai, as well as an Assistant Professor at Chalapathi Institute of Pharmaceutical Sciences in Guntur. He has 5 years of industrial experience in the areas of Quality Assurance and Regulatory Affairs, in addition to 4 years of academic experience. He published numerous articles in high-impact-factor national and international journals.



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Impact of Nanomedicine on Health Care



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Abstract

Nanotechnology is expected to be promising in many fields of medical applications, mainly in cancer treatment. While many very attractive exploitations open for the clinics, regulatory agencies are very careful in admitting new nanomaterials for human use because of their potential toxicity. Nanodrug share several properties that are useful in innovative therapy the active molecule entrapped in a shell while circulating shows low systematic toxicity and escapes clearness. The different nanocarriers used to transport and release the active molecules to the target tissues should be treated as additives, with potential side effects of themselves or by virtue of their dissolution or aggregation inside the body. It also has ability to target damaged tissue and promotes sustained and prolonged local release of the drug. Only recently has a systematic classification of nanomaterials been proposed, posing the basis for dedicated modeling at the nanoscale level. The use of in silico methods, such as nano-QSAR and PSAR, while highly desirable to expedite and rationalize the following stages of toxicological research, are not an alternative, but an introduction to mandatory experimental work. Meanwhile, public health applications of nanomedicine such as rapid and portable diagnostics and more effective vaccinations have the potential to revolutionize global health.

Biography

I am student of B pharm 3rd year, in Smt. Sarojini Ramulamma College of pharmacy, my schooling in sr. Digi. School hyd (8.2%) Intermediate: Narayana medical College hyd (7.3%) My aim is to become a medical coder. Hobbies: drawing, music, travels with my buddies.



Formulation and Optimization of Mucoadhesive Nanoparticles for Intranasal Administration for Effective Treatment of Alzheimer's Disease



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Abstract

Intranasal route of administration is a promising method to achieve drug delivery directly to the Central Nervous System, as it allows therapeutic agent to reach the brain via neural pathways such as olfactory and trigeminal nerve, bypassing the Blood Brain Barrier. The study was aimed to develop nanoparticles of agmatine, a drug effective in treatment of neurodegenerative disease like Alzheimer's Disease, using mucoadhesive polymer chitosan for nasal delivery. The nanoparticles were formulated by antisolvent crystallization method and characterized by determination of % practical yield, particle size, drug content, entrapment efficiency, zeta potential, in vitro drug diffusion, Ex-Vivo bio adhesion study. The release of optimized batch was found to be 82.05 ± 1.81 . Zeta potential value confirms the repulsion among particles thereby stabilizing the nanoparticles. Agmatine loaded chitosan nanoparticles showed good bioadhesion with 93.1% bio adhesion potential. Thus, intranasal administration of agmatine loaded mucoadhesive nanoparticles may be appropriate and valuable drug delivery system for Alzheimer's disease.

Keywords

Intranasal Administration, Nanoparticles, Agmetine, Alzheimer's Disease.



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Role of Nanotechnology in the Treatment and Management of Osteoporosis



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Abstract

Bone is a dynamic tissue that continuously undergoes the modeling and remodeling process to maintain its strength and firmness. Bone remodeling process is maintained by functioning of osteoblast and osteoclast cells. Osteoporosis is caused due to imbalance between functioning of osteoclast and osteoblast cells. It is diagnosed by measuring Bone Mineral Density (BMD) and various osteoblast and osteoclast cell markers. Current medications available for osteoporosis aren't viable due to their adverse effects associated with them and low patient compliance. To overcome these disadvantages, nanotechnology based systems are upcoming field with various advantages such as site-specific targeting, precise drug release kinetics and improved bone mineral density. Relevant literature reports have been studied and data collected using various search engines like google scholar, scihub, sciencedirect, pubmed etc. A thorough understanding of mechanism of bone targeting strategies has been discussed and related literature has been studied and compiled. Nanomedicines and nano delivery systems have been utilized to deliver active moiety to the precise targeted site in a controlled manner and also it serves as a means of diagnostic tools. The utilization of nanomedicines is expanding vigorously with the promise of targeted and efficient drug delivery. There is an urgent need for the development of biocompatible and appropriate drug delivery systems such as nanoparticles, liposomes, hydrogels, dendrimers, micelles, mesoporous particles, etc. These carriers enhance the drug delivery and therapeutic effectiveness in cells/tissues.



Dendrimers as Self Propelled Vehicle for Cardiovascular Bioactivities – A Review



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Abstract

In the last two decades, dendrimers have tested their skills in drug transport, physical stabilization of the drug, solubility enhancement of the poorly soluble drugs and gene transport. Key features of dendrimers like amazing management over molecular structure, nanoscopic size, availability of more than one functional organization at the outer edge and slender polydispersity index distinguish them among the available polymers. Diversity of bio-actives loaded in dendrimers due to covalent and non-covalent interactions, including hydrogen bonding and hydrophobic interaction contribute to the bodily forces for binding of bioactives. The key gain of drug loaded dendrimers is the behind schedule and sustained release of bioactives due to the encapsulation of the drug in the hydrophobic cavities of the dendrimer that acts as a source to preserve the drug molecules for extended period. Because of those capabilities' researchers are particularly enthusiastic about the capability application of dendrimers as a drug diffusion service. Collectively, this overview makes a specialty of exact note at the delivery and improved solubility of poorly soluble anti-cardiovascular bioactives, Nitric Oxide (NO) donor for anti-thrombosis, gene transport and shipping of receptor agonists for cardio protecting action.

Keywords

Dendrimers, Polydispersity index, Bioactives, Encapsulation, Drug diffusion service, Anti thrombosis



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Biography

Meenakshi is a third-year b pharm student at Chettinad School of Pharmaceutical Sciences. She is a budding researcher; her primary research interest is on the novel drug delivery systems.



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Nanodiamond Mediated Molecular Targeting in Pancreatic Ductal Adenocarcinoma : Disrupting the Tumour- Stromal Cross Talk



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Abstract

Pancreatic Ductal Adenocarcinoma (PDAC) is one of the foremost causes of cancer-related morbidities worldwide. Novel nanotechnology backed drug delivery stratagems, including molecular targeting of the chemotherapeutic payload, have been considered, but no quantum leap in the gross survival rate of patients with PDAC has been realized. One of the predominant causes behind this is the tumor desmoplasia, which is a dense and heterogeneous stromal extracellular matrix of the tumor, aptly termed as the Tumor Microenvironment (TME). It plays a pivotal role in tumor pathogenesis of PDAC as it occupies the majority of the tumor mass, making PDAC one of the most stroma rich cancers. The complex crosstalks between the tumor and dynamic components of the TME have an impact on tumor progression and pose as a potential barrier for drug delivery. Nanodiamonds due to their unique surface characteristics have emerged as a promising nanodelivery system in various pre-clinical cancer models and have the potential to deliver the chemotherapeutic payload by moving beyond the dynamic tumor- stromal barrier. It can be the next revolution in the arena nanoparticle mediated pancreatic cancer targeting.

Biography

Mohini Singh is presently a Research scholar at the Department of Pharmaceutical Sciences, Dibrugarh University, Dibrugarh, Assam. She is carrying out her doctoral research in development of a novel plant based nano-particulate anti-cancer formulation, for the treatment of Pancreatic ductal adenocarcinoma, under the guidance of Prof. B. Mazumder. She received the prestigious IDMA gold award by Indian drugs manufacturing association for securing first rank in her B.Pharm course in the year 2013. Her GPAT All India Rank is 373(2020). She has a diverse work experience of four years, which involved working in clinical research, Quality control, Quality Assurance and drug Regulatory affairs in the pharmaceutical sector.



Preparation, Optimization, Characterization and Cytotoxicity Study of Glibenclamide Nanoparticles



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Abstract

Aim/Background: Glibenclamide a hypoglycemic agent, was loaded into nanostructured lipid carriers, and the solid and liquid lipid concentrations in the formulation were optimized using central composite design with two center points using software JMP pro 13. **Materials and Methods:** The central composite design was used to optimise the concentration ratio based on the response's particle size and drug entrapment. The hot homogenization technique with ultrasonication was used to prepare the nanostructured lipid carriers, and the optimised formulations were tested for various physicochemical, morphological, histological, and toxicity parameters. **Results:** The central composite design framework was impactful in determining the optimal lipid concentrations. The morphological properties of the nanoparticle were revealed using scanning electron microscopy and atomic force microscopy. The results of differential scanning calorimetry confirmed that the drug was molecularly dispersed in the lipid matrix of the formulated optimized nanoparticle. A cell viability study in baby hamster kidney-21 cell culture confirmed the nanoparticles non-toxicity. **Conclusion:** The study comprehended the practicability of the design paradigm in optimization and estimation of the influence of solid lipid and liquid lipid concentrations on response particle size and drug entrapment efficiency

Biography

Mrs Ashwini M is a research scholar at Krupanidhi college of Pharmacy Bangalore. she has more than 8 years of teaching and research experience. she completed her B pharm and M pharm from Nitte Gulabi Shetty Memorial Institute of Pharmaceutical Sciences, Mangalore. Her area of expertise include nanotechnology, design of experiment, sustain drug delivery, targeted drug delivery, diabetology.



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Nanotherapeutics and It's Diagnosis on Cancer Treatment



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Abstract

Nanotechnology is having an significant attention world widely for cancer treatment. Nanotechnology is an application for Nano medicine used for diagnosis the diseases and treatment for the disease that includes the preservation and improvement of human health. Nanomaterials can loosely defined as engineered macromolecules with in the size range of 1- 1000 nanometers. Cancer is difficult to treat because it is disease caused by your own cells getting your own body to kill itself can be a quite a challenge . Using nanoparticles as a minidelivery vehicles, this vehicle allow more of the therapy whether it is a drug gene or an antibody to reach the tumors more efficient. Nanoparticlesalso activate immune cells. Nanoparticles are being used as Nano medicine which participates in diagnosis and treatment of various disease including cancer. Nanotherapeutics overcomes the problems offered by the traditional drugs, side effects providing and means to use non-invasive routes of administration rather than injection.

Biography

P.Laxmi prasanna was completed intermediate in Vagdevi junior college Mahabubnagar. Now, Studying B.Pharmacy in Smt.sarojini Ramulamma college of pharmacy, Mahabubnagar, she want to study M.pharmacy in pharmaceuticals.



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Nanoparticle for Targeting Cardiovascular Disease



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Abstract

Cardiovascular disease are the major reason for increasing the mortality rate worldwide. Preventative health, diagnostic, and treatment for cardiovascular disease are not helpful, it requires an alternative methods. Nanomedicine and nanomaterial is an emerging field in the area of cardiology, helps to cure disease, good prognosis and less negative impacts on non-target cells. Nanoparticle and nanocarrier has gathered much attention for targeting actively as well as passively to enhance the sensitivity. Over 50% of cardiovascular events can be successfully treated through nanomaterial. The most objective of this abstract is to investigate the latest advances in nanoparticle-based cardio - vascular delivery systems. This summary also encapsulates the problems involved with the conventional treatment that can be compared to the nanomedicine targeting the cardiovascular diseases.

Keywords

Nanoscience, cardiovascular disease.



Formulation and Evaluation of Anti-inflammatory Activity of Hesperidin Nanoparticles



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Abstract

Nanotechnology encompass a range of techniques instead of a single discipline and extends to the whole spectrum of science, touching medicines, physics, engineering and chemistry. Targeted delivery of ingredients to a particular cell type or receptor. It is capable of heat triggered local release. Nanoparticles are composed of non-biodegradable polymers such as methylmethacrylate or it can also be made from biodegradable polymers such as alkylcyano acrylate and albumin. There are numerous method to manufacture nanoparticles, allowing extensive modulation of their structure, composition and physiochemical properties. Formulation of Hesperidin nanoparticles using Egg lecithin and Soylecithin in the ratios 1:1 and 1:2. Characterization of nanoparticles and invitro studies of drugs has been performed. In vitro studies of each polymer was evaluated that the Soylecithin was exhibiting more anti-inflammatory activity than Egg lecithin. Anti-inflammatory activity of Hesperidin may help in controlling cytokine storm and it shreds of evidence support the promising use of Hesperidin in the treatment of COVID 19.

Keywords

Nanoparticles, Hesperidin, Egg lecithin, Soylecithin, Anti-inflammatry.



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The Permeability Potential of Targeted Self Nano-Emulsifying Drug Delivery Formulations of an Experimental Drug



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Abstract

In the present study, Self-Nano Emulsifying Drug Delivery System Formulations were prepared using combination with Labrafac, Tween 80 with different combinations of PEG 200, PEG 300, PEG 400. Ternary phase diagrams are plotted to find out the stable nanoemulsion formation region. The size and zeta potential of optimized formulations were found to be 117.9 nm and 23.3 mV. The solubility and in vitro release performance in self-nano emulsifying drug delivery system formulations was improved significantly as compared to pure drug and the permeability studies confirmed it. The permeability studies revealed that there was an increase in permeation of self-nano emulsifying drug delivery system formulation compared to pure drug with 50% increase from formulation compared to pure drug. The solid SNEDDS were developed using Neusilin as carrier with for adsorption having excellent good flow properties. They showed an excellent drug release of 99% within 10mins. Self-Nano Emulsifying Drug Delivery System Formulations showed significantly higher drug release when compared to pure drug.

Biography

Gannu Praveen Kumar, who is currently working as Professor and Principal in Sahasra Institute of Pharmaceutical Sciences since April 2014, graduated from H K E's Society College of Pharmacy, Gulbarga University in 1997, Post Graduated from BITS, Pilani in 1999 and PhD from UCPS, Kakatiya University in 2009. He has published in both national and international journals and is deeply connected with philosophy lectures. He received Gem of India award in the year 1999. He is an advisor for few pharmaceutical companies. He visited foreign countries like London, Dubai, Singapore, Malaysia and Spain as invited speaker.



A New Approach to Transdermal Drug Delivery Using Transfersomes-Based Nanoencapsulation: A Research Update



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Abstract

A primary goal of these delivery systems was to provide patients with greater convenience. This drug delivery technology is a specially constructed artificial vesicle that resembles cell vesicles and is appropriate for controlling and potentially targeted medication administration. Because they are formed of natural phospholipids, like liposomes, they are biodegradable and biocompatible. They are made up of phospholipids such as Phosphatidyl choline, edge activators such as sodium cholate, and a little amount of ethanol. Transfersome drug delivery works via two processes. For starters, as drug vectors, they remain intact after penetrating the skin. Second, they operate as penetration enhancers, breaking the stratum corneum's highly structured intercellular lipids. Based on data that it is effective without causing skin irritation, this medication delivery technique is preferred for the treatment of skin cancer. This review gives an important overview of transfersomes as drug delivery vesicles' properties, composition, manufacturing processes, formulation examples, characterization, succinct assessments of published publications and applications, and so on.

Key words

Transfersomes, Vesicular drug delivery systems, Transdermal.



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Biography

Dr. J. Rajkumar obtained his Doctorate from GITAM University, Vizag. He is currently worked at Vaageswari College of Pharmacy, Karimnagar, Telangana, where he is a professor of pharmaceutical sciences. Rajkumar has extensive research experience in the fields of formulation design and new drug delivery methods. He has also worked with undergraduate and graduate students on their project work. He also serves as a reviewer for numerous journals that are included in the Scopus index.



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Nanotechnology for Cancer Treatment



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Abstract

Nanotechnology facilitates conjugated nanoparticles and allows easy detection of early stages of the disease these particles allow to target cancer drugs they are generally low in proportions. They have physiochemical properties like ultra-size, large surface area, and high reactivity. They help in therapeutic approaches and targets multifunctionality and help in improving new cancer therapeutics. Here chemotherapy was the first choice of treatment but they also include some limitations like stability and aq. solubility. Recently gold nanoparticles got the most interest of scientists mainly due to their high optimized protocols for the production of gold nanoparticles and their biomedical applications gold nanoparticles are used in innovative therapies. They provide an upgrade in traditional treatments. As nanoparticles are small in size, they are biosafe, loading of drugs and physical therapy have been increased.



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Synthesis and Evaluation of Cubosomes



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Abstract

Cubosomes are characterized as soft Nano particles, which are prepared to activate the lipids (e.g.-monoolein or phytantriol) in water. Cubosomes are made up of two separate aqueous channels formed by lipid bilayer which is non-intersecting and 3-dimensional. Cubosomes constitute unique features which allow the acceptance of lyophilic, hydrophilic and amphiphilic drugs. Here, excipients used are monoolein or phytantriol which are biocompatible and biodegradable in nature. Cubosomes have highly stable cubic shape which provides greater dissolution, improved drug retention and good stability, thus Cubosomes with these loaded features show wider range of acceptance. Cubosomes have a wide range of applications, these lyotropic cubic liquid crystalline Nano particles have gained popularity as effective carriers for the solubilization of variety of drugs to enhance the bioavailability. Its main components are amphiphilic lipid, water and stabilizer. Cubosomes can conveniently be prepared by top/down and bottom/up process. It also has additional methods for preparation like solvent evaporation method, ultra-sonication method, spray drying method, hydrotrope method etc.

Keywords

Phytantriol, lyotropic cubic liquid crystalline Nano particles, Drug retention.



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**Current Status and Emerging Applications of Nanofibers in
Bio Medical and Pharmaceutical Drug Delivery**



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Abstract

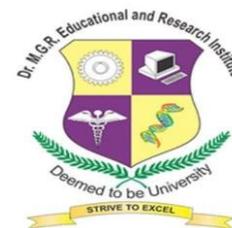
Nanotechnology, which includes nanoparticles, nanofibers, nano micelles, and nanosized particle formulations plays an important role in identifying novel methods used to produce innovative products. Nanofibers are small, solid fibrous substances whose diameter ranges from few nanometers to 1000nm that show improved properties compared to materials of larger dimensions. They have unique characteristics like small size and stability, making them suitable carriers for drug delivery at specific sites in the body. There are various techniques reported for nanofibers preparation, such as, self-assembly, phase separation, and electrospinning, and each one has its advantages and disadvantages. Nanofibers have wide pharmaceutical and biomedical applications and other applications such as energy generation and storage, water treatment and environmental remediation, and healthcare, biotechnology, and biomedical engineering due to their unique structural design and physicochemical properties. Nanofibers have been widely used to prepare drug-loaded scaffolds for various applications such as biomedical, tissue engineering, regeneration of human bone, cartilage, vascular tissues, and tendons/ligaments and wound healing. In the present review, we have outlined current status and emerging applications of nanofibers in pharmaceutical drug delivery, and biomedical fields along with the.

Keywords

Biomedical applications, Drug delivery, Nanofibers, Biotechnology, Pharmaceutical application



Bioactive Nanotherapeutic Trends to Combat Triple Negative Breast Cancer



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Abstract

Triple-Negative Breast Cancer (TNBC) is the most aggressive subtype of breast cancer, accounting for the majority of breast cancer-related death. The management of aggressive breast cancer, particularly, Triple Negative Breast Cancer (TNBC) remains a formidable challenge, despite treatment advancement. Although newer therapies such as atezolizumab, olaparib, and sacituzumab can tackle the breast cancer prognosis and/or progression, but achieved limited survival benefit(s). Cancer nanomedicine has transformed the landscape of cancer drug development, allowing for a high therapeutic index. The current research efforts are aimed to develop and implement strategies for improved bioavailability, targetability, reduce systemic toxicity, and enhance therapeutic outcome of FDA-approved treatment regimen. This poster presents various nanoparticle technology mediated delivery of chemotherapeutic agent(s) for breast cancer treatment. This also documents novel strategies to employ cellular and cell membrane cloaked (biomimetic) nanoparticles for effective clinical translation. These technologies offer a safe and active targeting nanomedicine for effective management of breast cancer, especially TNBC.

Keywords

Nanomedicine, breast cancer, targeted delivery, drug therapy, drug resistance.



Formulation, Development and Evaluation Nano Based Drug Delivery System for Docetaxel



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Abstract

Background: Folic Acid (FA) has been used for target-specific drug delivery because of strong affinity to Folate Receptor (FR), a marker in cancerous cells. Conjugation of FA to the cytotoxic agents via active targeting can improve efficacy, biodistribution, and water solubility. To be able to benefit from passive targeting as well, a nanoparticulate system by using block copolymer Pluronic F68 may lead to a perfect delivery system.

Methods: To overcome the drawback of the current cancer therapies, Folic Acid-PF68 (FA-PF68) conjugate was prepared and used to formulate PF68-DTX and FA-PF68-DTX micelles by Thin Film Hydration Method (THF) and optimized. Optimized formulation was characterized for various physicochemical parameters and in vitro release as well as cytotoxicity study.

Results and discussion: The particle size of optimized batch of FA-PF68-DTX micelles and PF68-DTX micelles was found to be 152.2nm and 52.2nm and polydispersity index was found to be 0.500 & 0.514 for FA-PF68-DTX micelles and PF68-DTX micelles respectively. Zeta potential (ζ) was found to be -15.1mV and -16.1mV respectively. The in-vitro drug release from conjugated micelles by diffusion sustained release mechanism at the end of 24hrs was found to be 80.25±1.53%. Cytotoxicity was performed over the MBA-MD231 cancer cell line by using MTT assay and revealed that %cell viability of human breast adenocarcinoma cells was significantly lower for FA-PF68-DTX micelles than DTX solution.



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Conclusion: From the overall results obtained during this study and from the present experimental data, it was concluded that the FA-PF68-DTX micelles have more potential as compare to the PF68-DTX micelles, because of their higher % entrapment efficiency, %drug release and less cell viability in cytotoxic study.

Keywords

Folic acid, Folate receptor, Polymeric Micelles, Docetaxel, Conjugation, Nano based drug delivery.



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Design, Synthesis and Evaluation of Gemcitabine Self-Assembled Nanoparticles for Improved Chemotherapeutic Potential *In-vivo* in Mice



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Abstract

Gemcitabine is an anti-neoplastic drug, used clinically to treat several cancer, including pancreatic, breast, liver, ovarian, and lung. However, this drug have several limitations, including, low plasma half-life because of its rapid metabolism in systemic circulation due to enzyme cytidine deaminase, high dose (1000-1200 mg/m²) and associated toxicities. To overcome these limitations, we have conjugated 4-(N) position of gemcitabine with PCL-PEG co-polymer through amide linkage which form self-assembled nanoparticles after dispersion into water. First, triblock of HO-PCL-PEG-PCL-OH was synthesized and gemcitabine was conjugated. The conjugation was confirmed with NMR, UV and FTIR. The NPs was freeze dried to obtain solid powder and further characterized for their particle size, zeta potential, Transmission Electron Microscopy (TEM), X-ray Powder Diffraction (XRD) and loading efficiency. Cell cytotoxicity studies were performed in MCF-7, A549 and 4T1 cells. The formulation showed improved cytotoxicity, apoptosis, intracellular localization and MMP as compared to free drug. The efficacy study of the nanoparticles was evaluated in 4T1 bearing balb/c mice. The in vivo data demonstrated better therapeutic efficacy of the nanoparticles as compared to the free drug. The study showed that self-assembled nanoparticles of gemcitabine could be a potential delivery option for improved therapeutic efficacy of a gemcitabine.

Biography

Shweta Paroha (ICMR-SRF) is a Ph.D. research scholar under supervision of Prof. Pravat K Sahoo, head, Delhi Institute of Pharmaceutical Sciences and Research (DIPSAR), New Delhi. Her area of research is formulation development for new therapeutic leads (NCE) and existing drugs, freeze drying and particle characterization, novel drug delivery system for enhanced efficacy and bioavailability of therapeutics, polymer drug conjugation for target specific delivery of small molecule. She has six research paper and five book chapter in her credit.



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Nanoparticles: Proressive and Bright Technology in Diabetic Wound Therapy



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Abstract

Wounds which are associated to diabetes mellitus patients are the most severe co-morbidity, which may lead to necrosis of the cell when it is progressed. Statistics on the recent status of the diabetic wounds revealed that amputation of limbs occurs in 20% of diabetic patients. There are Conventional therapies for treating the wounds but which are ineffective. Due to changes in the molecular architecture of the injured area these therapies are ineffective, which is urging the novel deliveries for effective treatment. Therefore, recent researches are made to develop new and effective wound care methods. It is evident in literature that, potential tools in topical drug delivery for wound healing is under the sunshade of nanotechnology, where nano-scaffolds and nanofibers have shown promising and great results. By facilitating proper movement through the healing phases the nano sized particles promote the healing of wounds. Recent researches, on the efficacy of silver nanoparticles (AgNPs) in treating the diabetic wound are done to develop new treatment, where these nanoparticles shows potential biological properties in producing anti-inflammatory and antibacterial activities. AgNPs will also activate cellular mechanisms towards the healing of chronic wounds; however, the toxicities which are associated with AgNPs are of great concern. This review article is written to exemplify the use of AgNPs in wound healing and to make ease this delivery system in leading into clinical applications for a supercilious treatment over wounds and ulcers in diabetes patients.



A Comparison Study of Transfersomes and Ethosomes Bearing Tacrolimus for Efficient Management of Organ Transplantation



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Abstract

A Comparative study of Transfersomes and Ethosomes based sublingual drug delivery system of Tacrolimus (TAC) was carried out for enhancement of permeability and bioavailability, optimized formulations were extensively characterized and evaluated for controlled drug release between the two formulations by in vitro drug release studies. Transfersomes and Ethosomes were prepared by thin film hydration and Mechanical dispersion methods respectively using different concentrations of soya lecithin, ethanol tweens and spans. Formulation of transfersomes and Ethosomes were further optimized by Central Composite Design (CCD) using Design expert software. Optimized Drug-loaded TAC transfersomes and Ethosomes were further loaded into sublingual films which were prepared by solvent casting method. Prepared TAC-loaded transfersomal and Ethosomal sublingual films were evaluated for different parameters like EE%, Deformability index, Folding endurance etc. In-vitro drug release performance of TAC-loaded transfersomal and Ethosomal sublingual films were evaluated using Franz-diffusion cells with cellophane membrane as barrier maintaining 6.8 and 7.4 pH in donor and receptor compartment respectively.

Controlled drug release pattern was observed for TAC-loaded Ethosomal sublingual films with 80.12% release at the end of 12 hour when compared to 60.35% CDR for TAC-loaded transfersomal Sublingual films. Controlled and sustained drug release of tacrolimus in systemic circulation with less drug retention at sublingual pH was observed with TAC-loaded Ethosomal sublingual films when compared to TAC-loaded transfersomal Sublingual films.



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The Future of Nanotechnology in Medicine



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Abstract

Nanotechnology states engineering of functional systems at the molecular level. Around the world, researchers are increasingly thinking smaller to solve some of the biggest problems in healthcare sector. Though most biological processes happen at the nano level, it wasn't until recently that new technological advancements helped in opening up the possibility of nanomedicine to healthcare researchers and professionals. While many people will be most familiar with nanotech as the technology powering Iron Man's suit, real world breakthroughs at the nanoscale will soon be saving lives in healthcare. One practical example of this technology is the use of tiny carbon nanotubes to transport drugs to specific cells. Not only do these nanotubes have low toxicity and a stable structure, they're an ideal container for transporting drugs directly to the desired cells. Few examples of nanotechnology are smart pills, conventional chemotherapy and radiation treatments, diagnostics. Examples like this show the true promise of nanotechnology in the field of medicine.

Keywords

Nanotechnology, Smart pills, Conventional chemotherapy, Diagnostics.



Iontophoresis Drug Delivery System with Electroconductive Hydrogel



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Abstract

Efficient drug delivery is one of the challenging prospective where the researcher is still in experimenting and advancing the administration of drug. Iontophoretic transdermal drug delivery system is a novel method to deliver an electrically mobile drug through Nanocarriers (DN). Among the active methods to deliver drugs into the skin and to reach system circulation, iontophoresis has an advantage of crossing stratum corneum layer and minimizing the skin irritation compared to other active transdermal delivery strategies, such as microneedles, electroporation, and thermal ablation. Iontophoresis typically uses electrostatically repulsive force for delivering drugs by applying a constant external current (typically, 0.5 ma cm⁻²) through positive and negative electrode. This current work is about developing an Iontophoresis based drug delivery of Piroxicam through nanocarrier and electroconductive hydrogel. The Polypyrrole (PYP) incorporated in poly (Vinyl Alcohol) based hydrogel facilitated electron transfer from the electrode and accelerated the mobility of electrically mobile DN containing therapeutic activity. The effective result of iontophoresis drug delivery method and its advantage were compared with other form of administration. This highlight the potential of transdermal drug delivery platform which would be extensively utilized for delivering diverse therapeutic agents in a non-invasive way.

Keywords

Iontophoresis, Hydrogel, Drug delivery, Transdermal



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Nanoparticles and Cancer Therapy



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Abstract

Cancer is a disease in which abnormal cells divide uncontrollably and destroy body tissue which is of 2 types: benign and malignant. A nano particle is a small particle that ranges between 1 to 100 nanometers. Nanoparticles which deliver medicines like chemotherapy straight to the tumor. Cancer nanotherapeutics are rapidly progressing and are being implemented to solve several limitations of targeting, lack of water solubility, poor oral bioavailability, and low therapeutic indices. Nanomedicine and drug delivery technologies play a prominent role in modern medicine, facilitating better treatments than conventional drugs. Improved efficacy, Bioavailability, Dose response, targeting ability are the benefits of Nanomedicine. To improve the biodistribution of cancer drug, nanoparticles have been designed for optimal size and surface characteristics to increase their circulation time in the blood stream. A wide range of nanomaterials based on organic, inorganic, lipid, or glycan compounds. As well as on synthetic polymers has been utilized for the development and improvement of new cancer therapeutics.

Biography

I am studying my bachelor of pharmacy in Smt. Sarojini Ramulamma College of Pharmacy from the academic year of 2019-2023. Presently, I am studying 3rd year. I completed my SSC from Panchavathi Vidyalaya. And done my intermediate B.I.P.C from Prathibha Junior College from the academic year 2016 -2018.



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**Formulation and Development of Nanoparticles of
Combinational Drugs for Potential Treatment of Infections
Caused By Multidrug Resistant Pathogen**



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Abstract

A polypeptide antibiotic (polymyxin E) with ivacaftor, a Cystic Fibrosis (CF) drug, could achieve synergistic antibacterial effects against multidrug resistant pathogen. The purpose of this study was to develop microparticles containing nanoparticles formulations for co-delivery of polymyxin E and ivacaftor, aiming to treat CF and lung infection simultaneously. In order to improve solubility and dissolution for the water-insoluble ivacaftor, Ivacaftor was encapsulated into serum albumin protein nanoparticles. Inhalable composite microparticles of serum albumin protein nanoparticles were produced by spray-freeze-drying using water-soluble polymyxin E as matrix material.



Evaluation of Hepatoprotective Activity of *Ruta Graveolens* L. Leaves against Paracetamol Induced Liver Toxicity



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Abstract

Liver is one of the prominent organs and considered as the principal site for metabolism as well as excretion of xenobiotics that induce hepatotoxicity this necessitates the maintenance of liver health. Globally liver disorder cases are increasing significantly and search for potential hepatoprotective agents from nature is in progress. Hence, the present study aimed to evaluate the antioxidant and hepatoprotective activities of one of the traditionally valued hepatoprotective plant *Ruta graveolens*. Antioxidant activity of Hydro Alcoholic Extract of *R. Graveolens* (HERG) was evaluated by DPPH and ABTs assays and hepatoprotective activity of various doses (200mg, 300mg and 400mg/kg body weight p.o) was evaluated against paracetamol induced liver toxicity and Silymarin (100mg/kg b.w p.o) as a standard. Results of the study revealed existence of good antioxidant activity of HERG by scavenging both DPPH and ABTS radicals that might be due to the presence of higher amount of Phenolic content determined by total Phenolic content assay. The amplified levels of various liver toxicity biomarkers such as Serum Glutamic Pyruvic Transaminase (SGPT), Serum Glutamic Oxaloacetic Transaminase (SGOT), Alkaline Phosphatase (ALP) levels, total bilirubin content and decreased levels of total protein was brought back to normal amount with the administration of various doses of HERG in dose dependent manner. Histopathology study revealed that administration of HERG prevents the disruption of hepatic architecture, tissue necrosis and cytoplasmic vacuolization caused by paracetamol by bringing back to near normal hepatic architecture. Moreover, at higher doses, HERG showed hepatoprotective activity similar to



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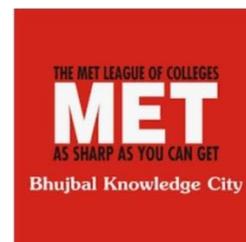
that of silymarin. The found potential hepatoprotective efficacy might be due to the presence of various bioactive compounds in the plant. Hence the outcome of the present study concludes that HERG will be one of the potential sources of hepatoprotective agents to treat liver disorders globally.

Keywords

Phytoconstituents, *Ruta graveolens*, hepatic biomarkers, hepatotoxicity, vacuolization



Formulation and Evaluation of Oro-Dispersible Tablet for Enhancing the Solubility and Permeation of the Mucolytic Drug



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Abstract

Bromhexine Hydrochloride, a salt having secretolytic, mucolytic activity. A potent mucolytic agent having ability to increase lysosomal activity. It also enhances hydrolysis of acid mucopolysaccharide polymers in the respiratory tract. That results in increase in the production of serous mucus in the respiratory tract, making phlegm thinner and less viscous. The secretomotoric effect, helps to expel the phlegm out of lungs. To improve the delivery to the patients experiencing difficulty in swallowing (Dysphagia) that leads to poor patient compliance. Such rapidly disintegrating drug delivery systems had proved to be a milestone for most Pharma Industries. A co-processed superdisintegrant was prepared by using natural polymers by Coacervation phase separation method. Orodispersible tablets of Bromhexine HCL were prepared by direct compression method using this co-processed superdisintegrant. So as to produce instant effect by fast drug release. Various trial batches were carried out and were evaluated and optimized for pre-compression and post-compression parameters. The optimized batch shows drug release 97.61 % in 3 minutes. Disintegration time was 17 ± 1 and wetting time was 13 ± 2 . Further FTIR and DSC studies confirm no interaction between drug and excipients. The aim of the present work is to formulate and evaluate orodispersible tablet using natural super-disintegrating agent for patients with difficulty in swallowing.



Anti Diabetic Effect of Casuarina Equisetifolia Bark Aqueous Extact in Alloxan Induced Mild Diabetic Rats

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Abstract

Diabetes mellitus is one of the common endocrine metabolic disorders with micro and macrovascular complications that results in significant morbidity and mortality. It is considered as one of the five leading causes of death in the world. In modern medicine satisfactory effective therapy is still not available to cure diabetes mellitus. There is increasing demand by patients to use natural products with antidiabetic activity due to side effects associated with the use of insulin and oral hypoglycemic agents. In 2012, diabetes and its complications was the direct cause of 1.5 million deaths, with more than 80% of these deaths occurring in low- and middle income countries. WHO projects that diabetes will be the 7th leading cause of death by 2030. Diabetes increases the risk of heart disease and stroke, which are responsible for 50% to 80% of deaths in people with this condition. Diabetes is also a leading cause of blindness, amputation and kidney failure. The present study was carried out to evaluate the antidiabetic activity of Casuarina equisetifolia bark aqueous extracts in alloxan induced diabetic rats for 21 days. The C equisetifolia Bark extract at low dose (200 mg/kg) exhibited significant antidiabetic activity than high dose (500 mg/kg) by regulation of body weight, blood glucose and improvement of biochemical parameters like SGOT, SGPT, ALP, creatinine, lipid profile. This effect may be rainforce healing of pancreatic cells in alloxan induced diabetic rats.

Keywords

Diabetes, oral hypoglycemic agents, Casuarina equisetifolia Blood glucose, biochemical parameters.



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**Comparison & Compilation of RA & QA Requirement for
Registration/Marketing Authorization of Medical Device in
Emerging Markets (India, Singapore & Saudi Arabia)**



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Abstract

In order to market any medical device, marketing authorization from Regulatory authority is required. The process of gaining authorization is complex, multistep and requires review of information by competent authorities. Upon scrutinizing the information furnished by Manufacturer, marketing authorization is granted by the concerned Regulatory authority.

Medical devices are becoming more important in the health care sector. One of the major issues for companies developing and producing medical devices is to be updated on the regulatory requirements and implement them in the process.

The aim of this project is to compare the marketing authorization system for medical device in emerging market i.e., India, Singapore and Saudi Arabia. This study is to compliance requirements to support the regulatory approval & to focus of the criticism on products obtaining market authorization by using safety and effectiveness data of existing products on the market.

Keywords

Medical devices, legislation, market authorization.



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**Bioflavonoids are the Potential Candidates for the
Treatment of Psoriasis - An Overview**

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Abstract

Psoriasis is a life period disorder. There are many causative agents that can trigger the hyper proliferation of keratinocytes is that, stress, genetic involvement and environmental as well as biological factors like sunburn, infections, allergies, winter weather, alcohol and obesity. The prevalence rate of Psoriasis is 1.5-5%. There is no particular treatment present in this disease but, when we reduce inflammation, Proliferation that may decrease the severity of disease. Throughout life of the person this type of treatment should be less side effects and cost effective. So, bioflavonoids have the potential activity to for anti-inflammatory, anti-proliferation and antioxidant to reduce / control psoriasis. Delivery of bioflavonoids through skin gives local and systemic effects. When it is delivering through vesicular systems that can improve the permeation through skin to settle the drug in skin layers to show local and systemic effects. Bioflavonoids are the promising candidates to treat psoriasis with lesser side effects.

Key words

Bioflavonoids, Psoriasis, vesicular systems.



Bio Analytical Validation Method for Capmatinib and Spartalizumab in Rabbit Plasma by Using Highly Effective Mass Spectrophotometric Method

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Abstract

A simple, sensitive and rapid LC-MS method was developed and validated for the simultaneous quantification of Capmatinib and Spartalizumab. Separation was carried on C₁₈ column (150x4.6mm, 3.5 μ) using a isocratic elution with a buffer containing 1mL of Formic acid in 1Lit of water and the mixture of two components like Buffer and Acetonitrile in the ratio of 50:50 as mobile phase with 1mL/min flow rate at ambient temperature. Analysis was carried out within 8 minutes. The calibration curve was linear in the concentration range from 1.0ng/mL to 20ng/mL ($r^2 = 0.999$) for Capmatinib and 1.0ng/mL to 20ng/mL ($r^2 = 0.999$) for Spartalizumab. All the parameters of system suitability, specificity, linearity and accuracy are in good agreement with USFDA guidelines and applied effectively for the investigation of pharmacokinetic studies in rabbit.

Key words

LC-MS, Capmatinib, Spartalizumab, Validation, Rabbit plasma.

