SCIENTIFIC SOUVENIER

DRUG DISCOVERY
&
DEVELOPMENT TODAY
(DDDT-2012)

Bharati Vidyapeeth College of Pharmacy,
Kolhapur
MESSAGE

I have a great pleasure to know that on the eve of Golden Jubilee Year of Shivaji University, Kolhapur Bharati Vidyapeeth College of Pharmacy is organizing one day Research Poster Competition “Drug Discovery and Development Today 2012” (DDDT- 2012) under Lead College Scheme of Shivaji University. In a global scenario, “Research” is one of the most important aspect of Higher Education. It plays vital role in and industrial development. In this millennium, due to technological innovation winds of change are sweeping in every sphere of human efforts and pharmacy cannot be an exception to these new changes. The objective, therefore of pharmacy education should be such that a graduate or post-graduate pharmacy student must be made well aware of recent developments and new technological advances in corporate as well as research sectors of healthcare system.

I, congratulate the Principal, Faculty and Staff for successful journey in last 16 years. I hope, this event will widen the understanding of students as well as faculty members of various branches for innovative work and create research aptitude. It will give opportunities for sharing innovative ideas among each other and will help in identifying new emerging technologies.

I wish you all the best.

Prin.(Dr.) Arjun B. Rajage

SU/D-BCUD/273
Date: 3rd March, 2012
Dear DDDT Participants,

On behalf of Bharati Vidyapeeth College of Pharmacy, Kolhapur, and organizing committee of *Drug Discovery and Development Today 2012*” (DDDT-2012), I take this opportunity to welcome one and all. On the eve of Golden Jubilee Year of Shivaji University, Kolhapur and under Lead College Scheme of Shivaji University, our college is organizing this research poster presentation competition, DDDT-2012. Presently, we conduct degree course in Pharmacy and post graduate courses in Pharmaceutical Chemistry, Pharmaceutics, Quality Assurance and Pharmaceutical Technology. The college is also a recognized Ph.D. research center of Shivaji University, Kolhapur and Bharati Vidyapeeth University, Pune. The idea behind organizing DDDT-2012 was to provide a common platform for interaction of PG student researchers and scientists from academia. This competition at this juncture is to exchange participant’s thoughts and ideas and to collaborate on future projects for health care research that would surely substantiate the richness of the outcome of DDDT. This time, we have come out with a better attempt to deliver to all of you, an integrated package comprising of related areas of pharmacy research like human physiology, drug discovery, formulation development, and intellectual property generation and protection. And I underline, for a developing nation like India, knowhow of integrated approaches encompassing multidisciplinary sciences will generate innovations!

We welcome and wish you enjoyable, safe and scientifically useful symposium, DDDT 2012!

Dr. H. N. More
Convenor
DDDT-2012
Dear Colleagues

It is a great pleasure to welcome one and all those who travelled a long way to participate in the research poster competition as “Drug Discovery and Development Today 2012” (DDDT- 2012). The competition aimed at grooming innovations in the Pharmaceutical Sciences, hosted by the Bharati Vidyapeeth College of pharmacy, Kolhapur is organized. On the eve of Golden Jubilee Year of Shivaji University, Kolhapur. The Symposium provides an opportunity for all researchers and practitioners involved in the field of pharmaceutical sciences to share information with their colleagues in both a formal and/or informal manner. Valuable opportunities for networking always arise at such a conference. In addition to the opportunity to present your research, conference also provides an opportunity for recognition of excellence in pharmaceutical sciences. Finally no symposium can be a success without participants and we are thankful to all, participants, and look forward to have their active participation in the poster presentation session.

Sincerely

Mr. Rakesh Dhavale
Chief Coordinator
DDDT- 2012
## PROGRAMME SCHEDULE

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<th>Sr. No</th>
<th>Event</th>
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<tr>
<td>1.</td>
<td>Registration, Tea &amp; Breakfast</td>
<td>Dr. H. N. More</td>
<td>9.00 to 10.00 am</td>
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<td>Chairman, Lead College Working Committee</td>
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<td>2.</td>
<td>Inaugural of Poster Session</td>
<td>Dr. H. N. More</td>
<td>10.00 to 10.30 am</td>
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<td>Chairman, Lead College Working Committee</td>
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<td>3.</td>
<td>Poster Session: Open to all</td>
<td>Dr. M. S. Bhatia</td>
<td>10.30 to 12.30 pm</td>
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**Lunch** 12.30 to 1.00 pm

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<td>4.</td>
<td>Poster Session: Open to all</td>
<td>Dr. M. S. Bhatia</td>
<td>1.00 to 3.00 pm</td>
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**Valedictory Function**

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<td>5.</td>
<td>Welcome of Guests</td>
<td>Dr. M. S. Bhatia</td>
<td>3.00 pm</td>
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<td>6.</td>
<td>Deep Prajwalan</td>
<td>Chief guest and Guest of Honour</td>
<td>3.00 to 3.35 pm</td>
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<td>7.</td>
<td>Introduction of Chief Guest and Guest of Honour</td>
<td>Mr. R. P. Dhavale</td>
<td>3.35 to 3.40 pm</td>
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<td>8.</td>
<td>Felicitation of Chief Guest, Guest of Honour &amp; Judges</td>
<td>Dr. H. N. More</td>
<td>3.40 to 3.45 pm</td>
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<td>9.</td>
<td>Felicitation of Principals of other Colleges and Dignitaries off the Dias</td>
<td>Dr. M. S. Bhatia</td>
<td>3.45 to 3.50 pm</td>
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<td>10.</td>
<td>Address by Convenor</td>
<td>Dr. H. N. More</td>
<td>3.50 to 4.00 pm</td>
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<td>11.</td>
<td>Views of Delegates</td>
<td>Dr. M. S. Bhatia</td>
<td>4.00 to 4.05 pm</td>
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<td>12.</td>
<td>Announcement of Prizes</td>
<td>Dr. M. S. Bhatia</td>
<td>4.05 to 4.10 pm</td>
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<td>13.</td>
<td>Prize Distribution</td>
<td>By Chief Guest &amp; By Guest of Honour</td>
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<td>14.</td>
<td>Address by Chief Guest</td>
<td>Chief Coordinator: Mr. R. P. Dhavale</td>
<td>4.10 to 4.15 pm</td>
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<td>15.</td>
<td>Vote of Thanks</td>
<td>Chief Coordinator: Mr. R. P. Dhavale</td>
<td>4.15 to 4.20 pm</td>
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One Day  
Research Poster Competition  
UNDER  
LEAD COLLEGE SCHEME OF  
SHIVAJI UNIVERSITY, KOLHAPUR  
Bharati Vidyapeeth College of Pharmacy, Kolhapur  
Organizes  
DRUG DISCOVERY & DEVELOPMENT TODAY  
(DDDT 2012)  
7th MARCH 2012                               WEDNESDAY, 2012  
WORKING COMMITTEE

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<td>Registration Committee, Certificates</td>
<td>Mr. U. S. Patil I/C</td>
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<td>Mr. F. A. Tamboli</td>
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<td>Mr. Tanaji Patil</td>
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<td>02</td>
<td>Poster Presentation Committee</td>
<td>Mr. D. T. Gaikwad I/C</td>
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<td>Dr. M. S. Bhatia I/C</td>
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<td>Catering Committee</td>
<td>Mr. V. T. Pawar I/C</td>
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<td>Mr. R. T. Chavan</td>
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<td>Mr. Anand Kumbhar</td>
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<td>Mrs. R. R. Jarag I/C</td>
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<td>06</td>
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<td>Mr. F. A. Tamboli I/C</td>
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<td>Mr. R. P. Dhavale</td>
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<td>08</td>
<td>Souvenir &amp; Website Updation</td>
<td>Mr. P. B. Choudhari I/C</td>
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<td>Mr. S. D. Jadhav</td>
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<td>09</td>
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<td>Prof. A. J. Shinde I/C</td>
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<td>Mr. V. D. Jangam</td>
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<td>Admin</td>
<td>Dr. M.S. Bhatia I/C</td>
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<td>Mr. R. P. Dhavale</td>
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LIQUISOLID TECHNIQUE AS A NEW APPROACH TO SUSTAIN
METOPROLOL SUCCINATE
RELEASE FROM TABLET MATRICES

Kanase KR, Mangal MS, Jarag RJ.
Department of pharmaceutics, Bharati Vidyapeeth college of Pharmacy,
Near Chitranagari, Kolhapur 416 013, (M. S.), India.
E-mail address: kanase.kk@gmail.com

Abstract
Liquisolid compacts are acceptably flowing and compressible powdered forms of liquid medications that imply oily liquid drugs and solutions of water insoluble solid drugs carried in suitable nonvolatile solvent systems termed the liquid vehicles. This liquid medication is converted into a dry-looking, non-adherent, free flowing and readily compressible powder by a simple blending with powder excipients referred as carrier and coating materials. Liquisolid technique has the potential to be optimized for the reduction of drug dissolution rate and thereby production of sustained release systems. In the present study, Metoprolol succinate was dispersed in polysorbate 80 as the liquid vehicle. Then a binary mixture of carrier–coating materials (Avicel PH 102 as the carrier and Aerosil 200 as the coating material) was added to the liquid medication under continuous mixing in a mortar. The final mixture was compressed using the manual tableting machine. The effect of drug concentration, loading factor, carrier material and excipient ratio on release profile of Metoprolol succinate from liquisolid compacts were investigated. The release rate of Metoprolol succinate from liquisolid compacts was compared to the release of Metoprolol succinate from conventional tablets. DSC study was used to investigate the formation of any complex between drug and excipients. Metoprolol succinate tablets prepared by liquisolid technique showed greater retardation properties in comparison with conventional matrix tablets. The results also showed that aging had no effect on hardness and dissolution profile of drug. The kinetics studies revealed that most of the liquisolid formulations followed the zero-order release pattern. X-ray crystallography and DSC study ruled out any changes or complex formation during the manufacturing process of liquisolid formulations.
TARGETED MESALAMINE TABLET FORMULATION FOR ENHANCEMENT OF BIOAVAILABILITY

Vrushali Patil*, Jyoti Thorat, Pravin Patil
Bharati Vidyapeeth College of Pharmacy, Kolhapur, Dist-Kolhapur (M. S.), 416013
Corresponding author: vrushalip69@gmail.com

Abstract

Extended release press coated tablets of Mesalamine were designed with hydrophilic HPMC and enteric coated eudragit S-100 polymer. Combinations of hydrophilic polymers such as HPMC K4M, HPMC E5 and enteric coated eudragit S-100 polymers were used in different concentrations to formulate colon release tablets for giving the release of Mesalamine. Tablets of Mesalamine were prepared by direct compression using combined pH and time dependent approach and subjected to in vitro drug dissolution for 12h by using USP Type-II dissolution apparatus at speed of 100rpm at a temperature of 37 ± 0.5°C using simulated gastric fluid 900mL 0.1N HCl (pH 1.2) and Phosphate buffer pH 6.8 and 7.2. The combination of HPMC K4M: HPME E5 (70:30 %) with 8 % enteric coat of Eudragit S 100 were the optimum concentrations exerting lag time of 6 h. The PX-RD studies on optimized batch revealed amorphous nature. The DSC thermogram indicates no any interaction between drug and polymer. The absence of drug release during first 6 h is the lag period of 6 h that can be sufficient for delivery of Mesalamine in to the large intestine. Mesalamine press coated enteric coating tablet formulation may consecutively enhance the lag period and residence time of the drug in the colon and thus may potentiate its anti-inflammatory action.
FORMULATION AND EVALUATION OF MUCOADHESIVE FILM FOR BUCCAL DRUG DELIVERY

Tanushri Mohite *, Jimesh Shah, Dr. Rohit Shah.

Department of Pharmaceutics, Appasaheb Birnale College of Pharmacy, Sangli 416 416. Maharashtra, India.

Abstract

Mucoadhesive Drug Delivery system is an emerging trend of the decade. Many researchers have explored this system for its local and systemic applications. In present work a buccal adhesive patch is formulated and optimized using Nimodipine as a model drug. The objective of the present work is to provide nimodipine in systemic circulation by-passing the first pass metabolism to increase its bioavailability (approx.13%). Intravenous administration of Nimodipine causes deaths and serious life threatening adverse events. The conventional therapy may result in higher fluctuation in plasma concentration of the drug resulting in unwanted side effects. Several in-vitro and ex-vivo tests were performed to evaluate the designed patch from its results an optimized batch was formulated and was studied thoroughly including its one month stability study.
NOVEL, ECONOMIC AND SIMPLE METHOD FOR
SOLUBILITY ENHANCEMENT OF POORLY SOLUBLE DRUGS”

Dr. Kulkarni A. S., Pattekari S. N.*, Patil A. A.

Department of pharmaceutics, Satara College of pharmacy, Satara, M.S., India.

E-mail address: askulkarnisir@gmail.com

Abstract

Novel methods developed for improving dissolution characteristics of poorly water-soluble drugs include co-grinding method. The study will investigate the effect of co-grinding a poorly soluble drug with commonly used superdisintegrants- crospovidone (CP), croscarmellose sodium (CCS) and sodium starch glycolate (SSG) using a laboratory ball mill, in different proportions, on its solubility and dissolution. Present research poster contains the study involving drug milled alone and with previously mentioned superdisintegrants in drug to superdisintegrant ratio 1:1. Solubility and dissolution studies of the co-ground drug have carried out after milling and the solid state characterization of the samples have done by using infrared spectroscopy (IR) and X-ray diffraction (XRD). All the co-ground samples implied better solubility and dissolution than drug milled alone. The solubility studies exhibited a marked 3.5 fold increase and enhanced dissolution characteristics in case of croscarmellose sodium (CCS). The infrared spectroscopy (IR) indicated absence of any drug to superdisintegrants interaction and thus proved compatibility. X-ray diffraction (XRD) patterns of pure drug and drug co-ground with SSG (1:1) pointed hampered drug crystallinity. Particle size reduction and reduced drug crystallinity emerged out as reasons for increased solubility and dissolution of resultant powder mixtures. Therefore co-grinding with superdisintegrants has proved simple and economic tool for solubility enhancement of a poorly soluble drug.
“REGIOSPECIFIC MULTICOMPONENT DRUG DELIVERY SYSTEM FOR REDUCED SIDE EFFECT & BETTER EFFICACY”

Dr. Kulkarni A. S., Patil A. A.*, Pattekari S. N.

Department of pharmaceutics, Satara College of pharmacy, Satara, M.S., India.
Corresponding author E-mail: ashishpatil15288@gmail.com

Abstract

This study was designed to formulate multidrug tablets of S (-) Amolodipine Besylate and S (-) Atenolol as monolayer tablets and bilayer tablets containing each drug in separate layer. Bilayer tablet comprised both immediate release layers. For the preparation of S (-) Amolodipine Besylate layer; direct compression, non-aqueous granulation and aqueous granulation methods were used and for preparation of S (-) Atenolol layer direct compression and aqueous granulation methods were used. In this work only pharmacologically active chiral form of drugs were used. The assay, content of uniformity and % drug release were performed on HPLC system. Accelerated stability studies were performed on the prepared tablets packed in blister strips. Compatibility study was performed by performing IR spectroscopy, results shown there was no any chemical incompatibility between drug & excipients. The aqueous granulation method for both layers shown excellent results. The assay of optimized formulation for S (-) Amolodipine Besylate layer and S (-) Atenolol layer was found to be 99.26% and 101.50% respectively and content of uniformity for the same was found to be 99.43% and 99.84% respectively. In vitro drug release studies revealed 97.15% and 98.34% for S (-) Aamolodipine Besylate and S (-) Atenolol respectively. Thus multidrug bilayer tablet of S (-) Amolodipine Besylate and S (-) Atenolol with no change in physicochemical properties and drug release pattern were achieved successfully and it proved an effective alternative for the available conventional drug therapy.
FORMULATION AND EVALUATION ORODISPESIBLE TABLET ONDANSETRON BASE

Name of author- Patil Sandeep S., Inamdar Shahrukh S., Sanodiya Mohan T.

Government College of Pharmacy, Karad.

Email: spsankom1@gmail.com

Abstract

Ondansetron base is a serotonin receptor (5-HT3) antagonist used in the prevention of chemotherapy induced nausea and vomiting. The demand for orally disintegrating tablet has been growing, especially for geriatric and pediatric patients because of swallowing difficulties. In this present study, the bitter taste of Ondansetron base was masked using Tulsion-339 & flavor, also the disintegration time is reduced with using different superdisintegrants. The FTIR studies showed drug and carrier were compatible. These were then compressed into tablets by direct compression method with using different superdisintegrants like Sheffield ODT, Crosspovidone, Pharmaburst-500, Polyplasdone XL-10, Ludiflash. All formulations were evaluated for disintegration time, wetting time, weight variation, percentage friability and in vitro dissolution rate. Formulations F-02 showed disintegration time below 12 sec, wetting time below 10 sec, containing superdisintegrant Sheffield-ODT & Crosspovidone, also shows good sweet taste with no after bitter taste with using tulsion-339 & orange flavour. In vitro dissolution studies of formulations F02 showed more than 95% drug release within 10 minutes. In vitro release profile, disintegration time and wetting time were remaining unchanged after one month when stored at 40°C / 75% RH.
FORMULATION AND EVALUATION OF MUCOADHESIVE MICROSPHERES OF ZIPRASIDONE HCL FOR ORAL CONTROLLED RELEASE.

Dange S.S.*, Bhujbal A.M. ,Wakshe H.T,
Arvind Gavali College of Pharmacy, Satara, Maharashtra, India.
Email-id:- sunnydange@gmail.com

Abstract

Mucoadhesive microspheres of Ziprasidone HCL were prepared using sodium alginate as a shell forming polymer and HPMC-E5 as a mucoadhesive polymer for the potential use of treating schizophrenia. Large spherical microspheres with sodium alginate and HPMC-E5 were achieved by injection molding technique (Ionic cross linking). The microspheres exhibited good mucoadhesive properties and drug release from mucoadhesive microspheres was slow and extended over longer period of time, depending on the composition of sodium alginate coat. These mucoadhesive microspheres are, thus suitable for oral controlled release of Ziprasidone HCL.
SYNTHESIS OF SILVER NANOPARTICLES USING ONE-POT GREEN METHOD

Dr. Kulkarni A.S., Karande K.M., Mastud P.R.*

Satara College of Pharmacy, Satara.

Plot No.1539, Behind Spicer India Ltd., New additional M.I.D.C., At Degaon, Satara. 415004 (M.S.)

Email of correspondence Author: pmastud87@gmail.com

Abstract

The current technique used for the preparation of silver nanoparticle is a modification of one pot method described by Vigneshwaran et al. Nanoparticles can be synthesized either chemically or biologically. The chemical process for synthesis of silver nanoparticles is more elaborate and leaves behind toxic effect that adversely affects the ecosystem on the other hand green synthesis of Ag Nps is less time consuming, less costly and more ecofriendly.

Stable silver nanoparticles have been synthesized by using soluble starch as both the reducing and stabilizing agents; this reaction was carried out at 15 psi, 121 °c for 5 min. Nanoparticles thus prepared are found to be stable in aqueous solution over a period of one week at room temperature. Silver nanoparticles are prepared using soluble starch acting as both the reducing and stabilizing agents. The aldehyde terminal of soluble starch is used to reduce silver nitrate while the starch itself stabilized the silver nanoparticles.

The nanoparticle was further characterized by UV – VIS spectroscopy which revealed that the formation of Ag NPs by yielding the typical silver Plasmon absorption maxima at 430 nm. FTIR spectra revealed the involvement soluble starch for reduction of silver nitrate.
TO STUDY THE EFFECT OF CHEMICAL MODIFICATION OF GUAR GUM ON ITS STRUCTURAL PROPERTIES

Dr. Alurkar N.H., Miss. Patil R.A*.

Email- pharma.rohini@gmail.com

Department of pharmaceutics, Satara College of Pharmacy, Satara. M.S. India

Abstract

Maleic anhydride grafted guar gum was prepared by taking into consideration 100 % substitution under different reaction conditions such as heating and stirring speed. Fourier transfer infrared (FTIR) spectroscopy and elemental analysis were used to characterize polymer. Fourier transfer infrared (FTIR) spectroscopy was carried out to determine the change in the structural properties due to substitution. By comparing FTIR spectra of guar gum and maleic anhydride grafted guar gum it was clear that there was substitution of maleic anhydride on guar gum as there was peak for ketone functional group of maleic anhydride into the spectra of grafted guar gum. Carbon, hydrogen, oxygen content was determined by using elemental analyzer. Concentration of oxygen in the guar gum and grafted guar gum was found to be 0.8 and 1.14 % respectively. From the results it was clear that there was increase in the oxygen content of grafted guar gum polymer.
IMPROVEMENT OF PHYSICOCHEMICAL PROPERTIES OF LAMOTRIGINE BY MELT GRANULATION AND COMPACTION TECHNIQUE.

Patil Supriya*, Chougule Sushant, Shete Amol.

Department of Pharmaceutics, Shree Santkrupa College of Pharmacy, Ghogoan, Karad.

Abstract

The objective of present investigation was to develop a non aqueous granulation technique to enhance the solubility, dissolution rate and other physicochemical properties of poorly water-soluble drug substances by using melt granulation and dry granulation (slugging) technique.

Solid dispersions of Lamotrigine (LT) were prepared by using polyethylene glycol (PEG) and Poloxomer along with diluents like lactose, mannitol and superdisintegrants like sodium starch glycolate, Croscarmellose sodium by melt granulation technique. Slugs were prepared by using KBR press and then milled into a granular powder without using solvent or heat. In compaction technique the study was carried out with low-viscosity hydroxyl propyl methyl cellulose (HPMC), Kollicoat IR, PEG and polyvinyl pyrolidone (PVP). The pure LT and the prepared granules were evaluated in terms of production yield, drug content, solubility, in vitro release profile, flowability, density and wettability. In all samples, the crystal structure of LT was confirmed using Fourier transform infrared spectroscopy (FTIR) and X-ray powder diffraction. A significant enhancement in the saturation solubility and in vitro dissolution profiles of the melt granules followed by compacted granules was observed compared to the pure drug and drug excipient physical mixtures. The dissolution rate enhancement was attributed to improve wetting of LMT crystals due to carrier particles, attached on the surface. The prepared granules also exhibited improvement in physicochemical properties like wettability and flowability as compared to the unmodified LT. FTIR study revealed that there was no interaction between drug and used carriers. PXRD data confirmed crystalline drug in the melted and compacted granules.

We can conclude that melt granulation and slugging by using hydrophilic polymers may help to improve physicochemical properties of lamotrigine.
DESIGN, DEVELOPMENT AND EVALUATION OF FACIAL HERBAL CREAM FORMULATION

Hemant R. Kakade,*1 Anilkumar J. Shinde, Vinod S. Ingole
*1 Department of Quality Assurance, Bharati Vidyapeeth College of Pharmacy,
Near chitranagari, Kolhapur
*Corresponding Author: E mail- kakadehemant28@gmail.com

Abstract

Skin care is the age old necessity of mankind. This necessity leads to the continuous modification and invention of more and more skin care cosmetics preparation. Skin care preparations are not new and dates back to earliest antiquity. Many ayurvedic preparations claims to be useful in skin care. However, very few investigations have been made to assess the efficacy of it. No attempt is made to formulate for cosmetic facial herbal cream containing natural plants and other materials, especially for papaya fruits, Aqueous extracts of Curcuma longa and aqueous extracts of Cucumber with Honey.

In evaluation parameters like, pH, sensitivity test, Irritation test, Spreadability test, Net content, grittiness, Viscosity, Stability studies etc. are carried out. Among all those preparations, AA-4 preparation was the best. The viscosity, Spreadability and Extrudability of AA-4 was quite closest to marketed formulations 1 and 2. All test and marketed formulations did not show any sign of change in colour, odor, taste and phase separation. The Primary Skin Irritancy test was conducted on albino rabbits, AS-4 formulation used for study. There was no any erythema observed after 24 hr and 72 hr. It was used for further studies for preservative and stability regarding commercialization of product.
A FLEXIBLE TECHNOLOGY FOR MODIFIED RELEASE OF DRUGS INCLUDES FACTORS INFLUENCING DRUG DISSOLUTION CHARACTERIZATION OF HYDROPHILIC POLYMER FROM MATRIX TABLET

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Abstract

In this study immediate layer which was prepared using super-disintegrates like crosscarmalose sodium etc. were compressed on core tablet which was prepared using hydrophilic polymer as HPMC and Ethyl cellulose in 10:10 proportion and prepared tablets were evaluated for physical properties and compatibility studies. Hydrophilic polymers are mainly used for the preparation of matrix type controlled drug delivery system. The aim of this work was to investigate the factor influencing dissolution characteristics of drug substance from hydrophilic polymer matrix tablet. The effects on drug release were studied in comparison with lactose and micro crystalline cellulose. The results indicate that drug release characteristic from polymer matrix tablet follow zero order release kinetics. It was found that in both simulated gastric fluid (SGF) and in simulated intestinal fluid (SIF) polymer could retard the release of drug at different levels but also hydrophobicity and hardness of tablet play important role in retardation of drug release. Results also indicate that combination of hydrophilic polymers supports to increase the release behavior in order to keep release drug constant in each time interval. Increasing in compression force also shows more drug release than low compression force. The study of different factors like speed of rpm, drug-polymer ratio, dissolution media etc. are studied which was shows linear relationship with dissolution study. The following factors are also studied here for dissolution test compression force, polymer concentration, type of polymer, dissolution medium, speed of basket, pellet size, molecular weight of polymer, composition and thickness of tablet.
DEVELOPMENT AND OPTIMIZATION OF NANOEMULSION CONTAINING NSAID PREPARED BY SOLVENT EVAPORATION TECHNIQUE

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Abstract

The objective of this study was to optimize NSAID loaded nanoemulsions by using a factorial design approach. In the present study attempts have been made to formulate nanoemulsion formulation by using solvent precipitation method for topical delivery of NSAID. Captex 500 P was screened as the oil phase due to a good solubilisation capacity (0.167g/ml) for NSAID. On the basis of RHLB of an oil phase Labrasol and Tween 80 were used as surfactant and co surfactant respectively. The study investigated the utility of 23 factorial design for optimization process of nanoemulsions batches. Optimized batch was subjected for in vitro skin permeation study, drug deposition study and anti-inflammatory activity which have shown that the effect of drug is enhanced by nanoemulsion formulation. The permeation ability of optimized batch of nanoemulsion through the skin was evaluated in vitro using Franz diffusion cells fitted with rat skin. The in vitro permeation data showed that optimized nanoemulsion batch have the flux value (Jss) of 16.90 µg cm-2 h-1. While through the point of drug deposition study, optimized NSAID nanoemulsion showed more skin deposition than plain NSAID loaded gel. Anti-inflammatory study of nanoemulsion have shown faster onset of action which was confirmed by 70% inhibition of inflammation at the end of 1 h. The results indicate that the utility of nanoemulsion system as a vehicle for topical delivery of NSAID is excellent and rational.
DEVELOPMENT AND CHARACTERISATION OF GELATIN-BASED NANOPARTICLES FOR TARGETED DELIVERY OF ZIDOVUDINE

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Abstract

The present investigation was aimed at developing and exploring the use of mannosylated gelatin nanoparticles for the selective delivery of an anti-HIV drug, Zidovudine. Zidovudine (AZT) is an antiretroviral agent used in treatment of AIDS having low biological half life (0.5-3hrs) with numerous dose dependant side effects and thus it is good candidate for the formulation of sustained release dosage forms. The mannosylated gelatin nanoparticles (MN-G-NPs) were prepared using a two-step desolvation technique and coupled with mannose using the amino group of gelatin present on the surface of nanoparticles. The mannosylation was confirmed using infrared spectroscopy. MN-G-NPs were characterized for shape, particle size, zeta potential, and percentage drug entrapment. The size of nanoparticles was found to be in range of 200-800 nm. In-Vitro drug release studies showed release up to 79.98% to 88.04% up to 18 hrs. Coupling of the nanoparticles with mannose significantly enhances the lung, liver, and lymph nodes uptake of drug, could possibility be advantageous in reducing viral load with increased therapeutic efficacy.
RP- HPLC METHOD DEVELOPMENT FOR ESTIMATION OF TENOFOVIR DISOPROXIL FUMARATE IN PLASMA.

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Abstract

A convenient and rapid RP- HPLC method has been developed for estimation of Tenofovir Disoproxil Fumarate in plasma. Tenofovir Disoproxil Fumarate belongs to the class of antiretroviral drugs as nucleotide reverse transcriptase inhibitors which block reverse transcriptase an enzyme crucial to viral production in HIV infected people. After oral absorption, Tenofovir Disoproxil Fumarate is rapidly converted to Tenofovir and then undergoes subsequent phosphorylation by cellular enzymes to the active Tenofovir Diphosphate, which inhibits the activity of HIV-1 reverse transcriptase. Best resolution of drug was achieved with the mobile phase having composition of acetonitrile and water in the ratio 70:30 v/v (pH 4.5). The linearity response of the HPLC system for TDF was obtained over the range of 0.5-32 µg ml⁻¹. Linearity of the method was determined from Correlation coefficient which is 0.999 which shows that method is linear. Precision and accuracy determined from minimum of five determinations per concentration (three concentrations representing the entire range of the standard curve studied for intraday. The results for precision were R.S.D. ≤ 20% at LLOQ and R.S.D. ≤ 15% other than LLOQ. This shows that the method is accurate and precise. Result of short term stability study performed by thawing samples at low and high concentration for 6 hours and % stability calculated which is between 85-115%. Extraction recovery was determined by spiking the pure drug sample in previously analyzed sample which is more than 50 %. Hence the main purpose of this investigation is to develop a precise, accurate, simple, reliable and less time consuming chromatographic method for estimation of drug in biological fluid.
ANALYTICAL METHOD DEVELOPMENT AND VALIDATION FOR THE QUANTIFICATION OF CAPECITABINE IN TABLET DOSAGE FORM BY RP-HPLC METHOD

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Abstract

A simple, rapid, accurate RP-HPLC method was developed for the determination of Capecitabine in tablet dosage form. Capecitabine is a fluoropyrimidine carbamate with the chemical name 5’-deoxy-5-fluoro-N-[(pentyloxy) carbonyl]-cytidine. Capecitabine is designed as a ‘pro-drug’ to the cytotoxic agent 5-fluorouracil (5-FU) meant to be administered orally. Capecitabine is used for first line monotherapy of metastatic colorectal cancer. The method showed a linear response for concentrations in the range of 50-150 µg/ml using 0.1% acetic acid, methanol and acetonitrile in the ratio 35:60:5 as the mobile phase with detection at 240 nm and a flow rate of 1 mL/min with retention time 6.4 min. Inertsil ODS, 3V, 250 x 4.6 mm, 5um, C15 column was used as stationary phase. The method was statistically validated for accuracy, precision, linearity, robustness and range. Linearity range was studied at 50%, 80%, 90%, 100%, 110%, 120% and 150% levels. Recovery of drug was found to be in the range of 98.07% to 101.22% with % RSD less than 2. The method is validated as per ICH guidelines. The method will find application in routine analysis of drug formulations containing Capecitabine.
ANALYTICAL METHOD DEVELOPMENT AND VALIDATION OF ANTI-OSTEOPORETIC DRUG: STRONTIUM RANELATE

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Abstract

Osteoporosis (in Greek: osteon meaning "bone" and poros meaning "pore") is a disease of bones that leads to an increased risk of fracture. In osteoporosis the bone mineral density (BMD) is reduced, bone microarchitecture is deteriorating, and the amount and variety of proteins in bone is altered. Osteoporosis risks can be reduced with lifestyle changes such as diet, exercise, and preventing falls, medication which includes calcium, vitamin D, bisphosphonates and several others. Hence anti-osteoporetic drugs were developed to overcome the disease. Strontium ranelate (SR) is a recent drug, chemically designated as distrotrium 5-[bis (2-oxido-2- xoethyl) amino]-4-cyano-3-(2-oxido-2-oxoethyl) thiophene-2-carboxylate is used for treating osteoporosis as well as postmenopausal osteoporosis. Strontium ranelate, a novel orally active agent consisting of two atoms of stable strontium and the organic moiety ranelic acid, has been developed for the treatment of osteoporosis. Strontium ranelate has a dual mode of action, both increasing bone formation and decreasing bone resorption, which rebalances bone turnover in favour of bone formation and increases bone strength. As these types of drugs are relatively new in treatment not much analytical work has been done. A rapid and sensitive RP-HPLC method with UV detection (323 nm) for routine analysis of strontium ranelate has been developed. Chromatography was performed with mobile phase containing a mixture of monobasic potassium phosphate buffer and methanol (3:1 v/v) with the flow rate of 0.8 ml/min at 25 °C and adjusting the pH to 3.0 with ortho phosphoric acid. Monobasic potassium phosphate acts as ion – pairing agent. In the range of 50-250 µg/ml, the linearity of strontium ranelate shows a correlation coefficient of 0.999. The proposed method was validated by determining accuracy, precision and robustness. The results of all the validation parameters were well within their acceptance values.
CHROMATOGRAPHIC QUANTIFICATION OF CAFFEINE, CHLORPHENIRAMINE MALEATE AND DICLOFENAC SODIUM FROM THEIR NOVEL MULTICOMPONENT FORMULATION

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Abstract

Reversed phase High performance liquid chromatography method (RP-HPLC) for separation and estimation of Caffeine, Chlorpheniramine Maleate and Diclofenac Sodium from their multicomponent tablet formulation and biological fluids was developed. The separation of three drug components was carried on a JASCO HPLC system with HiQ-Sil C18HS column (250 x 4.6 mm, 5µm) using methanol: 0.1% sodium salt of n-hexane sulfonic acid (60:40 v/v) pH adjusted to 4 with 0.1 M orthophosphoric acid as mobile phase by isocratic elution with a flow rate of 1.0 ml/min and detection wavelength of 255 nm. Ezetimibe was used as internal standard. For formulation analysis method, Beer’s law was obeyed in the concentration range of 2 to 130 µg/ml of Caffeine, 1 to 96 µg/ml of Chlorpheniramine Maleate and 2 to 200 µg/ml of Diclofenac Sodium. For plasma analysis method, Beer’s law was obeyed in the concentration range of 50 to 300 ng/ml of Caffeine, 50 to 300 ng/ml of Chlorpheniramine Maleate and 100 to 600 ng/ml of Diclofenac Sodium. The developed method successfully estimates drugs from their tablet formulation and plasma with mean assay values of 99.24 ± 0.86 and 89.59 ± 2.67 % for Caffeine, 98.92 ± 0.98 and 88.28 ± 1.92 % for Chlorpheniramine Maleate and 99.83 ± 0.68 and 92.58 ± 1.93 % for Diclofenac Sodium respectively. The method for formulation and plasma analysis were validated as per the ICH Q2B (R1) and USFDA guidelines respectively. The results of validation studies proved applicability of method in biopharmaceutical and pharmacokinetic studies of these drugs.
SYNTHESIS AND BIOLOGICAL EVALUATION OF NOVEL INDOLYL ISOXAZOLINE DERIVATIVES AS ANALGESIC AND ANTI-INFLAMMATORY AGENTS

Kadam P.L, Khadake A.P

Abstract

Present NSAIDs have many adverse effects including gastric ulceration. Efforts are underway throughout the world to come up with safer and better anti-inflammatory agent. In the quest of same we attempted synthesis of some novel indolyl isoxazolines. A series of chalcones 3(a-l) was synthesized from substituted indole aldehydes. These chalcones were cyclised using hydroxylamine hydrochloride to afford a novel series of 2-(4-substitutedphenyl)-3-(3-(4-substitutedphenyl)-4,5-dihydroisoxazol-5-yl)-1H-indole 4(a-l). The structures of synthesized compounds were established on the basis of physical and spectral (FT-IR, ¹H NMR, MS) studies. All the compounds exhibited significant anti-inflammatory activity by carrageenin induced rat paw oedema method. The derivatives 4(e), 4(q), 4(s), 4(t), 4(w) exhibited significant analgesic activity by formalin induced paw licking and acetic acid induced writhing methods. 2D-QSAR study signified that chlorine count, distance between the most hydrophobic and hydrophilic part and T_2_C_7 parameters were influencing the activity. 3D-QSAR study indicated the negative range of steric field and positive range of electronic field favored the activity. The virtual combinatorial library was prepared for future synthesis. The docking scores of 4(g), 4(t) were found to be comparable with reference molecule when docked in cyclooxygenase. The synthesized compounds have the potential for further development as analgesic and anti-inflammatory agents based on molecular modeling study.
DETERMINATION OF ADULTERATION IN MARKETED HERBAL FORMULATIONS CONTAINING CYPERUSSCARIOUS

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Abstract:

In recent years, herbal products are gaining popularity all over the world. However, adulteration in marketed products is one of the greatest drawbacks which hammer the quality of herbal products. Present study was aimed to determine adulteration in marketed herbal formulations containing Cyperusscariosus which can be intentionally as well as unintentionally adulterated by Cyperusrotundus. Three marketed formulations were studied for presence of adulterant using chromatographic fingerprinting techniques, TLC and HPTLC, using toluene: ethyl acetate (9:1) as mobile phase. Both the techniques were found to be simple, rapid, reliable and economic.
OPTIMIZATION OF EXTRACTION PROCEDURES FOR CAMPTOTHECIN FROM NOTHAPODYTES NIMMONIANA

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Abstract

Camptothecin (CPT) a monoterpenediole alkaloid was extracted from stem barks of Notapodytesnimmoniana using ultrasonic and microwave assisted extraction technology under different conditions such as, surfactant concentration (SC), pH, temperatureand exposure time. The optimum parameters for ultrasonicextractionwere determined as SC 0.2%, pH 8, temperature60°C for 1.5 hour. While in microwave extraction, exposure time was reduced upto 2 min at 350 W. By using optimized parameters, CPT was obtained 1.645% and 1.654% for ultrasonic and microwave extraction respectively. The yield of CPTextractedby using surfactant were found to be maximum than those by other solvents. Hence itis concluded that microwave extraction by using surfactant is more efficient than any other method studied for extraction of CPT from Notapodytesnimmonianaand this method was found to be simple,economical, time saving and with high yield.
STUDY OF ANTIDEPRESSANT LIKE EFFECT OF CARUM COPTICUM AND INVOLVEMENT OF MONOAMINONERGIC AND GABANERGIC SYSTEM

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Abstract

The aim of this study was to examine possible mechanism of action of aqueous extract of Carum copticum seed central nervous system of mice. We investigated the antidepressant-like mechanism of Carum copticum by the combination of the Sulpiride (a selective dopamine D₂ receptor antagonist), Prazosin (a α₁ adrenoceptor antagonist), and Baclofen (GABA agonist). The results show that Carum copticum (200 mg/kg, 400mg/kg, p.o.), significantly reduced the immobility time during Tail Suspension Test (TST). And the mechanism of action of Carum copticum may be related to the increase in Nor adrenaline and serotonin levels in the hippocampus and frontal cortex.
IN VITRO CYTOTOXIC PROPERTIES OF FLOWERS OF EUPHORBIA ANTIQUORUM LINN.

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Abstract

The aim of this study was to investigate cytotoxic properties of the crude Ethyl acetate extracts of the Flowers of Euphorbia Antquorum (Family- Euphorbiaceae) and their various fractions by using brine shrimp lethality bioassay. The Ethanolic fraction, methanolic fraction & Ethyl acetate extract of E. Antiquorum exhibited the most significant cytotoxic properties with the LC50 values of 1.119µg/ml, 1.363µg/ml and 2.212 µg/ml respectively. Moderate cytotoxicity was showed by chloroform fractions of E. Antiquorum having LC50 values of 6.252 µg/ml. The results of this investigation are highly promising, where vincristine sulphate (LC50 value 0.367 µg/ml) was used as the positive control.
‘PRELIMINARY PYTOCHEMICAL AND ANTICANCER SCREENING OF LAGENARIA SICERARIA STAND. FRUIT USING PHYTOTOXIC AND BRINE SHRIMP LETHALITY ASSAY MODELS’

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Abstract

Cancer is one of the leading causes of mortality worldwide. Many of the cucurbitaceae plants possess antitumor activity on the traditional use. The present study was carried out to evaluate the anticancer of activity of extracts Lagenaria siceraria Stand. Fruit. Lagenaria siceraria Stand.fruit. has the antioxidant activity so the plant may have anticancer activity. The present research had carried out on laboratory level assays to avoid the use of different animal models. Preliminary phytochemical tests of successive extraction of Lagenaria siceraria Stand. Fruit powder had performed to find out the different chemical moieties. Preliminary anticancer screening by exposure of different extracts on cerial seeds and Brine shrimp models were carried out to find out the lead extract which shows the promising cell growth inhibitory activity. The Phytotoxic or Antimitotic assay and Brine shrimp lethality assay were selected because they are easy to done and give fastest promising results. Serial seeds were selected for the Phytotoxic assay or Antimitotic assay which shows the root growth inhibition that compared with standard antimitotic drug (colchicin). Brine shrimp lethality assay was performed by using the Brine shrimps napuliis to study the cell growth or cytotoxic activity. n-Butanol extract of Lagenaria siceraria Stand. Fruit powder shows the promising anticancer activity that so it is selected as a lead extract. Further isolation of chemical moieties of same extract will be possible.
MULTIPATHWAY INDUCTION PROGRAM: PANACEA FOR FOSTERING PROFESSIONALISM IN NOVICE STUDENTS

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Abstract

Pharmacy education needs re-engineering for improving professionalism in students by innovative technique. The objective of this work is to design & define an induction program comprising set of programs for newly admitted students, to implement this induction program and to find the outcome of induction program on student behavior by continual assessment.

A multi-pathway Induction Program is designed by arranging a FGD (Focused group discussion) in between 5 academicians & 2 industrialists. As per the conclusion induction program is arranged for two consecutive batches as they get admitted in college. Behavior assessment of these 2 batches and a first batch for which induction program was not conducted (N=198). Continual behavior assessment was carried out in 3 month, 12 month & 18, 24 month for second year batch & in 3 month for first year batch. Evaluation is carried out by taking responses from teachers (20) and mentor’s (20), with help of questionnaire and their academic growth and behavior. The responses were graded with low (0-30%), moderate (31-70%) & high (71-100%).

As per conclusion of FGD following programs such as 1. Welcoming to fresher’s, 2. Introduction to institute, 3. Academic planer, 4. Peer mentoring programs, 6. White coat ceremony, 7. Introduction to committees, 8. Outside speakers for update recent trends are arranged. Behavior assessment result found that newly admitted students have more professionalism, integrity, collaboration with faculty by arranging induction program. Hence institutions, administrators, practitioners, have to consider it for implementation in novice student for upgrading pharmacy profession.
MEDI-VED A SOLUTION UPLIFT PHARMACY PROFESSION VIA SCHEDULE HX

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Abstract

Antibiotic resistance (AR) is burning question from some decades & result into 150000 deaths. The present study focused on causes of AR and to explore factors which influence malpractices of usage antibiotics and suggest corrective measure.

Literature study from various magazines, websites, was done to understand whether misuse of antibiotic is key factor which increases the antibiotic resistance. 40 prescriber, 40 pharmacist, 40 patients & FDA officers were approached in urban & rural area of Kolhapur, Sangali district. Self-administered questionnaires were developed for study. Out of 120 of these participants 50% are from rural area and 50% from urban are taken for effective result in our survey.

Total contributers in AR has been found as 55% prescribers, 27% pharmacist, 10% patients, 5% society. Various determinants are found which affect on antibiotic usage. Health ministry is planning to implement Schedule HX to combat AR. There are certain limitations which have not taken into consideration like, 1. Less availability of tertiary care hospitals, 2. Economic loss of Pharmacist, 3. Availability of medicines in emergency cases. 4. Tertiary care hospitals not affordable. This bridge can be connected by setup of governing body which is initiated in kolhapur by the name “thyrocare” and there is need of stringent regulation to combat this situation & strapping “iron will” in health care professionals to organise campaign to provoke awareness which we initiated.

Keywords:- Antibiotic resistance, Schedule HX, Tertiary care hospitals.
PHYTOCHEMICAL INVESTIGATION AND ANTIOXIDANT ACTIVITY OF INFLORESCENCE (ARROWS) OF SACCHARUM OFFICINARUM LINN.

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Abstract

Saccharum officinarum Linn having flowering region known as arrowing has soft-rinded, puffy nature. The extracts of Sugarcane inflorescence was carried out using petroleum ether, chloroform, Dichloromethane, Ethyl acetate, n-Butanol, Methanol and Distilled water as solvents. The phytochemical investigation of extracts revealed the presence of alkaloids, tannins, anthraquinones, reducing sugars, saponins, flavonoids, polyphenols, steroids and terpenoids. Some of these fractions were screened for free radical scavenging activity (Antioxidant) using 2, 2-diphenyl-1-picrylhydrazyl radical (DPPH). In DPPH scavenging assay, free radicals are involved in the process of lipid peroxidation and play a cardinal role in numerous chronic diseases like cancer, coronary heart disease and ageing. Thus the ability to scavenge free radicals in order to minimize oxidative damage to living cells is very important.

The better scavenging activity of Saccharum officinarum L. could be linked to the presence of secondary plant products like flavonoids and phenols, which have the ability to scavenge hydroxyl radicals and lipid peroxy radicals. On the basis of activity shown further investigation as separation, isolation and characterization of chemical constituents using HPTLC and spectroscopic method will be done.
Extraction of *Hibiscus Rosa Sinensis Linn.* and It’s Use in Analytical Method Development

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Abstract

There are different types of pigments obtained from plants such as Chlorophylls, Carotenoids, Flavonoids, Phytochroms, Phycobilins, Betalains. These are used for coloring cloths, as food colorants and in analysis as acid- base indicators. A successful attempt has been done for the first time to use them in developing analytical spectrophotometric method for amide linkage containing drug. A simple, accurate, sensitive and reliable method have been developed for the determination of glybanclamide in bulk and pharmaceutical formulation. Using extract of *Hibiscus Rosa Sinensis Linn.* A calibration curve was constructed at optimum experimental conditions using absorbance values at 605 nm versus concentration in the range of 5 to 40 µg/ml. High value of the correlation coefficient (r=0.9996) indicates a good linearity and adherence of the method to Beer’s law. Developed method is validated using ICH Q2 guidelines The absorbance of the pale yellow colored complex was measured spectrophotometrically at 605 nm against reagent blank. From Calibration graphs Beer’s law is followed in range of 5 to 40µg/ml with correlation coefficient 0.9996, while the LOD and LOQ was 0.27, 0.79 respectively. As use of extracted pigment is done for amide group containing class of hypoglycemic agents, further study to develop simple, accurate, sensitive and reliable Visible Spectrophotometric methods for different types of drug formulations can be done and the methods can be used in carrying out routine analysis.
DESIGN, SYNTHESIS AND QSAR ANALYSIS OF 1, 2, 4-TRIAZOLE DERIVATIVES AS ANTIFUNGAL AGENTS

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Abstract

Remarkable ability to survive and proliferate in a radically changing environment has placed fungi amongst the leading cause of microbial infections. In this work we have attempted a rational approach to design potent inhibitor of Lanosterol 14α-demethylase and to synthesize and screen these molecules as novel antifungal agent. Lanosterol 14α-demethylase is involved in the synthesis of ergosterol and thus is promising target for development of new antifungal agents. Design and synthesis of 1, 2, 4-Triazole derivates inhibiting this enzyme is the main objective of present work.

The protein model of Lanosterol 14α-demethylase was constructed by comparative protein modeling principles using the x-ray structure of E.coli(PDB code:1EAI) as a template. From the analysis of docking studies it was observed that amino acid TYR 131B, PHE 234B, TYR 145B, ALA 311B, THR 315B, PHE 139B of the enzyme show similar interaction both with the natural ligand and some of the designed compounds. A series of 30 designed 1-and 2-substituted 1, 2, 4-triazoles were synthesized and screened for antifungal activity. Different set of QSAR equation were generated employing multiple linear regression method and various field descriptor for co-relation with observed activity. The best QSAR model was selected based on and docking data analysis, were synthesized and screened for antifungal activity.

The designed compounds showed potent growth inhibitor. The significant 3D-QSAR models were developed.
VALIDATED RP-HPLC METHOD FOR ESTIMATION OF DROTAVERINE HYDROCHLORIDE AND OMEPRAZOLE FROM ITS TABLET FORMULATION

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Abstract

The analysis of multicomponent formulation by chromatographic methods is widely used to examine the purity, uniformity and stability.

Objectives: To develop and validate a simple, accurate and RP-HPLC method for estimation of drotaverine hydrochloride and omeprazole from its tablet formulation

Methodology: Analysis was carried out on Jasco HPLC system with HiQ-sil C18 column (250 x 4.6 mm i.d.) using MeOH: 0.04% N-Hexane Sulphonic Acid (80:20 v/v) as mobile phase and Caffeine as an internal standard. The detection was carried out using UV detector set at 230 nm. For this method, Beer’s law is obeyed in the concentration range of 5.0 to 30.0 µg mL⁻¹ of Omeprazole and 20 to 120 µg mL⁻¹ of Drotaverine Hydrochloride.

Result: The mean percent recoveries were found to be 99.75 ± 0.3891 for Drotaverine Hydrochloride and 97.91 ± 0.9348 for Omeprazole. The method was validated with respect to linearity, precision and accuracy as per the International Conference on Harmonization (ICH) guidelines. The developed method has been successfully applied for the analysis of drug in bulk and pharmaceutical formulation.
VARIOUS CONVENTIONAL AND PATENTED METHOD OF FAST DISINTEGRATING DRUG DELIVERY SYSTEM: A OVERVIEW

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Abstract
Oral routes of drug administration have wide acceptance up to 50-60% of total dosage forms. Methods to improve patient’s compliance have always attracted scientists towards the development of fancy oral drug delivery systems. MDDDS have the unique property of rapidly disintegrating and/or dissolving and releasing the drug as soon as they come in contact with saliva, thus obviating the requirement of water during administration. Therefore, these dosage forms have lured the market for a certain section of the patient population which include dysphagic, bed ridden, psychic, geriatric and paediatric patients. Several method have been developed in the recent past, to improve the disintegration quality of these delicate dosage forms without affecting their integrity. This article focuses on the method available and the advances made so far in the field of fabrication of mouth dissolving tablets. In particular, this review describes in detail FDT method based on approach such as lyophilization, molding, sublimation, and compaction, as well as approaches to enhancing the FDT properties, such as spray drying, moisture treatment, sintering, and use of sugar-based disintegrants. Apart from the conventional methods of fabrication, this review also provides the detailed concept of some unique patented technologies like Zydis, Lyoc, Quicksolv, Orasolv, Durasolv, Flashtab, Oraquick, Wowtab and Ziplet alongwith their advantages and limitations. In addition, taste-masking method, experimental measurements of In-Vitro disintegration times studies are also discussed.
BIOLOGICAL METHODS FOR ESTIMATION OF BOTANICALS: AN OVERVIEW

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Abstract:-
Botanical products are “heterogeneous” due to the presence of mixture of bioactive plant components. Physical analytical are usually insensitive to the chemical complexities found in crude botanical extracts. Also physical or chemical analysis of a single component in such mixtures is not completely satisfactory. The goal of many phytochemists has been simply to isolate, characterize, and publish a plethora of novel botanically-derived chemical substances without regard to bioactivities. To achieve applied meaning and significance, today’s work in natural product chemistry must incorporate bioassays. Extracts must be screened for biological activity, the “active” extracts selected, fractionations directed with bioassays, and the bioactive compounds identified and then exploited. We have made an attempt to summarize different bioassays (Brine Shrimp Lethality, Crown Gall Tumors on Potato Discs, Yellow Fever Mosquito Test, The Lemna Bioassay) which are useful in the detection of biologically active components of botanical extracts.
REVIEW ARTICLE ON ORAL STRIP TECHNOLOGY

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Abstract:-
Oral strip technologies have been introduced in the market recently as they provide convenience and ease of use over other dosage forms such as orally disintegrating tablets. This technology evolved over the past few years from the confection and oral care markets in the form of breath strips and became a novel and widely accepted form by consumers, so Oral strip technologies are gaining the interest of large number of pharmaceutical industries. This technology is based on the technology of transdermal patches. Oral strip technology is the type of drug delivery system which when placed in the oral cavity, disintegrate or dissolve within few seconds without the intake of water. It consist of very thin oral strip, which release active ingredients immediately after uptake into oral cavity. Oral strip technologies are very similar to postage stamp in their shape, size and thickness. These strips have a potential to deliver the drug systemically through intragastric, sublingual or buccal route of administration and also has been used for local action. This type of technology offer a convenient way of dosing medication, not to special population groups like pediatric, geriatric, bedridden patients, mentally ill patients, but also to the general population. Today this is the proven and accepted technology for the systemic delivery of Active pharmaceutical ingredients. The present review provides an account of various formulation considerations, method of preparation and quality control of the Oral strip technology.
CHRONOTHERAPY: NOVEL APPROACH FOR DRUG DELIVERY
(AN OVERVIEW)


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Abstract:

Chronotherapy is useful in the treatment of disease, in which drug vailability is timed to match rhythms of disease, in order to optimize therapeutic effect and minimize side effects. The specific time that patients take their medication is very important as it has significant impact on success of reatment. If symptoms of a disease display circadian variation, drug release should also vary over time. Drug pharmacokinetics can also be time dependent; therefore, variations both in a disease state and in drug plasma concentration need to be taken into consideration in developing drug delivery systems intended for the treatment of disease with adequate dose at appropriate time. Various technologies such as time-controlled, pulsed, triggered and programmed drug delivery devices have been developed and extensively studied in recent years for chronomodulatory drug delivery.
NANOSUSPENSION TECHNOLOGY IN NDDS

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Abstract

Solubility is an essential factor for drug effectiveness, independent of the route of administration. Large proportions of newly discovered drugs are water insoluble, and therefore poorly bioavailable contributing to deserted development effort. Nanosuspensions consist of the poorly water-soluble drug without any matrix material suspended in dispersion. The problem is even more complex for drugs belonging to BCS CLASS II category, as they are poorly soluble in both aqueous and organic media.

Nanosuspensions are prepared by using bottom up technology, top down technology, media milling, high pressure homogenizer, emulsion as template, microemulsion as template. It can also be lyophilized or spray dried and the nanoparticles of a nanosuspension can incorporated in a solid matrix. Nanosuspensions can be delivered by oral, parenteral, pulmonary and ocular, topical routes. Nanosuspensions can also be used for targeted drug delivery, when incorporated in the ocular inserts and mucoadhesive hydrogels. The reduced particle size renders the possibility of intravenous administration of poorly soluble drugs without blockade of the blood capillaries. A nanosuspension not only solves the problems of poor solubility and bioavailability but also alters the pharmacokinetics of drug and thus improves drug safety and efficacy.

The current technology emphasizes mainly on Nanosuspension along with formulaion, method & its properties, evaluation, application, advantages and disadvantages.
DESIGN OF NOVEL GP120 BINDING LIGANDS AS ANTI –HIV AGENTS.

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Abstract

Despite recent highly advanced techniques in retroviral therapy, need of novel potential chemical entity remains unsatisfied. This interaction mediates attachment of virus to its target cells and plays an important role in host infection. However, no approach to targeting the CD4-gp120 interaction has been successful in clinical practice. To inhibit this attachment through novel ligands is the primary objective of present work. The high-resolution three-dimensional structures of gp120 were downloaded from bioinformatics online tool. VLife Molecular Design Suite (MDS) version 3.5 has been applied to get cavities in the gp120 structure and online sever tools Pocket Finder and Q-site Finder tools were applied for modeling novel binding sites in gp120. The various regions of these sites were studied for complementary electrostatic potential, complementary hydrophobicity, probable hydrogen bonding, pi-stacking and other interactions. Furtherly chemical database was extensively used to design novel ligands. Refinement of this design was done by KNN based 3D QSAR study of already reported gp120-CD4 inhibitors. The k-nearest neighbor (kNN) technique supported with Stepwise (SW) forward selection method was exclusively applied. Data set of 32 molecules was used to develop four different 3D QSAR models. The highly significant two models describe different descriptors along with their range of field values for hypothetical pharmacophore with maximum binding affinity. These results were exploited to make design of novel potential ligand more rational and more specific. Proposed chemical scaffolds are versatile and key for further development of novel class of anti-HIV drugs.
DEVELOPMENT AND VALIDATION OF STABILITY- INDICATING ASSAY
METHOD FOR DETERMINATION OF THIOCOLCHICOSIDE IN CAPSULE
 DOSAGE FORM BY RP-HPLC

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Abstract

In the present work the approach of forced degradation study was successfully applied for the
development of stability-indicating assay method for determination of Thiocolchicoside in
capsule formulation in the presence of its degradation products. The RP-HPLC separation
was carried out on Shimadzu®-HPLC 1100 series using a Phenomenex ODS 5µ C_{18} column
(250x4.6mm) with mobile phase comprising of Acetonitrile: Phosphate Buffer (70:30) pH
3.5v/v at flow rate of 1.0mL/min and UV detection at 260.0 nm. Comprehensive stress testing
of Thiocolchicoside was carried out according to the International Conference on
Harmonization (ICH) guidelines. In stress testing a drug substance or the drug product is
exposed to an environment vigorous than the normal i.e. at high temperature, high humidity
over the period of time called accelerated stability conditions. The drug was subjected to
Solid state analysis which includes Humidity studies (40°C/75% RH), photochemical studies
(UV light and sunlight exposure) and Thermal studies to apply stress conditions. The method
was validated as per ICH guidelines for accuracy, precision, linearity and range, ruggedness
and robustness. The linearity of the proposed method was investigated in the range of 80-
120% of label claim; the correlation coefficient for Thiocolchicoside was found to be 0.999.
The proposed method was found to be simple, specific, linear and rugged and can be used for
routine quality control.
FORMULATION AND EVALUATION OF IBUPROFEN DIRECTLY COMPRESSED MOUTH DISSOLVING TABLETS.

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Abstract

Ibuprofen is chemically 2(4-Isobutyl phenyl) propionic acid. A potent inhibitor of the enzyme cyclooxygenase which thus results in a reduction in prostaglandin synthesis with prominent anti-inflammatory, analgesic and antipyretic properties.

Mouth dissolving tablets are appreciated by a significant segment of the population, particularly paediatric, geriatric and bedridden patients have difficulties in swallowing tablets. In the present study, Mouth dissolving tablets of Ibuprofen were formulated by applying Direct compression method. Using microcrystalline cellulose as directly compressible filler. Crosscarmellose Sodium, Sodium Starch Glycolate and Low substituted Hydroxy Propyl Cellulose were used as superdisintegrants.
SOLID LIPID NANOPARTICLES: A MODERN FORMULATION APPROACH IN DRUG DELIVERY SYSTEM

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Abstract

Solid lipid nanoparticles are at the forefront of the rapidly developing field of nanotechnology with several potential applications in drug delivery. Interest in lipid-based drug delivery has developed over the past decade fuelled by a better understanding of the multiple roles lipid may play in enhancing oral bioavailability. Due to their unique size-dependent properties, lipid nanoparticles offer the possibility to develop new therapeutics. The ability to incorporate drugs into nanocarriers offers a new prototype in drug delivery that could be used for secondary and tertiary levels of drug targeting. Hence, solid lipid nanoparticles hold great promise for reaching the goal of controlled and site-specific drug delivery and hence have attracted wide attention of researchers. This review presents a broad treatment of solid lipid nanoparticles discussing their advantages, limitations, and their possible remedies. The different types of nanocarriers which were based on solid lipid like solid lipid nanoparticles, nanostructured lipid carriers, lipid drug conjugates are discussed with their structural differences. Different production methods which are suitable for large scale production and applications of solid lipid nanoparticles are described. Appropriate analytical techniques for characterization of solid lipid nanoparticles like photon correlation spectroscopy, scanning electron microscopy, differential scanning calorimetry are highlighted. Aspects of solid lipid nanoparticles route of administration and their biodistribution are also incorporated.
IN VITRO EVALUATION OF ANTIBACTERIAL ACTIVITY OF GREEN TEA (CAMELLIA SINENSIS) EXTRACT AGAINST VARIOUS BACTERIA ISOLATED FROM ENVIRONMENTAL SOURCES.

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Abstract

Tea is cultivated in many countries of the world. India is largest tea (black tea) producer in world followed by Japan (green tea) and China. In the present study Camellia assamica (Green tea) leaves extracts were tested for antibacterial activity against various bacteria isolated from environmental sources. Different bacteria were isolated from sewage samples collected from different places at Solan Himachal Pradesh. Isolated bacteria were identified by Gram staining and biochemical tests. A total of six bacteria were identified at Department of Microbiology at SILB Solan (H.P). Green tea leaves extracts were tested for antibacterial activity. Tea leaves were collected from Palampur, Himachal Pradesh. Three different extracts were prepared by using standardized protocols. All the extracts were tested for antibacterial activity by disc diffusion method. Antibacterial assay was performed at 10µl, 20µl, and 30µl concentrations. Significant antibacterial activity was reported for all extracts with results. Aqueous extracts has shown little antibacterial activity against six bacteria isolated. Maximum antibacterial activity was found in methanolic extracts. Our study reflects the chemotherapeutic use of green tea.
ANTI HIV MODEL FOR VACCINE GENERATION


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Abstract

Virus has dominance over all organisms since long time. Although many medicine and vaccine available for most of virus, HIV virus become puzzle till yet today. HIV virus utilizes reverse transcriptase enzyme as a weapon and attack on CD-4 cells and make it paralyze. Virus having ability to utilize the metabolic machinery of host is old concept. This strategy is access by HIV and attack CD-4 cells. So it form lock key model at receptor level by attach to GP-120 protein. So GP-120 nob fit into the CD-4 cell and macrophages and sends reverse transcriptase enzyme and genome into the host. Later by taking control over host it generate its progeny and conversion of HIV to AIDS occurs. Scientist tried to develop vaccine or medicine but failed. The vaccine changes the conformation of the CD-4 receptor or the GP-120 nob of HIV virus is attempted. Conformation changed at receptor level not allows the attachment of the virus to CD-4 cells. This effect is seen in the rhesus monkey. This effect we explained via a model using a ball, paper sheet, and plastic rod. Finally this is best model called as ANTI HIV MODEL helpful in generation of vaccine targeting GP-120 protein of HIV. Its new beginning to tackle HIV as a boon!
IMPROVED PHYSICOCHEMICAL CHARACTERISTICS OF SIMVASTATIN SOLID DISPERSION PARTICLES BY SOLVENT EVAPORATION METHOD.

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Abstract

Solid dispersions have been under investigation for several decades as a means to improve the bioavailability of BCS Class 2 compounds, i.e. compounds exhibiting high permeability but low solubility and/or dissolution rate. Solid dispersions are most commonly formed either from a drug/excipient solution (by solvent evaporation) or from a homogeneous drug/excipient melt, via melt extrusion. In the final formulation, the compound may be molecularly dispersed in the excipient matrix, or may be dispersed as fine nanocrystalline or amorphous particles which form during solvent evaporation or cooling of the melt. The matrix is typically a water-soluble polymer such as polyethylene oxide, polyvinyl pyrrolidone, or hydroxypropyl methyl cellulose. Solid dispersions of simvastatin were formulated with HPMC and adsorbents by the solvent evaporation (SE) The solid dispersion particles were characterized by particle size, zeta potential, (SEM), differential scanning calorimetry (DSC), powder X-ray diffraction (XRD), solubility and dissolution studies. The solid dispersions from the solvent evaporation process showed a high dissolution rate of over 90% within 2 hrs. The SAS process system may be used to enhance solubility or to produce oral dosage forms with high dissolution rate.

Keywords:- solvent evaporation, powder X-ray diffraction, scanning electron microscopy.
FORMULATION AND EVALUATION OF INDOMETHACIN ER CAPSULE BY MULTIPARTICULATE DRUG DELIVERY SYSTEM

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Abstract

In recent years scientific and technological advancements have been made in the research and development of controlled release oral drug delivery systems by overcoming physiological adversities. There are so many oral delivery systems in that one of the advance techniques is Pelletization. As Indomethacin drug belongs to the Biopharmaceutical Classification system (BCS) class II, so it was formulated in the form of multiparticulate drug delivery to increase its solubility and bioavailability by becoming gastric independent dosage form. Indomethacin extended release capsules prepared in fluidized bed processor by drug layering pelletization method that indomethacin was coated on inert sugar spheres by using povidone K-30 as a binder solution, SLS as a solubilizer and lactose monohydrate as pore former. Hydroxypropylmethylcellose was used as seal coating agent. Ethyl cellulose as polymer used for extended release action. The prepared capsules were evaluated for content uniformity, weight variation, assay and in-vitro drug release study.

Thus the final formula was developed which was pharmaceutically equivalent, stable, cost effective and quality improved formulation of Indomethacin pellets to present it in the form of capsules (Extended release capsules) and these were compared with that of the marketed dosage form. The formula was finalized by comparing the in vitro dissolution profile with that of the marketed product.
INAUGURATION OF RESEARCH POSTER PRESENTATION HALL
POSTER PRESENTATION
DIP-PRAJWALAN DURING VALEDICTORY FUNCTION
PRIZE DISTRIBUTION
“RESEARCH IS TO SEE WHAT EVERYBODY ELSE HAS SEEN AND TO THINK WHAT NOBODY ELSE HAS THOUGHT.”