ONE DAY STATE LEVEL
RESEARCH PRESENTATION
COMPETITION

16th OCTOBER 2018

ABSTRACT BOOK
ABOUT ALL INDIA SHRI SHIVAJI MEMORIAL SOCIETY

To promote the noble cause of education, All India Shri Shivaji Memorial Society was established in 1917 by Rajarshi Chhatrapati Shahu Maharaj of Kolhapur and H.H. Madhavrao Scindia Maharaj of Gwalior. The Society is running around 13 institutions spread over three campuses Near RTO, Shivaji Nagar and Bori Bhadak in Pune. These institutes offer full-fledged education and training facilities in the field of Pharmacy, Engineering, Management, Polytechnic and Hotel Management in addition to Nursery, Primary & Secondary School Education and Junior College. The AISSMS Campus has all the basic amenities such as Hostels, Auditorium, Canteen, Playgrounds and much more.

ALL INDIA SHRI SHIVAJI MEMORIAL SOCIETY’S
COLLEGE OF PHARMACY
Kennedy Road, Near RTO
Pune-411001
Tel:020-26058204/26058208
Website: www.aissmscop.com

The college was established in the year 1996 to produce Pharmacy professionals of caliber, competence and conscience through quality education and to cater the needs of skillful and knowledgeable human resource with healthy attitude for pharmaceutical industries and healthcare systems.

The college is approved by Pharmacy Council of India and All India Council for Technical Education, recognized by Government of Maharashtra and affiliated to Savitribai Phule Pune University and included under section 2(F) and 12 (B) of UGC act 1956. The college has been ranked in the band of 50th to 75th by National Institutional Ranking Framework (NIRF), Ministry of Human Resource Development, Government of India. The college offers undergraduate, post-graduate and doctoral programmes in pharmacy. Undergraduate course has the intake of 60. The postgraduate courses are offered in Pharmaceutics, Quality Assurance, Pharmaceutical Chemistry and Pharmacology. Ph.D. programmes are offered in Pharmaceutics & Pharmaceutical chemistry. The institute boasts of robust infrastructure and advanced instrumentation facilities.
# ONE DAY STATE LEVEL
## RESEARCH PRESENTATION COMPETITION

**At**
All India Shri Shivaji Memorial Society’s College of Pharmacy, Pune

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## OBJECTIVE

It’s a platform provided to all budding researchers from B.Pharm and M.Pharm Courses to present the outcome of their research work.

The objective is to provide a state level, approachable platform to promote innovative idea based research projects.

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Chougule Asma, Aney Joice Samuel  
M. C. E. Society’s Allana College of Pharmacy, Azam Campus, Camp, Pune

ABSTRACT
The aim of this study was to formulate and evaluate liquisolid compact tablets of Domperidone, a BCS class II drug. The solubility and dissolution behavior of a drug are the key factors determining the oral bioavailability of poorly water-soluble drugs. Among the different techniques available for solubility enhancement and thus dissolution, liquisolid technique is a novel and promising approach. Liquisolid compact tablets of Domperidone were prepared using PEG400 as a solvent, Avicel PH 101 as carrier and Aerosil 200 as the coating material. The formulated tablets were evaluated for post compression parameters such as weight variation, hardness, drug content uniformity, percentage friability and disintegration time. The invitro release characteristics of pure drug, drug from marketed tablets and liquisolid technique were studied. The results showed that the liquisolid formulation of Domperidone exhibited higher percentage of drug release than marketed formulation.
ABSTRACT

Etravirine is an antiretroviral agent, more specifically classified as a Non-Nucleoside Reverse Transcriptase Inhibitor (NNRTI). Etravirine is used clinically for the treatment of human immunodeficiency virus type 1 (HIV-1) infection. It is available in the market as tablets of strength 25mg, 100mg, and 200mg. A simple, rapid validated HPTLC method for Etravirine HCL was successfully developed. This method is based on HPTLC separation followed by UV detection at 235nm. The separation was carried on Merck TLC aluminium sheets pre-coated with Silica Gel 60F254 using Toluene: Ethyl Acetate as a Mobile Phase. Etravirine HCL gave well defined and sharp peak at Rf 0.27 ± 0.02 at 235nm. Calibration Curve was linear in Range 200-1000ng/band for Etravirine HCL. The suitability of this HPTLC method for quantitative determination of EtravirineHCL was proved by validation in accordance with requirements of ICH guidelines Q2 (R1).
ABSTRACT

Domperidone and Ilaprazole are drugs used in the treatment of gastro-oesophageal reflux. They are also given in combination. The current work describes a simple UV spectrophotometric method for estimation of these two in combination. It is based on the principle of Absorbance correction for interference. The method is economical, fast and has been validated.
HEPATOPROTECTIVE EFFECT OF POLYHERBAL FORMULATION AGAINST PARACETAMOL INDUCED HEPATIC TOXICITY IN RATS.

Mr. Sachin D. Shinde Shivani Shelke, Vishwambhar Deshmukh, A. P. Chavan, Abhishek Khadekar, Aishwarya Pangare
Group No.01; Shri R.D. Bhakt College of pharmacy, Ragaon Road, Jalna Maharashtra, India

ABSTRACT
This study is designed to investigate the hepatoprotective activity of polyherbal formulation (LC-01) in Paracetamol induced hepatotoxicity in rats. Hepatotoxicity was induced in adult Wistar rat by paracetamol (2 g/kg). The polyherbal formulation was administered at the dose level of 500 mg/kg orally for 7 days and N-acetyl cystine (140 mg/kg) as standard drug was administered once daily for 7 days. The hepatoprotective effect of polyherbal formulation were evaluated by assessment of biochemical parameters such as serum creatinine, urea, oxidative stress parameter and histopathological study of liver. In this study revealed that the polyherbal formulation at dose 500 mg/kg showed hepatoprotective effect against paracetamol induced hepatotoxicity by significantly restoring the levels of serum creatinine, urea and oxidative stress parameter as compared to the paracetamol treated group. Paracetamol treated group showed increase in body weight but LC-01 treated group shows normal gain in body weight. In histology, LC-01 treated shows normal architecture of live tissue compared to paracetamol group. From this study, it can be concluded that polyherbal formulation showed significant protection against PCM induced hepatotoxicity in rats.
EVALUATION OF HYPOLIPIDEMIC POTENTIAL OF A POLYHERBAL FORMULATION IN EXPERIMENTAL RATS

Mr. Sachin D. Shinde, Vaishnavi Dhengane, Varsha Raje, Poonam Rathi, Komal Dongare, Shambala Pawar
Group No.03 Shri .R D Bhakt College of Pharmacy, Raegaon Road Jalna4301203, Maharashtra, India.

ABSTRACT

In present investigation we evaluated of hypolipidemic potential of a Polyherbal formulation in High cholesterol containing diet induced hyperlipidemia in experimental rats. Hyperlipidemia was induced in 18 rats. HCCD were given orally to induce Hyperlipidemia. HCCD given to all rat except normal group upto 10 days. Hyperlipidemia was confirmed on 10th day by evaluating blood glucose level. Orally administered Atorvastatin at 1.2 mg/kg/per day served as a standard. Polyherbal formulation (LC-01) was given orally at 500 mg/kg daily to rats for 28 days, and body weight as well as blood glucose, total cholesterol, triglyceride, HDL cholesterol levels were determined at 7 days intervals and compared with those of control and standard groups. LC-01 treated rat’s shows normal gain in body weight as compared to DC group. DC groups showed significantly increased level of blood glucose, total cholesterol, triglycerides and a higher level of HDL cholesterol. The group that received the polyherbal formulation had significantly reduced levels of serum blood glucose, total cholesterol, triglycerides and a higher level of HDL cholesterol. The polyherbal formulation exerts antihyperlipidemic and anti-obesity activities comparable to those of a modern lipid-lowering agent (atorvastatin) in rats.
ABSTRACT

The aim of the present work was to formulate the emulgel of Piperine and its evaluation. Piperine was encapsulated into the microemulsion to improve the topical availability of Piperine. Piperine, the major alkaloid of black pepper, stimulates melanocyte proliferation in-vitro. This property renders it a potential treatment for the skin depigmentation disorder vitiligo. Solubility of Piperine was determined in various oils. Ternary phase diagram were plotted to identify the efficient one phase. Microemulsion having lowest particle size was chosen and it was incorporated in gel base. The formulation was evaluated for particle size, rheological studies, spreading coefficient studies, bioadhesion strength, skin irritation studies, in-vitro release studies by Franz diffusion. So it can be concluded that emulgel of piperine is an effective topical formulation.
ABSTRACT:

Human immunodeficiency virus type 1 (HIV-1) leads to a disease known as Acquired Immunodeficiency Syndrome (AIDS). Pyrazine and Thiazolidinone pharmacophore has shown diverse range of biological activity comprising anti HIV activity. To study binding behavior of different derivatives of Pyrazine-thiazolidinone on four different crystal structures of HIV-1 RT receptors. Previous research has shown these molecules possess the anti-TB activity and has been investigated for showing dual activity as Anti-HIV and Anti-TB. In the present study we come across a comparative docking study of twenty-three derivatives of N-(4-oxo-2 substituted thiazolidin-3-yl) pyrazine-2-carbohydrazide. Binding pattern of these derivatives was gauged by molecular docking studies on four different receptors bearing PDB code 1ZD1, 1RT2, 1FKP and 1FK9 of HIV–RT enzyme using V. Life MDS software Genetic algorithm docking method. The studies revealed that for binding of molecule with the enzyme hydrogen bonds, hydrophobic interaction and pi-pi interactions playing the key role. Out of all the molecule which are showing good dock score and binding energy with anti-HIV receptors only the molecule 13 and 14 have potential of acting as anti-tubercular and Anti HIV and hence can be further explored for dual activity.
FORMULATION OF CLOTRIMAZOLE LOADED BUCCAL FILM FOR ORAL CANDIDIASIS.

Yash Baheti¹, Payal Kaitkar¹, Vinita Patole¹

¹JSPM’s RajarshiShahu College of Pharmacy & Research, Tathawade, Pune- 33.

ABSTRACT:
Buccal films, releasing topical drugs in the oral cavity for the treatment of oral candidiasis at a slow rate is advantageous over the traditional dosage forms. The aim of present study was to prepare biodegradable and mucoadhesive buccal films of clotrimazole for oral candidiasis. The film was intended to provide localized delivery of clotrimazole exclusively at the site of infection, above the minimum inhibitory concentration, reducing its total dose, dose-related toxicities as well as reducing the frequency of administration. The films were prepared using pectin-chitosan, gelatin-chitosan and chitosan-polyethylene oxide by solvent casting method. The film prepared with chitosan and polyethylene oxide showed acceptable properties and hence selected for the preparation of films. Glycerol was used as plasticizer in the films. The prepared films were evaluated for bioadhesion and effectiveness against Candida albicans. Bioadhesiveness of the film was evaluated with a modified disintegration test apparatus using chicken buccal mucosa as a model tissue.
ABSTRACT:
An attempt was made to formulate dentifrices powder by exploring natural antimicrobial agent using spray dried fruit juice of *Punica granatum*. Antimicrobial effect of spray dried and non-spray dried fruit juice was compared in dentifrices (tooth powder). Dental problems are at rise due to bad eating habits. Hence, aneed arises to explore new dentifrices containing antimicrobial agents from natural source. Use of natural fruit juice avoids the synthetic exposure of teeth. Pomegranate is found to be effective against *E. coli*, *Staphylococcus aureus*, *Staphylococcus epidermis*, *Pseudomonas aeruginosa* and *Candida albicans*. Fruit juice of *Punica granatum* was extracted from seeds of fruit. Spray dried fruit juice was obtained as follows: Deionized water (67%) was heated at 51°C; maltodextrin and γ-Cyclodextrin was added slowly with continuous stirring for complete dissolution. Resultant solution was cooled at room temperature. Pomegranate fruit juice (33%) was added and stirred for 1h and spray dried. Tooth powder was formulated using fruit juice/spray dried fruit juice, calcium carbonate, sodium lauryl sulphate, peppermint oil. Spray dried powder showed good flow property and good antimicrobial activity against *E. coli*, *Staphylococcus aureus*, *Staphylococcus epidermis*, *Pseudomonas aeruginosa* and *Candida albicans*. Dentifrices powder showed (write here tapped density, bulk density, angle of repose, hausners ratio values of good category). Antiplaque activity will be studied using zone of inhibition. Therefore, spray dried and non-spray dried pomegranate fruit juice exhibited good antimicrobial activity. Tooth powder showed better reduction of plaque and antimicrobial activity to cure tooth decay. Natural antimicrobial agent *Punica granatum* fruit powder can be an excellent choice for dental caries.
ABSTRACT:

Fenofibrate is an antilipemic agent which reduces both cholesterol and triglycerides in the blood. Fenofibrate is a BCS Class II drug and its bioavailability is thus dissolution limited. The objective of the present study was to prepare solid dispersions (SDs) of finofibrate using the amphiphilic carrier Gelucire 50/13 in various proportions, by various techniques, to increase its water solubility. Drug-polymer interactions were investigated by DSC and UV spectroscopy. In vitro dissolution study showed that the SDs considerably enhanced the dissolution rate of the drug. The UV spectra revealed no chemical interaction between the drug and Gelucire 50/13. DSC thermogram indicated that fenofibrate in SD was in the amorphous form, which explains the improved dissolution rate. Finally, mouth dissolving tablets (MDTs) were prepared from the optimized batches (coprecipitation method) of solid dispersion. The tablets were characterized by in-vitro disintegration and dissolution tests. In conclusion, this investigation demonstrated the potential Gelucire 50/13 for promoting the dissolution of fenofibrate in SD.
FORMULATION AND EVALUATION OF HERBAL HAIR CREAM

Mrs. Amruta. N. Avalaskar, Shital Ranvare, Akshay Punmiya, Laxmi Choudhari, Ram Polawar, Kiran Honkalas
AISSMS College of Pharmacy, Pune-01

ABSTRACT:
Herbal formulation always have attracted considerable attention because of their good activity and comparatively less or no side effects with synthetic drug. The object of present study involves the preparation of multipurpose herbal hair cream for hair growth dandruff controlling hair fall, scalping and graying of hairs. Aloe vera gel used as cream base; Tea extract used for preventing hair loss and promote hair growth. Polyphenol catechins in tea block DHT which is key factor for hair loss. Coconut oil strengthens the hair follicles, fight dandruff and keep scalp and hair well moisturised and healthy. Castor oil to prevent hair loss to grow long hairs. Statistical Analysis was performed on 10 people for 2 weeks and the observations were recorded in case record form. The herbal hair cream was evaluated for following parameters like color, odour, viscosity, spread ability, pH, and stability. By the end of study majority of people reported smoothening of hair fall and reduction in dandruff problems.
DETERMINATION OF ANTIOXIDANT CAPACITY OF ALBIZZIA LEBBECK LEAVES

Roopali Biradar® Devendra S. Shirode,
Dept. of Pharmacology, Dr. D. Y. Patil College of Pharmacy, Akurdi,
Pune – 44

ABSTRACT:

The present study has been performed to evaluate the antioxidant capacity of 70% ethanolic extract of leaves of Albizzia lebbeck (EEAL). The antioxidant property of 70% EEAL was tested by using reducing power and free radical (superoxide, hydroxyl and nitric oxide) scavenging models (in vitro). The test plant has shown dose dependant antioxidant activity in all the models of the study (i.e. 82.03%-reducing power, 79.12%-superoxide, 49%-hydroxyl scavenging activity at 100mcg concentration). The 70% EEAL possess significant antioxidant activity. The antioxidant property may be attributed to the polyphenolic compounds like flavonoids and tannins that are present in the 70% EEAL.
ABSTRACT:

Natural remedies are more acceptable as they are more effective and safer with fewer side effects than synthetic ones. Herbal formulations and cosmetics are having growing demand in the world market. This enhances the need for different herbal formulations and cosmetics. Along with cleansing action, herbal face cleansers are expected to provide nourishment for all types of skin to make it clean, glossy and healthy. By considering the same, in present study we have incorporated fruit juices consisting of vitamins, amino acids, flavonoids, terpene-4-ol, antioxidants, etc. to provide balanced nutrition for the skin. The present work deals with the development and evaluation of cosmetic herbal face cleanser. Gel was formulated by using watermelon and tomato juices with other herbal ingredients. The plants used in formulation have been reported in literature for anti-oxidant, antibacterial and anti-acne activity. The prepared formulation was evaluated for various parameters like colour, appearance, consistency, spreadability, washability, viscosity, pH, etc.
ABSTRACT

A simple, accurate and precise spectrophotometric method has been developed for simultaneous determination of Terbutaline sulphate and Bromhexine HCl in combined pharmaceutical dosage form. The methods developed were simultaneous equation method and absorbance ratio method. Methanol was used as solvent throughout the analysis. Regression analysis of beers plot showed good correlation range of 5-30 microgram/ml for Terbutaline sulphate as well as for Bromhexine HCl. Method was found to accurate and precise. The concentration of Terbutaline and Bromhexine in formulation is 5 mg/8 mg, respectively. The proposed method was successfully applied to determination of these drugs in formulation.
ABSTRACT

The present work was aim to develop a selective method for isolation of berberine by flash chromatography method, the plant material used in this study was collected from the market. The shade dried roots of *Berberis aristata DC* was extracted with methanol by soxhlation method, concentrated over water bath and evaporated under reduced pressure, methanol extracts of the plant material was subjected to preliminary phytochemicals screening for the detection of various plant constituents and their results are shown presence of alkaloids, tannins and phenolic compounds, flavonoids and amino acid. All phytoconstituents were confirmed by HPTLC analysis by selection of the mobile phase was finalized the solvent system: n-butanol : ethyl acetate : acetic acid : water (3: 5: 1: 1) and different peak were observed at \( R_f \) value 0.06, 0.32, 0.38, 0.54, 0.59, said extract was treated for isolation of berberine by flash chromatography method using mobile phase chloroform: methanol (6:4), in result of isolation we obtained different fractions, we had used higher yield of fraction for further characterization of compounds by UV, IR spectra, NMR and LCMS.
A COMPARATIVE STUDY OF QUERCETIN LOADED NANOCOCHLEATES AND LIPOSOMES: FORMULATION AND CHARACTERIZATION

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ABSTRACT

Quercetin loaded nanochleates (QN) were developed using trapping method by addition of calcium ions into preformed negatively charged liposomes (QL) prepared by thin film hydration method comprising of dimyristoyl phosphatidyl glycerol and cholesterol. Stable rods were observed using TEM with average particle size, zeta potential and encapsulation efficiency of 502 nm, -18.52 mV and 88.62% respectively for QN which were developed from spherical QL showing 111.06 nm, -40.33 mV and 74.2% respectively. Compared with quercetin solution, in vitro release of quercetin from QN and QL presented controlled release up to 24 hrs. Degradation studies of quercetin in presence of rat liver homogenate (S9G) revealed that drug was protected in QN due to its unique structure i.e series of rolled up solid layers. Safety and biocompatibility of both formulations was proved by performing cytotoxicity studies on Fibroblast L929 cell lines. Anticancer potential of quercetin was proved by performing in vitro anticancer activity on human mouth cancer- KB cell lines. Also, QN showed superior anticancer activity than QL. Short term stability studies indicated QN to be more stable than QL. Thus, nanochleates might serve as pharmaceutical nanocarriers for improved efficacy of drugs with low aqueous solubility, poor bioavailability, poor targeting and stability.
DEVELOPMENT AND OPTIMIZATION OF BUDESONIDE LOADED POLYMERIC NANOPARTICLES FOR PULMONARY DELIVERY

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ABSTRACT:

Budesonide is BCS class II drug with low water solubility (0.045 mg/mL) and low bioavailability (6-11%). It was aimed to prepare cross linked chitosan-dextran sulfate nanoparticles to improve the percent drug loading and solubility. Nebulizable cross-linked nanodispersion were prepared by the solvent evaporation technique and characterized through particle size, polydispersity index (PDI), zeta potential (ZP), drug loading, drug content, SEM, XRPD, FTIR, in vitro diffusion, aerodynamic and stability study. The mean particle size and PDI of budesonide loaded nanoparticles was 160.8±0.27 nm and 0.36±0.04, respectively. The percent drug loading of all the batches was found to be in range of 10-16%. Stability study results showed no significant change in MPS, PDI, ZP and % CDR after three month storage. In conclusion, cross linked chitosan-dextran sulfate nanoparticles had promising potential for nebulizable dispersion of low water soluble drug with increased loading efficiency which results into higher therapeutic effect.
ABSTRACT:

The metabolic syndrome (MS) is a socially important disorder of energy utilization and storage, recognized as a factor predisposing to the development of depression and kidney impairment in humans. The phenolic compound such as ferulic acid, gallic acid and their derivatives found to have inhibitory effect on alpha-glucosidase, carbohydrate metabolism, obesity and hypelipidmia. They also have neuroprotective activity as well as cures renal problems. The goal of this study is to examine the effects of phenolic compound on the behavior of rats with MS and looking for relationships with the effects on blood sugar. Therefore, we will study the impact of HFHF diet (enriched in fat and fructose) on behavioral changes and renal problems in MS. Additionally, we will assess the correlation of the observed alterations with biochemical changes induced by the diet. The experimental MS will be induced in rats by force-feeding HFHF diet for 10 weeks (p. o). After 10 weeks, rats will be given drug (oral gavage) treatment for 30 days while control and MS groups will be given saline solution as a vehicle instead. The biological and physical parameter will be determined. Depression-like behavior will be evaluated using behavioral assessment (before and after the treatment). This model allows new perspectives for understanding the underlying mechanisms in the progression of the disease. It also allows testing of new therapeutic approaches for the treatment of this complex pathology.

Keywords: metabolic syndrome, depression-like behavior, kidney impairment, high-fat-high-fructose diet, phenolic compound
ABSTRACT:

Topical fungal infection is restricted towards keratinized layer of skin, hair and nails. Topical drug delivery system is preferred to treat fungal infection. Topical action for localized action is preferred and better for chronic treatment film forming gels have an edge over conventional because they are semisolid as gel and as well as give sustained release properties like patches.

Film forming gel increase retention of gel on skin thus allowing continuous release of drug and maintaining its diffusion to the site of action. Stable film forming gel of Clotrimazole were prepared with carbapol and sepineo as a gelling agent and HPMC EM4, kollicoat IR and kollidone VA64. The gels were evaluated for pH, viscosity, spread ability, retention time, in-vitro and ex-vivo release profile and skin irritation test. The relative simplicity in formulation, manufacturing, and low cost are added advantages apart from wipe off resistance, sustained release for 6 to 8 hrs, flexibility, non tacky , adhesive and peelable films.
ABSTRACT:

*Lactobacilli* are predominant microorganism in vaginal ecology and provide protection against pathogens. The present study was aimed to evaluate the *in vitro* and *in vivo* prebiotic effect of pectin on vaginal *lactobacilli*. The effect of pectin concentration on growth of *L. casei* (*Lactobacilli casei*) and *L. fermentum* (*Lactobacilli ferementum*) was studied by measuring change in pH, optical density, titratable acidity, and dry mass after 48 h of incubation. The antimicrobial effect against pathogenic *E. coli* and *C. albicans* was studied by agar diffusion technique. *In vitro* effect of pectin on viability of mixed cultures of *L. casei* or *L. fermentum* with *E. coli* or *C. albicans* was studied. *In vivo* prophylactic and therapeutic effect of pectin on vaginal *lactobacilli* was investigated on female wistar rats. The stimulative effect of pectin was confirmed by increase in *L. casei* and *L. fermentum* dry mass, reduction in pH and increased in production of lactic acid. *Lactobacilli* supernatants showed significant antimicrobial effect against *E. coli*. The mixed culture study demonstrated stimulative effect of pectin on *L. casei* and *L. fermentum* whereas inhibitory effects on *E. coli* and *C. albicans*. *In vivo* study on female rats revealed significant increase in *lactobacilli* count in vaginal flora after topical administration of pectin. This study demonstrated the prophylactic and therapeutic effect of pectin as a prebiotic on vaginal microflora. *Lactobacilli*, Pectin, Prebiotic, Vaginitis, vaginal flora.
ABSTRACT:

Acne vulgaris is a common inflammatory skin condition, and can be caused by the effects of the hormones on the pilosebaceous unit, consisting of a hair follicle and sebaceous gland. The spectrum of topical acne treatments has been developed successively in recent years and various topical medications including topical dapsone are available. Dapsone has special physicochemical properties such as longer half-life, with least side effects and interactions with other drugs, that make its topical formulation challenging. An aim of the study was made to developed nano size carrier system such as microemulsion based gel formulation for topical delivery of drug with poor solubility of dapsone. Microemulsion had demonstrated improved transdermal permeation, thermodynamically stable over conventional topical preparations such as gels, creams and ointment. The microemulsions composed of dapsone (1%), capryol 90 and N-methyl-2 pyrrolidone as the oil phase, Kolliphor EL as surfactant and PEG 400 as the co-surfactant and water. The optimum microemulsion was modified with poloxamer-407. The microemulsion gel evaluated for viscosity, spreadability, drug content, stability study, in-vitro skin permeation, steady state flux, permeability coefficient, enhancement ration and skin irritation study. The present study shows that optimized formulation significantly increased the skin permeation of dapsone in comparison to that of conventional topical formulation for treatment of acne.
ABSTRACT:

Introduction: - Hyoscyamus Niger is a natural occurring plant having powerful polyphenolic bioactive compounds and used worldwide. They exhibited numerous biological and pharmacological activities including potent antioxidant, cardioprotective, anticancer, anti-inflammatory effects and neuroprotective observed in cell cultures and animal models. 

Aim and Objective:- The present study was designed in order to explore the possible neuroprotective effect of Methanolic extract of Hyoscyamus Niger Seeds (MHN). The neuroprotective role of MHN was explored in rotenone induced behavioral deficits in Drosophila melanogaster, Zebra fish and mice. The oxidative and mitochondrial dysfunctions were also evaluated in Mice model of Parkinson’s disease. 

Methods: - Chronic administration of rotenone (1 mg/kg i.p.) for a period of three weeks significantly impaired behavioral paradigm (Memory, learning and locomotor activity), oxidative defence by decreased activity of superoxide dismutase (SOD), catalase (CAT) reduced glutathione (GSH) level and mitochondrial Complex-II-Succinate Dehydrogenase (SDH), Complex III- MTT (3- (4,5-dimethylthiazol-2-yl)-2,5-diphenyl-H-tetrazolium bromide) enzymes activities as compared to normal control group in the brain of fly, fish and mice. 

Results: - Three weeks of MHN (50, 100 and 200 mg/kg, p.o) treatment significantly improved behavior parameters (P < 0.001) oxidative damage (P < 0.001) and mitochondrial enzyme complex activities (P < 0.05, P < 0.01, P < 0.001) as compared to negative control (rotenone treated) group. We found that MHN restored motor deficits and enhanced the activities of antioxidant enzymes and neuronal density suggesting its antioxidant and neuroprotective potential in vivo. 

Conclusion: - The findings of present study concludes neuroprotective role of MHN against rotenone induced Parkinson’s in mice and offers strong justification for the therapeutic prospective of these compound in the management of PD. 

Key words: -Curcumin; Hyoscyamus Niger; rotenone; neuroprotective; parkinson's disease;
ABSTRACT:
The aim of the present study was to develop a dry powder inhalation formulation of VZ for the
 treatment of pulmonary aspergillosis. Voriconazole nanosuspensions (VZ-NS) were prepared
by antisolvent-precipitation method followed by ultrasonication which was then further
subjected to spray drying. The optimization of VZ-NS was carried out by $2^3$ Full factorial
design. For spray drying, drug: mannitol molar ratio taken was 1:5 and 10% of leucine as
dispersing agent was used. The spray dried formulations were characterized for morphology by
FESEM, FTIR, DSC, XRD, drug content, in vitro dissolution. In vivo lung distribution of
optimized formulation was compared with oral and pure VZ inhalation formulation in Wistar
rats. The optimized formulation of VZ-NS molar ratio of 1:5 and 10% leucine exhibited
markedly enhanced dissolution rate as compared to VZ pure drug. FTIR studies confirmed the
absence of any chemical interaction in NS formulation of VZ. XRD studies indicated change
of drug from crystalline to amorphous form during process of formulation. Spray dried VZ-NS
showed significant increase in the lung distribution than VZ pure drug inhalation (4.1 fold) and
oral formulation (10.7 fold) when administered in Wistar rats. Histopathological studies
revealed lower toxicity by VZ on lungs when administered as a nanosuspension formulation
than when it is in given in free form by oral or inhalation route. Spray dried VZ-NS formulation
is a promising alternative approach for pulmonary delivery of VZ with improved bioavailability
of antifungal drug for treatment of Pulmonary Aspergillosis.
ABSTRACT:

Oral submucous fibrosis (OSMF) has been reported in Indian population and no effective treatment has been reported. Therefore, a need to develop an oral formulation that would dissolve slowly in the oral cavity without causing any irritation or inflammation is required. An attempt has been made to formulate and evaluate Curcumin- HPβ-CD based nanoparticulated jelly. SLN of Cu-HPβCD were successfully formulated by employing hot high shear homogenization and ultrasonication technique. The phase solubility study was carried out to optimize the ratio of Curcumin with HPβ-CD. Stable complex was formed with 1:1.

In present research, an attempt was made to develop the formulation of Jelly of Curcumin β-CD SLN’s using different concentration of jellying agents such as pectin. The best fit model for optimized formulation F2 was found to follow Korsmeyer-Peppas model. It can be concluded that the increase in solubility can attributed the HPβ-CD complexation and dispersed this complex of Cu-HPβCD in a form of SLN’s, which improve the oral bioavailability in a sustained fashion of orally administrated jelly. The formulation of jelly is an easy to make, can be more organoleptically accepted by the pediatric patients.
ABSTRACT:
The present study aims to prepare Metformin HCl and Pomegranate Peel Extract (PPE) loaded SLN using QbD principle for enhanced antidiabetic activity, GI permeation and bioavailability. Regular $2^3$ factorial design was used for investigating the effects of three variables, concentration of Tristearin (A), Tween20: Tween80 (B) and Sonication time (C) on the responses of particle size and % entrapment efficiency (% EE) which were taken as critical quality attributes (CQAs). Dosage form, dosage design, route of administration and dosage strength were identified as quality target product profile (QTTP) for SLN formulation. The optimized batch with concentration of Tristearin 4gm and concentration of Tween20: Tween80 2gm was subjected to high pressure homogenization followed by probe sonication to form nanoparticulate SLN dispersion. The hot homogenization method was used to prepare Metformin HCl loaded SLN whereas, cold homogenization method was used to prepare PPE loaded SLN. SEM studies revealed 3-dimensional nature of SLN with slightly rough surface. DSC, results exhibited entrapment of Metformin HCl and PPE in SLN. The optimized batch of SLN was evaluated for in-vitro % drug release using franz diffusion cell. It was observed that when the drug is entrapped into the SLN, it gives the drug release up to the 24hrs indicates that it has prolonged release of action. In-vivo anti-diabetic study of physical mixture of SLN for 28 days revealed that the dose of both the drug was reduced after entrapping into SLN and did not cause any toxicity on healthy wistar rats. Results suggest SLN as efficient carriers for Metformin HCl and PPE for oral delivery. The data obtained from the present research indicates that the oral absorption of BCS class-III drug Metformin HCl can be improved by solid lipid nanoparticle approach. Also the combination of PPE with Metformin HCl can aid in reduction of conventional dose and improve in antidaibetic activity.
ABSTRACT:

Cosmetics are incredible in demand since historical time till day. There is difficulty to apply on Lips which are Dried, Chafed, Chapped, Cracked Lips with Sores and Lesions. In such cases one can use “Papain Based Herbal Lip Balm”. With this Aim and Objective an attempt was made to formulate Lip Balm by using Raw Lyophilized Papaya, Aloe Vera, Cow Ghee and Honey as Natural ingredients that replaced Conventional Synthetic Vehicles of Lip Balm. Papain was selected as a main ingredient because it promotes Cell Growth and Renew the cells. Ghee being Natural Emollient, Soothing and Nourishing agent and Honey is a Natural Sweetener and has Antibacterial Activity. Honey, Aloe Vera and Papain promotes helps in Healing. Aloe Vera act as Moisturizer and Soothe Sunburn. Lip Balm is a preparation for application to the lips, however purpose is not only Decoration but also to protect lips against exposure to Cold in winters, in extreme Heat Conditions and in very dry Humid Climates. The Lip Balm were evaluated for their properties such as Stability, Spreading, Covering, Smoothness and Rancidity and found to be satisfactory product to give Attractive Beauty with Healing Property.
ABSTRACT:

Simple, rapid and precise reversed-phase liquid chromatographic method is developed for simultaneous determination of Emtricitabine (EM) and Tenofovir Disoproxil Fumarate (TEN) in bulk and combined formulation. The proposed RP-HPLC method utilizes a HiQSil C-8 column having (250 mm× 4.6 mm) i.d. in isocratic mode using Acetonitrile: Phosphate Buffer (60:40V/V) as mobile phase (pH 6.8), at flow rate of 1.0 ml/min. The effluents were monitored at 259 nm. The linearity response obtained for Emtricitabine and Tenofovir Disoproxil Fumarate were in the range of 40-240 μg/ml, 60-360 μg/ml respectively. The retention time of Emtricitabine and Tenofovir Disoproxil Fumarate were found to be 2.592 min and 3.950 min respectively. The correlation coefficients of Emtricitabine and Tenofovir were 0.998 & 0.9984 respectively. The method was validated according to the ICH guidelines with respect to linearity, precision, accuracy, limit of detection, limit of quantification and robustness. Thus, proposed method can be successfully applicable to the pharmaceutical preparation containing the above mentioned drugs without any interference of excipients.
ABSTRACT:

Nigella Sativa (kalonji) is an amazing herb with a rich historical and religious background. The seeds of Nigella Sativa were used in traditional medicine treating various diseases including skin diseases and several reports are available on its antimicrobial activity. The objective of this study was to check the antimicrobial effectiveness of Nigella Sativa seed extract from two topical formulations. Thus the extract was incorporated in cream and gel base in different concentration and the invitro antibacterial activity of the same was evaluated. Studies shown that the antibacterial activity of formulated gel and cream of kalonji extract was comparable with marketed antibacterial cream.
STUDY OF OKRA MUCILAGE AS EXCIPIENT FOR TRANSDERMAL PATCH

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ABSTRACT:

The aim of this work was to examine the effectiveness of okra mucilage as an excipient for transdermal patches of Itraconazole. The water extracted mucilage was characterized for organoleptic properties, pH, solubility, micromeritic properties and flow behavior. The transdermal patches were prepared by solvent evaporation technique using different proportion of okra mucilage, glycerin as plasticizer and PEG-400 as permeation enhancer. The compatibility studies showed no negative interaction between drug and mucilage. Formulated patches were evaluated for parameters like thickness, physical appearance, weight variation, drug content, folding endurance, percentage of moisture content and elongation break. Invitro diffusion studies were performed using Franz diffusion cell. The drug releases of the patches were prolonged with increasing mucilage concentration in the formulation.
SYNAPSE 2018

FORMULATION, DEVELOPMENT OF CURCUMIN LOADED NLC's FOR CERVICAL CANCER.

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ABSTRACT:

The aim of the present investigation was to develop vaginal gel loaded with Curcumin nano lipid carrier. They were prepared first Curcumin loaded NLC by hot homogenisation method. There were four group of Curcumin NLC, group 1 was cholesterol as solid lipid, capryol 90 as liquid lipid and tween 20/ tween 80 (1:1) as surfactant, binary lipid phase was selected in the ratio 7:3 w/w (solid: liquid lipid ratio). Group 2 was cholesterol as solid lipid, transcutol as liquid lipid and tween 20/ tween 80 (1:1) as surfactant, binary lipid phase was selected in the ratio 6:4 w/w (solid: liquid lipid ratio). Group 3 was compritol 888 ATO as solid lipid, capryol 90 as liquid lipid and tween 20/ tween 80 (1:1) as surfactant, binary lipid phase was selected in the ratio 7:3 w/w (solid: liquid lipid ratio). Group 4 was compritol 888 ATO as solid lipid, transcutol as liquid lipid and tween 20/ tween 80 (1:1) as surfactant, binary lipid phase was selected in the ratio 7:3 w/w (solid: liquid lipid ratio). Out of the four group, group 3 was selected for further studies. Group 3 was selected because particle size was good, % EE was good and colour of compound was good. Regular 2×3 factorial design was used for investigating the effects of three variables, concentration of solid lipid (X1), concentration of liquid lipid (X2) and sonication time (X3) on the responses of particle size (Y1) and % entrapment efficiency [%EE] (Y2). Among all formulations, the optimised batch C5 showed best particle size and % EE compared with other formulation with 4.33 um particle size, 86.87% entrapment efficiency, -6.59mV zeta potential. SEM studies revealed more or less spherical vesicular structures of NLC’s and three dimensional structure with a smooth surface. DSC results exhibit the entrapment of Curcumin in NLC’s. Cumulative % drug diffusion was found to be 93.26% at 24hr. After that pluronic F127 gel of Curcumin was prepared by cold method. Formulation gel showed acceptable physical properties concerning Colorado, consistency spreadability and pH value. Cumulative drug diffusion was found to be 74.34% at 24hr.
ABSTRACT:

The design of controlled release drug delivery system, a novel drug delivery approach, which facilitates the drug release into systemic circulation at a predetermine rate. Controlled drug release can be achieved by transdermal drug delivery system (TDDS) which can deliver medicines via the skin portal to systemic circulation and also provide local effect at a predetermined rate over a prolonged period of time. Flucinolone has very low half-life so it is desirable to increase frequency of dosing for optimum drug plasma concentration. The controlled release formulation shall be prepared as flucinolone is highly potent so devoid of overdosing. By preparing patch formulation occlusion provides moisture to skin dryness symptom and may help to provide aesthetic feel for being in society.

The purpose of this research was to design matrix type of transdermal patch of flucinolone. Solvent casting method was used for preparation of patches. QBD approach was applied for optimization of batch for optimizing amount of HPMC, PVP::K30, PVA and type of plasticizers. The effect of polymer type, polymer ratio and type of plasticizer on drug release was evaluated by in-vitro release using Franz diffusion cell. In addition various other characterizations like thickness, tensile strength, % drug release was done.
ABSTRACT:
A simple, precise and sensitive stability indicating high performance thin layer chromatographic (HPTLC) method has been developed and validated for the analysis of Dapsone both in bulk and in tablet dosage form. The separation was performed on pre-coated silica gel 60 GF\textsubscript{254} plates using ethyl acetate : toluene as mobile phase. The drug was subjected to different stress conditions like acid, base hydrolysis, oxidation, thermal degradation and photolysis. The method was successfully validated according to ICH Q\textsubscript{2} (R1) guidelines. The linear regression analysis data for the calibration plot showed good linear relationship. The method found to be accurate as results of the recovery studies are close to the 100%. The developed method was found to be simple, sensitive, selective, accurate and repeatable for analysis of Dapsone and can be adopted for routine analysis of drug in bulk and pharmaceutical dosage form.
ABSTRACT:

Natural superdisintegrants are employed in dosage forms of mouth dissolving, rapid dissolving and floating drug delivery; suitable for dysphagia, difficulty in swallowing, stroke, motion sickness, bed-ridden, psychological, pediatrics, geriatric patients and patients who are traveling and may not have access to water. Natural superdisintegrants are safe, nontoxic and capable of chemical modification. An attempt was made to study superdisintegrant activity of fruit juice of cucurbita, sapodilla, pineapple, tamarind and their spray dried powder formulated into mouth disintegrating tablet of diacerein by direct compression method. Fruits of cucurbita (Cucurbitamoshata), sapodilla (Manilkarazapota), pineapple (Ananascomosus) and tamarind (Tamarindusindica) were spray dried and coded as SC, SS, SP, ST, respectively and evaluated for physicochemical properties. Spray dried powders (SC, SS, SP, ST) showed excellent flow properties due to spherical shape particles with good solubility in water and less moisture content. Mouth dissolving tablets (MDT) were prepared using SC, SS, SP, ST (5mg, 10mg and 15mg) and were further compared with MDT containing crospovidone, sodium starch glycolate and non-spray dried cucurbita, sapodilla, pineapple, and tamarind juice powder. MDT with spray dried fruit juice powder of showed rapid disintegration (fastest cucurbita SC within 19 seconds and tamarind ST slowest 22 seconds) with fast drug release (98% within 30min) compared to commonly use synthetic super disintegrants and non-spray dried fruit juice powder. Therefore, use of spray dried superdisintegrant for formulation of fast disintegrating tablet is highly effective, economical, biodegradable, biocompatible, non-toxic and commercially feasible.
ABSTRACT:
Study provides an overview of chemotherapy-induced neutropenia, its clinical presentation and outcome in Febrile Neutropenic episodes among paediatric cancer patients. Assess the pattern of Chemotherapy-Induced Neutropenia among paediatric cancer patients. A prospective cum retrospective study conducted for nine months, included fifty paediatric cancer patients with ANC <1500/mm³. Demographic details, phase of chemotherapy, previous neutropenia attacks, Absolute Neutrophils Count (ANC), duration of neutropenia, complication, and laboratory findings were noted in Patient Proforma. Analysis of ANC and duration of neutropenia were calculated and expressed as Mean ± SD. Means of groups compared by ‘t’ test and p-value of <0.05 was significant. From total 584 episodes of Chemotherapy-induced neutropenia (CIN), 188 developed FN in fifty paediatric cancer patients undergoing chemotherapy. Majority were male (74%), aged below 6 years (66%). During treatment cycles, (49.65%) had single neutropenia attacks, (50.34%) experienced recurrent attacks. Maximum episode of neutropenia (210 episodes) was of Grade II severity. Mean ANC was 768.13± 269.28 starting 16.26± 15.63 days after onset of chemotherapy and resolving within 17.88 ± 13.77 days either with (34.39%) or without (65.06%) implementation of granulocyte colony stimulating factor (G-CSF). Leading complication was Respiratory tract infection (32.19%). Neutropenia was responsible for treatment delay (34.76%) and dose modification (20.71%) for subsequent chemotherapy. Study concludes that patients undergoing chemotherapy had prolonged duration of neutropenia leading to delay in treatments and dose modifications. Increase in duration of neutropenia days led to various complications in FN patients. Quick evaluation and identification of CIN help improve patient care.
ABSTRACT:

A simple, sensitive, rapid, accurate, precise and reproducible reverse phase high performance liquid chromatographic method (RP-HPLC) was developed for estimation of Ribavirin in tablet dosage form. Chemically, Ribavirin is 1-beta-D-Ribofuranosyl-1, 2, 4-triazole-3-carboxamide. Ribavirin is used as an Antiviral agent. The chromatographic separation of Ribavirin was achieved using C18 (250x4.6mm) column with a mobile phase containing a mixture of Acetonitrile: Water (60:40v/v). The flow rate was 1ml/min and effluent was monitored at 218.0 nm. The retention time for Ribavirin was found to be 2.70 min. The relative standard deviation for intraday and interday precision in tablet was always less than 2%. The method was validated for linearity, range, precision, accuracy, specificity, selectivity, intermediate precision, ruggedness, robustness, stability and suitability. The proposed method can be conveniently used by quality control department to determine the assay of pharmaceutical preparations.
FORMULATION, OPTIMIZATION AND EVALUATION OF SERTACONZOLE NITRATE NANOSTRUCTURED LIPID CARRIERS FOR TOPICAL DELIVERY

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ABSTRACT:

Nanostructured lipid carriers (NLC) are one of the widely used drug delivery systems for oral, parenteral and topical route. In this study, NLCs of sertaconazole nitrate (SRTZ) were developed by high speed homogenization followed by ultrasonication using Estosoft-GTS® (glyceryl tristearate) as a solid lipid, oleic acid as liquid lipid and Tween 80 as an emulsifier. A $2^2$ rotatable central composite design was used, wherein the effect of concentrations of total lipid and the liquid lipid present in the total lipid phase were studied on the % entrapment efficiency and % release of SRTZ. The prepared lipid carriers showed an average particle size of 366.3 nm and zeta potential of 7.43 mV. DSC and XRD studies indicated disappearance of crystalline peaks of the encapsulated drug. The lipid carrier loaded gel was prepared using 0.6% carbopol and further characterized for appearance, pH, viscosity, in-vitro drug release, ex-vivo skin permeation and in-vitro antifungal activity. The in-vitro and ex-vivo permeation studies of lipid carrier and gel suggested the formulations may be used for prolonged retention of SRTZ in the skin. The antifungal efficacy of the developed gel was identical with commercial formulation indicating non interference of the lipid matrix in the activity. Hence; the lipid carrier system can be promoted as a better vehicle system for the delivery of drug to the skin.
ABSTRACT:

This work was initiated with the objectives to develop silymarin loaded zinc oxide nanoparticles for the intracellular delivery using polylactic-co-glycolic acid as a carrier for better therapeutic activity and reduce the dose of drug as compared to conventional dosage form. Also zinc oxide was included in the system as it was reported that zinc oxide has inherent anticancer property. The polylactic-co-glycolic acid-nano zinc oxide particles containing silymarin was prepared by precipitation method. The nanoparticles were evaluated for particle size, entrapment efficiency, zeta potential, % release and hemolytic study. Other analytical techniques including scanning electron microscopy (SEM), differential scanning colorimetry (DSC) were used to ascertain the surface morphology and behavior upon heating respectively. The particle size was obtained between 300-700 nm and the encapsulation of the drug was up to 88%. The carrier restricted the release of drug from the system and it was observed that at the end of 24 hours, the drug was released in controlled fashion. A hemolytic test revealed negligible hemolysis. The nanoparticles were observed by SEM and it had porous appearance. The melting entotherm of silymarin was slightly shifted as indicated by DSC. Nanoparticle containing PLGA exhibited excellent controlled release characteristics with good encapsulation and smaller particle size.
HERB DRUG INTERACTION STUDY OF PIPERINE ON PHARMACOKINETICS AND PHARMACODYNAMICS OF ATORVASTATIN IN RATS

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**ABSTRACT:**

Possibility of occurrence of herb drug interaction (HDIs) has increased with herbal drugs emerging as an alternative to the conventional medicines for cardiovascular diseases. Atorvastatin (ATR) which is extensively metabolized through CYP3A4 enzyme is drug of choice for hyperlipidemia. A potential HDI may arise on concomitant administration of ATR with piperine PIP (potent inhibitor of CYP3A4 enzyme)/ Ridayarishta RID (cardiotonic herbal formulation containing PIP). To study the potential HDI in rats a simple, accurate, sensitive HPLC-PDA method was developed using Kromasil-100 C18 column, mobile phase ACN: 30mM phosphate buffer (55:45 v/v) pH 4.5 with flow rate gradient programming. With LLOD 2ng/ml the method was found to be linear (2-100 ng/ml). The precision (%CV< 15%), accuracy (-1.0 to -10% R.E) with recoveries above 90% from rat plasma of ATR and IS were obtained. The PK interactions studies demonstrated a threefold increase in C\(_{\text{max}}\) of ATR (p<0.01) with significant increase in AUC\(_{0-\infty}\)/AUC\(_{0-\infty}\) on co-administration of ATR (8.4mg/kg,p.o.) with PIP (35mg/kg,p.o.) compared to ATR alone, whereas co-administration of RID (4.2ml/kg,p.o.) indicated low HDI with less significant changes (p>0.05). No significant alterations were found in the lipid profile on co-administration of PIP/RID with ATR in the pharmacodynamic interactions study (TritonX-100 induced hyperlipidemic rats), indicating that there may be no significant pharmacodynamic interactions.
ABSTRACT:
Rajat Bhasma (RB) is a herbo-mineral formulation extensively used in ayurvedic practice. In the present era, Bhasma preparations used in ayurveda are always under screening for presence of heavy metals and are questioned for their safety aspect by regulatory authorities in western world. Nanotechnology has enormous applications in drug delivery field. Nano drug delivery systems can reduce the drug consumption and side-effects by lowering the deposition of the active agent in the non targeted sites. The integration of the Nano science as a novel drug delivery system in traditional medicine enriches the potential of herbal drugs for treating chronic diseases such as cancer, diabetes etc. The advanced technologies will shed lights for characterizing the nanoparticles to determine the toxicity profiles for their physical and chemical properties. In the present study Herbal silver nanoparticles (HSN) were prepared using ginger and fenugreek extracts and were compared with marketed Rajat bhasma by employing acute toxicity studies and characterization was done by UV spectroscopy, F.T.IR, Particle size analyser, XRD, Inductively Coupled Plasma Atomic Emission Spectroscopy and Scanning Electron Microscopy techniques. The results of the study demonstrated that HSN are economic and can be a good alternative for RB with a better safety profile.
COMPARATIVE PHARMACOKINETIC AND ORAL BIOAVAILABILITY STUDY OF ANDROGRAPHIS PANICULATA (KALMEGH) EXTRACT AND ITS PHYTO-PHOSPHOLIPID COMPLEX (PHYTOSOMES)

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ABSTRACT:

Hydrophilic nature and unique chemical structure of most of the therapeutically useful phytoconstituents which result in poor bioavailability and less absorption. The Andrographis paniculata (Kalmegh), possesses multiple therapeutic effects out of which the anti-inflammatory potential has been well established in the recent literatures. The oral bioavailability of Andrographis paniculata, containing Andrographolideis very low necessitating its novel drug delivery approach. Phyto-phospholipid complex (phytosomes) is helpful in enhancing oral bioavailability and transdermal permeation of polyphenols. In the present work, Andrographis paniculata extract phytosomes (APE-P) were developed and characterized as per standard protocol. Phytosomes were prepared in one molar ratios of Andrographis paniculata extract to Phosphatidylcholine (1:2). Results of the particle size, zeta potential, FT-IR, DSC studies confirmed the phyto-phospholipid complex formation. The pharmacokinetic analysis revealed a significant enhancement in the oral bioavailability of AD in AP-P complex was found to be 2.5630 fold of andrographolide as compared with pure kalmegh extract. The study shows that phospholipid-based phytosome is a promising and viable strategy for improving the delivery of andrographolide rich extracts of Andrographis paniculata and similar phytoconstituents with low aqueous solubility.
ABSTRACT:

Wound is a type of injury which relatively happens quickly in which skin is torn, cut, or punctured i.e an open wound. It specially refers to sharp injury which damages dermis of skin. Injuries can happen at work, driving cars or simply walking across a street. In such case, normally a surgery or stiches are given. The disadvantage is that the stiches or surgery may be costly, takes long time to heal and taking care is must. Chitosan dusting powder hydrogel scaffold, is a kind of hydrogel, where hydrogel product constitutes a group of polymeric material, hydrophilic structure which helps in holding large amount of water in three dimensional network. It contains Chitosan which cease bleeding, Gelatin which helps in skin growth and gel formation, Antibiotic to prevent bacterial growth and Lidocaine as an anesthetic. Chitosan based dusting powder is directly sprinkled on an open wound, cuts or scratches, converting into gel when it comes in contact with blood, plasma and tissues. The most unique and remarkable property is, it is very fast healing (10 - 12 days), quick application, easy to handle, no stability problem and cost effective.
ABSTRACT:

The study was designed to evaluate Polyherbalmixture for the anti-obesity activity in cafeteria diet induced Obesity in Wistar rats. The hydro alcoholic extracts of herbal plant *Annona muricatta*, *Momordica charantia*, *Vaccinium uliginosum* were purchased and authenticated from Green Heaven India. The Acute Oral Toxicity study of polyherbal mixture was performed according to OECD guideline 423. The IC50 values were estimated for combination of polyherbal drugs in *invitro* for antilipase activity. The antiobesity effect of polyherbal mixture was evaluated in cafeteria diet (CD) induced obesity. The polyherbal mixture at two different doses 200 and 400 mg/kg, BW was administered orally for a period of 35 days and various parameters of anti-obesity were estimated. The IC50 value of combination was found to be 18.59. In vivo evaluation of antiobesity activity showed significant decrease in obesity parameters, at both the dose levels signifying the antiobesity activity of combination of above selected herbs. Polyherbal mixture at the dose of 200 & 400 mg/kg significantly reduced in body weight and calorie intake which is a clear sign of an anti-obesity effect. The mixture of polyherbal at both doses effectively improves all lipids level, decreases blood glucose level, decreases AST and ALT level. From the histopathological reports of liver, it was concluded that the herbal mixture improves fatty liver and hepato-steatosis.
ABSTRACT:

Dasatinib which is available in market as a brand name of Sprycel tablets. Method was validated according to the ICH guidelines. The HPTLC method was developed using Camag HPTLC system. Silica G60 F254 precoated TLC plates were used as stationary phase. Mobile phase was used toluene: methanol (6:4). Dasatinib analysis was carried out in the absorbance mode at 240 nm. The drugs were satisfactorily show peak with RF 0.65 ± 0.03 for Dasatinib. Development method was validated as per ICH guideline using validation parameter like specification, linearity, accuracy, LOD, LOQ, precision, and robustness. The method was found to be linear in the range of 200ng-1.2μg and correlation coefficient value 0.997. Dasatinib. In stability testing, Dasatinib were found susceptible to alkaline degradation. Because the method could effectively separate the drugs from their degradation products, it can be used as a stability indicating method. Degradation product of Dasatinib in alkaline condition was carried out and its degradation product is successfully separated and isolated by HPTLC method. Degradation product was identified by using MS-MS technique.
ABSTRACT:

*Moringa oleifera* is a rich source of phenolic and flavonoid compounds like gallic acid (GA), quercetin (QT) and rutin (RT). A systematic Quality by Design based sensitive high performance thin layer chromatographic (HPTLC) method carried on Merck TLC aluminum sheets of silica gel 60 F254 (10 X 10 cm) with mobile phase of toluene: ethyl acetate: methanol: formic acid (4.9:4.1:2:0.5, v/v/v/v) with densitometric scanning at 300 nm was established for simultaneous estimation of these biomarkers in leaves extracts of *Moringa oleifera*. Initially using Regular Two Level Factorial design, the Critical Method Parameters were identified and further systematically optimized using Central Composite design. Pareto charts, 3D surface plots and polynomial equations generated suggested significant influence of selected factors on responses of QT, GA and RT. Using desirability and overlay plots, suggested solutions were experimentally validated. The biomarkers were suitably resolved with Rf values of 0.64 ± 0.02, 0.80 ± 0.03 and 0.22 ± 0.02 for GA, QT, and RT respectively, wide linear dynamic range (200-1200 ng/band each), high accuracy (98.1-99.4 %) and intra- and inter-day precision (%RSD<2%). The method was also successfully employed for estimation of these biomarkers in *Moringa oleifera* extracts. Proposed HPTLC method may serve as a cost effective tool for their simultaneous estimation in other herbal extracts thereby reducing time of analysis.
ABSTRACT:

Psoralea corylifolia is used for treatment of skin diseases such as psoriasis, vitiligo. Psoralen is responsible for its effectiveness against psoriasis. Bakuchin and Bakuchiol are DNA polymerase and topoisomerase II inhibitors. To study the effect of pH and gastrointestinal (GI) enzymes on Psoralen, Bakuchin and Bakuchiol from Psoralea corylifolia Linn using a simple, sensitive, accurate and robust high performance thin layer chromatographic (HPTLC) method. The method was performed on silica gel 60 F\textsubscript{254} with n-Hexane : Ethyl acetate (7.5 : 2.5 v/v) as the mobile phase. Densitometric scanning at 285 nm for Psoralen, Bakuchin and Bakuchiol was used. The method was validated as per the guidelines of International Conference on Harmonization (ICH). In addition the applicability of the method was tested for the standardization of both mono and polyherbal formulations containing the above markers. The \( R_f \) values of 0.37, 0.48 and 0.63 were obtained for Psoralen, Bakuchin and Bakuchiol respectively. The linearity range of 20-120 ng spot\(^{-1}\), 20-120 ng spot\(^{-1}\) and 80-280 ng spot\(^{-1}\) with good correlation coefficients of \( r^2 = 0.998, 0.998 \) and 0.999 were obtained for Psoralen, Bakuchin and Bakuchiol respectively. The method was applied for the \textit{in vitro} stability studies of above markers in simulated gastric and intestinal fluids to study the effect of pH and GI enzymes. Psoralen was found to be most stable in the simulated physiological fluids whereas other two compounds showed instability. The method was found to be precise, robust and suitable for the routine quality control analysis of plant extracts and polyherbal formulations.
ABSTRACT:

Ipratropium Bromide is a medication which opens up the medium and large airways in the lungs. Xylometazoline is a medication which is used to improve symptoms of nasal congestion, allergic rhinitis, and sinusitis. These drugs are used to treat the symptoms of chronic obstructive pulmonary disorder (COPD), asthma allergic rhinitis etc. When used in combination, a novel approach to treatment, nasal congestion and rhinorrhea are treated simultaneously, providing effective relief from two of the most troublesome symptoms of the COPD, asthma as well as allergic rhinitis. We planned for preparation fixed dose formulation as nasal solution and estimation of Xylometazoline HCL and Ipratropium Bromide in it by RP-HPLC method. Literature survey reveals that there is no method available for simultaneous estimation of Xylometazoline HCl and Ipratropium Bromide as well as methods available only for either individual drug or with other drugs in combination. So a need was felt to develop analytical method for simultaneous estimation of Xylometazoline HCl and Ipratropium Bromide. Hence, the present work aimed to develop RP-HPLC method for estimation of Xylometazoline HCl and Ipratropium Bromide in nasal solution formulation.
ABSTRACT:

Aging is complex biological process, characterized by diminishing or impairment of function capacity to respond stress. In aging both intrinsic & extrinsic determinant lead progressively to loss of structural integrity and physiological function. The present study is important for investigate the anti-aging activity of formulation made from appropriate standardize oil. The standardization of oil were done by U.V method. Aim is to formulate &study the properties of anti-aging cream containing almond oil and cod liver oil. Almond oil & cod liver oil ensures the cream is absorb rapidly and is particularly good at providing moisture and vitamin A, D, E respectively. Both oils having activity to nourishing skin. These oil shows activity like protecting the cell membrane, active enzyme site& DNA free radical. The prepared natural anti-aging cream were characterized for absorption, spreadability, drug content uniformity, in vitro drug release studies using diffusion cell with egg membrane. The obtained results for prepared natural anti-ageing cream of cod liver oil and almond oil indicate that these creams are economic, convenient, gives good absorption and spreadability on application, uniform in drug content and not showing any skin irritation.
FORMULATION AND EVALUATION OF INTRANASAL CURCUMIN LOADED POLYMERIC MICELLES FOR TREATMENT OF BRAIN CANCER

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ABSTRACT:
The intranasal administration of drugs offers advantages over administration by intravenous injection. Targeting to the brain via nasal administration offers potential for the development of new drugs. The olfactory pathway thus circumvents the blood brain barrier (BBB) which prevents many systemically administered drugs from entering the brain. Present study aimed towards formulation of polymeric micelles of curcumin for treatment of brain cancer. It is an anticancer drug, lipophilic in nature having low oral bioavailability is selected as candidate for the development of micelles for its intranasal delivery to target the CNS. Polymeric micelles based on TPGS were prepared by rota evaporation and characterized for mean particle size and PDI, ZP, Production yield, EE, Morphological study, XRD, In vitro drug release, histopathological study, Accelerated stability study, in vivo brain distribution study. The optimized formulation demonstrated size 146.8 nm and negative zeta potential. In vivo study demonstrated significant targeting of curcumin to brain. In conclusion study reveals that drug loaded micelles as a carrier for intranasal administration may be a promising approach for delivering anticancer agent in order to achieve CNS targeting for the treatment of brain tumor.
ABSTRACT:
Two simple accurate and economic UV spectrophotometric methods were developed for the simultaneous estimation of Lornoxicam and Diacerein in bulk and Pharmaceutical formulation. Chemically, Lornoxicam is (3E)-6-chloro-3-[hydroxy(pyridin-2-ylamino)methylene]-2-methyl-2,3-dihydro-4Hthieno[2,3 e][1,2]thiazin-4-one 1,1-dioxide. Lornoxicam is used as non-steroidal anti-inflammatory and analgesic. Chemically, Diacerein is 4, 5-diacetoxy-9, 10-dihydro9, 10 di-oxo-2 anthracene carboxylic acid. Diacerein is used as an anti-inflammatory agent. The solvent used is methanol and \( \lambda \) max or the absorption maxima of the Lornoxicam and Diacerein was found to be 382 nm and 341 nm respectively. Two wavelengths were selected at wavelengths 341 nm and isobestic point 274 nm, in Q analysis method. The Beer-Lambert’s law followed in the concentration range of 2-10 µg/ml and 10-50 µg/ml for Lornoxicam and Diacerein respectively. It showed good accuracy close to 100% for both Lornoxicam and Diacerein. These two methods can be used for the analysis of both drugs in pharmaceutical dosage form and quality control study.
EXPLORATION OF PROTECTIVE EFFECT OF BERBERINE ON STREPTOZOTOCIN- HIGH FAT DIET INDUCED DIABETIC COMPLICATIONS IN EXPERIMENTAL ANIMALS

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ABSTRACT:

Diabetes mellitus is a complex metabolic disorder and growing health threatening disease. Objective of the present study was to evaluate the effect of berberine for the prevention of diabetic nephropathy and cardiomyopathy in high fat diet-streptozotocin induced diabetic rats.

Rat were fed a high fat diet for 4 weeks followed by single intraperitoneal injection of streptozotocin (35mg/kg). Animals were divided in five groups and treated with 75 mg/kg and 150 mg/kg berberine and metformin (100mg/kg) for 28 days. After 4 weeks treatment, glycemic profile, diabetic cardiomyopathy by lipid profile, cardiac antioxidant, heart weight, cardiac and left ventricular hypertrophy indices; diabetic nephropathy by urine volume, urinary protein, KW/BW ratio, serum creatinine and BUN levels were evaluated. To understand the underlying mechanism hepatic variables was estimated. Pancreas, liver, Kidney and heart were subjected for histopathology. Significant decrease in FBG, OGTT, HbA1c, creatinine, BUN and urinary total proteins was observed. Significant improvement in serum insulin, oxidative stress parameters of heart, glycogen content in liver and skeletal muscles has been observed in treated rats. These finding suggest that berberine has protective effect for diabetic nephropathy and cardiomyopathy through increasing insulin expression, β-cell regeneration, reduced inflammation and repairing of kidney dysfunction, cardiac antioxidant enzyme activity.
ABSTRACT:
Liver disease is 10th most common cause of death in India. As per WHO 25% of global population has alcoholic and non alcoholic liver disease while in India around 10 lakh patients are diagnosed with liver cirrhosis every year. No promising and appropriate pharmacotherapy is available for the treatment and management of liver diseases. Alternative therapies include use of herbs and their formulation as Liv-52. Still the need to explore herbs for hepatoprotective potential exists due to limitations of safety and efficacy of herbs explored previously. So the study on evaluation of hepatoprotective activity of hydroalcoholic extract of Hylandia dockrilli was carried out in Wistar rats. The hydroalcoholic extract of H. dockrilli was administered to paracetamol induced and alcohol induced hepatotoxic Wistar rats in dose of 100, 200 and 400 mg/kg for 28 days. The sylamarin in dose 100 mg/kg was used as standard drug. The liver function parameters and in vivo antioxidant parameters were evaluated at the end of study. The dose of 400 mg/kg has shown significant hepatoprotective activity as compared to other two doses in paracetamol as well as alcohol induced hepatotoxicity in Wistar rats.
IN SILICO DESIGN, BASE CATALYSED SYNTHESIS OF 2-CHLORO-5-FLUORO (4,5-DIPYRIMIDINE)2’-AMINE AND CHARACTERISATION.

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ABSTRACT:

Tuberculosis remains the second leading cause of death from an infectious disease globally, despite the incessant efforts to control it. Research and development into new TB medicine is imperative for effective TB control, however new strategies for the rational use of existing drug such as finding the binding affinity between drug and target by molecular docking could also significantly enhance this process. The base catalyzed study of synthesis of 2-chloro-5-flouro-(4,5-Bipyrimidine )2’-amine to improve the yields and economically viable industrialization process from its biological active pyrimidine derivative of 5-fluorouracil. In this study, the designed compounds were docked with receptors such as protease, Reverse Transcriptase and Vascular Endothelial Growth Factor by using Molecule Docking.
ABSTRACT:

This study illustrates the importance of clinical pharmacists in assessing the performance of inhalation techniques in COPD patients and improving it. To evaluate the effectiveness of pharmacist’s approach to improve the performance of inhalation technique in chronic obstructive pulmonary disease (COPD) patient. A prospective observational longitudinal study of six months duration was carried out in 75 Chronic Obstructive Pulmonary Disease patients, recruited at least for 2 follow ups from tertiary hospital in Pune and Nasarpur. Data obtained were captured from the patient’s medical records into the self-pre-designed Patient Performa. The performance of inhalation techniques in COPD patient was assessed by using inhalation checklist. Chi square test was used for statistical significance. Out of 75 patients observed in this study, majority of the patients were males (53.33%) and belonged to the age group above 60 years (72%). A large part of the patients were housewives (30.67%). Most of them belonged to middle class (66.67%) and had obtained secondary education (37.33%). Most frequently prescribed drug in mono therapy is long acting Anticholinergics (18.81%) and in combination therapy is long acting ß2 agonist and steroid (30.28%). Most frequently used route of administration in patients is inhalation mode (80%). Among the different types of inhalation devices, Metered Dose Inhaler (MDI) is the most commonly use (69.33%). The correct technique for performing MDI in baseline was 79.48% which after follow up of 1 and 3 months, it increased to 94.01 %. Similarly, for DPI, baseline was 78.25 % which after follow up of 1 and 3 months, increased to 96.61 %. For MDI and DPI, lowest performance was found in Step 4 known as the breath out technique. Clinical pharmacists play a crucial role in a healthcare team to improve performance of inhalation techniques in COPD patients.
STUDY OF POLYMERIC MIXED MICELLE SYSTEM OF SULPHASALAZINE FOR IMPROVEMENT OF ORAL BIOAVAILABILITY.

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ABSTRACT:

Sulfasalazine (SSZ) has been recommended for rheumatoid arthritis, ulcerative colitis, and Crohn's disease. However, low aqueous solubility and reduced bioavailability obstruct its clinical application. The aim of this study was to formulate a mixed micelles (MM) system composed of two biocompatible copolymers Soluplus and Pluronic F127 to improve the solubility and oral bioavailability of insoluble drug SSZ. SSZ-MM were prepared by an ethanol solvent evaporation method and optimized using 3² factorial design with respect to quantity of polymers. The average size, zeta potential and entrapment efficiency of the optimized formulation were found to be 59.12 nm, -16.4 mV and 62.04% respectively. The SSZ-MM showed sustained release up to 24 h in in-vitro release study. Ex-vivo endocytic uptake studies revealed involvement of endocytic pathways in the uptake of mixed micelles from the intestine. The in-vivo oral bioavailability study in Wistar rats showed 2.19 folds higher AUC of SSZ-MM than free SSZ, indicating the mixed micelles of Soluplus and Pluronic F127 is a feasible drug delivery system to promote insoluble drug oral absorption in the gastrointestinal tract.
ABSTRACT:

The use of disease modifying drugs such as chloroquine, Sulphasalazine etc is well documented in the treatment of arthritis. Such drugs are known to have several side effects when given orally due to nonselective distribution in body. This problem can be overcome by formulating a suitable drug delivery system which will deliver the drug specifically to the inflamed synovium. The use of lipid nanoparticulates for targeting inflamed sites is well reported in literature. Present study proposes to prepare lipid nanoparticulates, containing DMARD such as chloroquine for targeting the drug. The study will involve formulation of solid lipid nanoparticles with features that will enable preferential drug accumulation at the site of action and halt progression of disease. *In-vivo* evaluation using suitable pharmacodynamic model and immunological studies will be done.
ABSTRACT:
Cutaneous Tuberculosis also known as dermal tuberculosis (extrapulmonary tuberculosis) can occur in any age group and in patients suffering from pulmonary tuberculosis. The current treatment comprises oral therapy of anti-tubercular drugs which has side effects such as hepatotoxicity, headache, euphoria, insomnia, eosinophilia and hepatitis. To avoid these side effects and to increase efficiency of current therapy a topical proniosomal gel of isoniazid was formulated. Coacervation phase separation method was used and proniosomal gel was formulated by using Span 20, soya lecithin, and cholesterol. Optimum concentration of 3 factors Span 20, soya lecithin, and cholesterol were determined using Box Behnken design at 2 levels and vesicle size and entrapment efficiency as responses. The optimized proniosomal gel was characterized by vesicle size, entrapment efficiency, in vitro drug release, skin retention studies, skin irritation studies and stability studies. The optimised batch showed vesicle size of 2.27±1.82 µ, and entrapment efficiency of 98.15±0.25 %. The optimised formulation was stable under refrigeration condition (5°C) in amber coloured bottle, was non-irritating and showed 98 % release in 6h and 85±1.53 % permeation after 6 h and 436±12 µg drug was retained in the rat skin after 3 h.
ABSTRACT:

Oral candidiasis is fungal infection affecting oral mucosa caused by *Candida albicans*. Fluconazole is commonly used to treat the condition and is commercially available as conventional tablets that have poor bioavailability due to extensive hepatic first pass metabolism and gastric instability. Drug delivery by buccal route using proniosomal gel can bypass the hepatic first pass effect and eliminate gastric degradation. Present study involved development of proniosomal gel by coacervation phase separation using Span 20, cholesterol, soya lecithin, ethanol, aqueous glycerol solution, distilled water and phosphate buffer pH 6.8. Optimization was carried out using Box Behnken design with Span 20, distilled water and soya lecithin as independent variables and entrapment efficiency, vesicle size and drug release as responses. Optimized proniosomes were evaluated for entrapment efficiency (96.83%), vesicle size (2μm), *in vitro* drug release 85.66 % in 3 h and *ex vivo* mucosal permeation (85.67 % in 3 h) with flux (394.09μg/cm²h). The optimized proniosomes were incorporated into 2% w/w Carbopol gel 934 (1:1). The gel was found to have good spreadability and mucoadhesivity. Drug release was 77.08 % and permeation 84.30 % in 3 h. Microbiological studies revealed higher inhibitory effect of developed formulation compared to plain gel of drug.
ABSTRACT:
The present study aims to develop and evaluate mucoadhesive buccal patch of prochlorperazine maleate. Drugs that have poor solubility, bioavailability, and/or extensive first-pass metabolism can be delivered effectively through the buccal route. Prochlorperazine maleate is an anti-emetic drug that has a high first-pass metabolism rate. Delivery of drug through the mucous lining of the oral cavity avoids hepatic metabolism of the drug and increases its bioavailability. Patches were prepared using chitosan 4% w/v as maximum concentration and 30 %w/v of glycerin as a plasticizer. The patches were evaluated for mucoadhesion, drug release, folding endurance, surface pH, swelling index, drug content was found to be in the range of 17.4±0.016 to 38.45±0.3, 57.56 ±0.01 to 41.15 ± 0.08, 354 ±1.15 to 386 ± 5.4, 6.2 ± 0.04 to 6.77 ± 0.05, 26.77±0.03 to 86.52±0.04, 95.93±0.04 to 99.77±0.07. The optimized batch showed a maximum in vitro drug release at 6 h i.e. 52.28 ± 0.06 % and mucoadhesion strength 32.64±0.3 g.
IDENTIFICATION AND ASSESSMENT OF POTENTIAL DRUG-DRUG INTERACTIONS IN INTENSIVE CARE UNIT PATIENTS

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ABSTRACT:

ICU patients suffer from various co-morbidities and usually receive complex pharmacotherapy which increases the risk of drug-drug interactions (DDIs). To identify and assess pDDIs (potential drug-drug interactions) in ICU patients. A prospective observational study was conducted in ICU of a tertiary care hospital, for a period of 6 months. Patient information was noted in the data collection form and pDDIs were assessed using Micromedex™ database. Statistical Chi square test was used to find correlation of pDDIs with patient parameters. P value was calculated keeping the significance level 0.05. Total 400 subjects were included; having an average age of 55.99 ± 15.62 years with a higher percentage of males (61.75%). About 305 (76.25%) patients were found with pDDIs, showing an average of 2.93 pDDIs/patient. Of total 1171 interactions, 6 (1%) were contraindicated, 715 (61%) were major, 428 (36%) were moderate and 22 (2%) were minor pDDIs. Further, majority of onset of action for pDDIs was found to be ‘not specified’; documentation for major pDDIs was found to be fair. Majority of probable mechanism for pDDIs was pharmacodynamic in nature. Significant association of occurrence of pDDIs was found with number of drugs prescribed to patients in ICU. This study demonstrated a high prevalence of pDDI in ICU due to the complexity of pharmacotherapy which showed major pDDIs as the most evident (61%) while contraindicated were 1%. Further studies are needed to better explore this area which may help in realising the goal of good clinical practice and may offer a methodology to further increase drug safety.

Key Messages: In ICUs, health professionals should take the responsibility of monitoring DDIs and notifying them to prescriber/physician about potential problems. This kind of practice will increase the patient safety.
ABSTRACT:

The overall aim of this work was to develop a parenteral controlled drug delivery of Dolasetronmesylate an antiemetic used in chemotherapy induced nausea and vomiting, using the technology of in situ forming gel based on temperature change stimuli as a onc daily injection over a 5 day period. Dolasetron Mesylate is used to treat chemotherapy induced nausea and vomiting at a dose of 100mg/ twice a day before chemotherapy repeatedly for a period of 5-7 days.

A novel stable temperature triggered in situ gelling Parenteral drug delivery was successfully formulated by using thermosensitive polymer Pluronic F-127 along with copolymer HPMC K100M and PEG 400, optimized and evaluated for gel formation, viscosity, gel stability and gel strength, invitro release and stability studies. Optimized formulation comprised of 20 %w/v Pluronic F-127, 2.5 %w/v HPMC K100M and 2% w/v PEG 400 showing rapid in situ gelation at 37°C forming a stable and viscous gel with gel strength 18.75g/cm, following all the prerequisites of a parenteral product and showing a release of 97.00 % in Simulated Body fluid pH 7.4 over a prolong period of 5 days. The formulation was found to be stable at selected storage conditions with most suitable storage condition at the refrigerator temperature. Thus such drug delivery technology that can reduce the total number of injection throughout the drug therapy period will be truly advantageous in terms of compliance and as well to improve the quality of the therapy.
FORMULATION AND DEVELOPMENT OF NOVEL TRANSMUCOSAL DRUG DELIVERY SYSTEM OF MOMETASONE FURATE

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ABSTRACT:

The objective of the work was to develop thermo reversible in-situ gel of mometasone furoate in order to increase its transmucosal permeation and retention time. Mometasone furoate is a corticosteroid with anti-allergic and anti-inflammatory activity and faces issues like poor aqueous solubility, extensive first pass metabolism and low bioavailability. The pre-formulation study was conducted by a studying various gelling mechanisms and concentration of the different polymers, until identifying a suitable concentration of specific polymer that allowed an adequate gelation temperature. The polymer poloxamer 407 was chosen as the thermo reversible gelling agent. In order to increase the absorption sodium nitroprusside used as the permeation enhancer. The formulations were characterized by gelation temperature, pH, viscosity between 20°C and 50°C. Gelation temperature was decreased when increasing the concentration of poloxamer 407. The effect of concentration of poloxamer and other excipients were studied by thermodynamic evaluation. The gelation temperature did not have significant relation with sodium nitroprusside and poloxamer 188. These results increased transmucosal permeation of drug and increased retention time of formulation.
ABSTRACT:

Amnesia refers to loss of memory. Dementia is a serious disorder, of which memory impairment is a core symptom. In this Memory impairment by basal forebrain lesions, Rats were subjected to Morris water maze learning task, where all animals significantly improved their cognitive performance during acquisition trials.

In retention trials, memantine (20 mg/kg) shown highly significant level where rat taken less time to reach escape platform, also HAESS shown significant effect against MSG i.c.v treated group during retention trials in Morris water maze performance. Level of lipid Peroxidation was found decreased in HAESS group and rats with HAESS increased GSH level in the brains as compared to vehicle-MSG group. Treatment with HAESS also shown significant results, where Nitrite level were decreased in all treated groups as compared to i.c.v MSG treated group.

In histopathological studies, monosodium glutamate induced neurodegeneration and inflammation in hippocampus is observed in all the groups except healthy (normal) control group. Treatment of Standard and HAESS group reduced the severity and distribution of all the observed lesions, which concludes dose dependent activity of HAESS on neurodegeneration and excitotoxicity.
APPLICATION OF SOFT GELATIN CAPSULE CONTAINING OIL FOR THE DELIVERY OF CHALLENGING NEW DRUG MOLECULE

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ABSTRACT:

Poorly water-soluble drug candidates are becoming more prevalent. It has been estimated that approximately 60–70% of the drug molecules are insufficiently soluble in aqueous media and/or have very low permeability to allow for the inadequate and reproducible absorption following oral administration. Formulation scientists have to adopt various strategies to enhance their absorption. Development of soft gelatin capsule dosage form is of growing interest for oral delivery of poorly water soluble compounds. It offers several advantages over other oral dosage forms, such as delivering liquid matrix designed to improve oral bioavailability of poorly soluble compound as a unit dose solid dosage form, delivering low and ultra-low doses of compound, delivering a low melting compound and minimize potential generation of dust during manufacturing and thereby improving safety of manufacturing personnel. LBDDS (Lipid based drug delivery system) Significant advances have been made in recent years include self-emulsifying micro emulsions and Nano emulsions encapsulated as pre concentrates in soft gelatin capsule. After oral administration forms an emulsion, with droplet size either in micro or Nano meter size range.
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