GOA – CENTER FOR EXCELLENCE IN INTELLECTUAL PROPERTY

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: Role of IPR !!

Nov. 12-13, 2024
Goa College of Pharmacy
Panaji- Goa

G-CEIP

Venue: NEW DURBAR HALL, RAJ BHAVAN, DONA- PAULA, PANAJI- GOA

G-CEIP

Goa – Center for Excellence in Intellectual Property

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: " FERULIC ACID LOADED TRANSETHOSOMES FOR PREVENTION OF HYPERPIGMENTATION AND ITS ANALYTICAL METHOD DEVELOPMENT"

AUTHORS: Mr. Abisesh.M*[1], Dr. V.S. Masthiholimath[2],

COLLEGE ADDRESS: KLEU College of Pharmacy, JNMC Campus, Belgaum, Karnataka, India 590010

CORRESPONDING AUTHOR EMAIL ID: mastiholimath@rediffmail.com

ABSTRACT:

This study focused on the formulation, optimization, and evaluation of ferulic acid-loaded transethosomes using a Design of Experiments (DoE) approach. A gel formulation containing these transethosomes were developed and assessed, along side analytical method development.

A robust RP-HPLC method for quantifying ferulic acid was developed and validated as per ICH guidelines, ensuring reliability and accuracy. The chromatographic analysis revealed excellent peak sharpness and clarity, with validation parameters meeting the acceptable limits, including %RSD (Relative Standard Deviation), confirming the method's suitability for ferulic acid analysis.

Ferulic acid was successfully incorporated into the transethosomes using the ethanol injection method, with subsequent evaluations of particle size (PS), encapsulation efficiency (%EE), zeta potential (ZP), and polydispersity index (PDI). The formulation was optimized through Design Expert software. In vitro cytotoxicity and drug release studies were conducted on the optimized batch, demonstrating effective release characteristics and favorable safety profiles.

The optimized transethosomal formulation was incorporated into a gel, and evaluations of pH, viscosity, and ex vivo permeation were performed. Findings indicated that the ferulic acid-loaded transethosomal gel formulation shows significant promise in addressing skin cancer and related conditions. Overall, this study highlights the potential of transethosomes as a drug delivery system for enhancing the therapeutic efficacy of ferulic acid in topical applications.

KEYWORDS: Ferulic acid, Transethosomes, Hyperpigmentation, Design of experiments, ICH, HaCaT Cell Line.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

TITLE: DEVELOPMENT AND EVALUATION OF FERULIC ACID AND RESVERATROL CUBOSOMES FOR TARGETING BREAST CANCER AND ITS ANALYTICAL METHOD DEVELOPMENT

AUTHORS: ABISHEK KUMAR A. PATIL[*1], Dr. V.S. MANNUR[2]

COLLEGE ADDRESS: KLE COLLEGE OF PHARMACY BELAGAVI, NEHRU NAGAR, BELAGAVI

CORRESPONDING AUTHOR EMAIL ID: drvsmannur@gmail.com

ABSTRACT: (Not more than 250 words)

The primary goal of the research was to formulate Ferulic Acid and Resveratrol cubosomes for targeting breast cancer and analyze them through HPLC method development. Cubosomes were prepared using the top-down method, with nine batches created based on two independent variables (GMO and P407) and two dependent variables (particle size and entrapment efficiency). The particle size ranged from 102.3 to 222.4 nm, and the entrapment efficiency was between 53.28% and 90%. Batch C2 was optimized for further evaluation, including TEM analysis and MTT assay for cell viability.

Analytical method development for Ferulic Acid and Resveratrol was performed using an Agilent Infinity 1220 II HPLC system. A C-18 column (250 × 4.6mm, 5-micron) was used with a mobile phase of methanol and 0.1% orthophosphoric acid (50:50) at a flow rate of 1 mL/min. Detection occurred at 278 nm, with retention times of 5.519 minutes for Ferulic Acid and 6.674 minutes for Resveratrol. The method was validated for accuracy, precision, and degradation studies, and it was applied to quantify the cubosomal formulation.

The optimized batch (C2) showed a cumulative drug release of 75.6% over 24 hours. MTT assay results demonstrated significant cytotoxicity against the MCF-7 breast cancer cell line, confirming the effectiveness of the cubosomes in drug delivery for cancer treatment.

KEYWORDS: Ferulic acid, Resveratrol, Breast cancer, MTT Assay, QbD, *In-vitro* drug release

TITLE: A Novel *In-Situ* Gel Forming Drug Delivery System of Moxifloxacin Hydrochloride loaded nanofibers for the treatment of periodontitis.

AUTHORS: Akanksha Patil, Ankita Londhe, Abhay Shirode

COLLEGE ADDRESS: Bharati Vidyapeeth's College of Pharmacy, Sector- 8, C.B.D Belapur, Navi Mumbai - 400614

CORRESPONDING AUTHOR EMAIL ID: abhay.shirode@bvcop.in

ABSTRACT:

Periodontitis treatment is hindered by the limited coverage of existing site-specific drug delivery systems. The major drawback of conventional periodontal formulations is that they cannot cover up the entire pocket which provides great opportunity for pathogens to inhabit the pit. Considering the problems associated with existing marketed formulations the study was designed. The aim of this research is to formulate and evaluate novel in situ gelling drug delivery system loaded with nanofibers of moxifloxacin hydrochloride using thermosensitive polymers with mucoadhesive property for the treatment of periodontitis. The antibacterial efficiency of prepared formulations was also investigated to elicit its potential in treating periodontitis. This shortcoming of conventional periodontal formulation is overcomed by employing stimuli-sensitive polymers that exhibit solution-to-gel phase transitions. Medicated in-situ gels of Moxifloxacin Hydrochloride loaded nanofibers for extended period of retention in infected cavity were prepared for improved local action for the treatment of periodontitis. An innovative approach is utilized which includes electrospun nanofibers, which mimics the extracellular matrix, to create an in-situ gel-forming drug delivery system. The nanofiber system offers a high surface area, porosity, and prolonged retention in the periodontal pocket, enabling sustained release and localized delivery. This technology addresses significant drawbacks in existing periodontal treatments, including reduced dosing frequency and enhanced patient compliance. The nanostructured delivery system demonstrates improved drug stability and bioavailability making it a promising advancement in periodontal therapy. This novel system aims to enhance localized drug delivery and provide a targeted treatment for periodontitis through pre-formulation studies, factorial design optimization, and in-vitro evaluations.

KEYWORDS: Thermosensitive polymers, Electrospun nanofibers, In-situ gel-forming system, Moxifloxacin Hydrochloride.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: DESIGN AND EVALUATION OF A NANOPARTICULATE DRUG DELIVERY SYSTEM

AUTHORS: SAWANT AKSHAY SARJERAO
NARKHEDKAR ISHA DHANANJAY CHANDA
Dr. NEHA DAND*

COLLEGE ADDRESS: BHARATI VIDYAPEETH'S COLLEGE OF PHARMACY, SECTOR 8, C.B.D. BELAPUR, NAVI MUMBAI – 400614

CORRESPONDING AUTHOR EMAIL ID: neha.dand@bvcop.in

ABSTRACT:

This research investigates the formulation and characterization of nitrofurantoin (NF)-loaded cyclodextrin-based nanosponges (CDNS). The rationale for this study stems from the need to improve nitrofurantoin's poor bioavailability by leveraging CDNS as a novel delivery platform to enhance solubility, stability, and therapeutic efficacy. Preformulation analysis determined a melting point of 279.8 °C, while Fourier-transform infrared (FTIR) spectroscopy identified characteristic functional groups of NF. Phase solubility studies demonstrated the formation of a 1:1 inclusion complex with β-cyclodextrin, with a calculated stability constant of 2142 M^{-1}. The nanosponges were synthesized using the melt method, resulting in amorphous structures as confirmed by differential scanning calorimetry (DSC), which indicated molecular dispersion of NF. Optimization of the drug-loaded CDNS was conducted using a Box-Behnken design, which yielded an optimal formulation consisting of 200 mg blank nanosponges and 900 mg of NF, with a stirring time of 12 hours. The scaled-up batch exhibited a drug loading efficiency of 76.87 ± 0.293% and an average particle size of 869.0 nm. FTIR analysis further confirmed successful encapsulation, evidenced by the presence of a carbonate bond at 1772.88 cm^{-1}. These results underscore the potential of cyclodextrin-based nanosponges as a promising delivery system for poorly water-soluble drugs like nitrofurantoin.

KEYWORDS: Nitrofurantoin, Cyclodextrin, Nanosponges, Drug Loading, Bioavailability, Optimization, FTIR, DSC**.**

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: Preparation and Characterization of Self-microemulsifying Powder of Carmustine

AUTHORS: Amol Deshpande; Atul Phatak

COLLEGE ADDRESS: Department of Pharmaceutics, PES Modern College of Pharmacy, Nigdi, Pune

CORRESPONDING AUTHOR EMAIL ID: amoldeshp@gmail.com

ABSTRACT: (Not more than 250 words)

Introduction: In this study, a self-microemulsifying drug delivery system (SMEDDS) was developed in an effort to improve the solubility and dissolution of the poorly soluble drug carmustine.

Methods: Castor Oil was used as the oil, Kolliphor as the surfactant, and Polyethylene Glycol as the cosurfactant to make liquid SMEDDSs. In order to determine the region of efficient self-microemulsification, pseudo-ternary phase diagrams were built.

Results and Discussion: Based on assessment parameters for droplet size analysis, self-emulsification capacity, zeta potential, and in vitro drug release performance, the formulation with 20% oil (Castor Oil) and 80% surfactant: cosurfactant (Kolliphor: Polyethylene Glycol) ratio of 1:1 was optimized. The optimized system has shown negative zeta potential and a mean droplet size ranging between 30 to 40 nm. Adsorbed onto Neusilin ULF 2 and Florite R, the improved formulation demonstrated good flow characteristics and retained the self-emulsification qualities of liquid SMEDDS to form solid SMEDDS.

Conclusion: Carmustine was shown to have transformed into a molecularly dissolved state in the liquid SMEDDS, according to investigations conducted using differential scanning calorimetry and FT-IR on solid SMEDDS. Carmustine dissolved far more quickly from solid SMEDDS than from pure drug, according to in vitro dissolution profiles.

KEYWORDS: Carmustine, Solubility, Dissolution, SMEDDS, Self-microemulsification

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR!!*

Nov. 12-13, 2024

Title: Advancing cardiovascular treatment: Innovating a tablet in tablet formulation comprising of Clopidogrel & Atorvastatin.

Authors: Anushka Dhande*, Aditya Kekan, Nilesh Desai-Deshmukh

College Address: Poona College of Pharmacy**,** Paud Road, Rambaug colony, Erandwane, Pune, Maharashtra 411038

Corresponding Author Email Id:
desainilesh86@gmail.com

ABSTRACT:

This study focuses on the development of a **tablet-in-tablet formulation** comprising a double combination of **Clopidogrel bisulfate (CBS)** as a floating tablet and **Atorvastatin (ATR)** as an immediate-release powder mixture. The aim was to improve cardiovascular therapy by enhancing the pharmacokinetic profiles of both drugs. The floating CBS tablet was formulated using **Hydroxypropyl Methylcellulose (HPMC)K4M** and **Sodium Bicarbonate($NaHCO_3$)** to achieve prolonged gastric retention, while ATR was designed for rapid release.

The floating tablet demonstrated excellent buoyancy, with a **Floating Lag Time (FLT)** of **45±2 seconds**, and remained afloat for over **12 hours**, indicating the robustness of the formulation. Drug release studies in **0.1N HCl** revealed that after **720 minutes**, CBS formulations achieved upto **96.00%** drug release, respectively, with a standard deviation of **2.31**. On other hand, ATR immediate-release layer showed a drug release of **93.75%** within **30 minutes** in pH 6.8, with a standard deviation of **1.44**.

Comparative **in-vitro dissolution** studies with a marketed product demonstrated similar release profiles. The marketed formulation of CBS demonstrated **97.77% and 86.04%** drug release while **94.70% and 84.52%** was observed for the formulated tablet in 0.1N HCl & pH 6.8 PBS, respectively. In pH 6.8 PBS, ATR powder mixture exhibited **95.06%** release and marketed formulation showed **91.75%** at **30 minutes**.

The **statistical analysis**, using **model-independent approach**, confirmed similarity between the test and marketed formulations, with Similarity factor **&** Difference Factor within acceptable ranges. These results validate the floating mechanism of CBS and rapid release of ATR, providing an effective strategy for cardiovascular therapy.

Keywords: Clopidogrel, Atorvastatin, Floating Tablet, Sustained Release & Immediate Release.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: Study of the Mucoadhesive Potential of Litsea glutinosa Polymer in the Preparation of Microbeads

AUTHORS: Dr.Anuradha G. More
Avantika Shivaji Jadhav*

COLLEGE ADDRESS: PES Modern Collage of Pharmacy Nigdi

CORRESPONDING AUTHOR EMAIL ID: avantikajadhav04@gmail.com

ABSTRACT: (Not more than 250 words)

The goal of this research was to create microbeads by utilising the mucoadhesive properties of a novel, naturally produced polymer called litsea glutinosa. Using an emulsion solvent evaporation approach, diclofenac mucoadhesive microbeads with litsea glutinsa as the mucoadhesive polymer and ethyl cellulose as the carrier polymer were formulated. The mucoadhesive microbeads morphological features were studies by using a scanning electron microscope. The microbeads displayed a high percentage of drug entrapment efficiency and were free-flowing, spherical, and distinct. Mucoadhesive microbeads stuck to the mucous layer more firmly and for a longer time, according to an in vitro wash-out mucoadhesive test. An Box Behnken experimental design has been used to examine the impact of independent variables. Particle size, drug entrapment efficiency (%), drug release (%), and mucoadhesive strength (%) are examples of dependent variables that are affected by the different concentrations of ethyl cellulose (X_1), litsea glutinosa(X_2), and Span 80 (X_3). All of the chosen dependent variables were strongly impacted by the independent variables and optimised batch shows particle size 144.66± 2.84 (μm), drug entrapment efficiency 70.36±1.98 (%), drug release 75.97±0.87 (%), and mucoadhesion strength 80.06±0.14 gm/cm2 . After a three-month stability trial under accelerated conditions, the formulation was found to be stable and exhibite 12–14 hours sustained release. These advantages collectively make mucoadhesive drug delivery systems a promising alternative to traditional dosage forms, particularly for drugs requiring targeted or sustained release.

KEYWORDS: Mucoadhesive microbeads, A Box Behnken Experimental Design, ex vivo absorption; Emulsion solvent evaporation, hydration

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: Formulation, optimization and characterization of carvacrol loaded niosomal in-situ gel for management of oral ulcer

AUTHORS: Balu Palekar, Vaishnavi khose, Sushant choughule, Mitali lande, Swati dhande, Sampada bhosale

COLLEGE ADDRESS: Bharati Vidyapeeth's College of Pharmacy, sector 8, c.b.d. Belapur, Navi Mumbai – 400614

CORRESPONDING AUTHOR EMAIL ID: sampadabvcop@gmail.com

ABSTRACT:

Oral ulcers are prevalent, painful sores that occur on the mucous membrane of the mouth and significantly affect the quality of life, necessitating effective treatment strategies. The present research aimed to develop a carvacrol-loaded niosomal in-situ gel for the treatment of mouth ulcers. Temperature-induced niosomal in-situ gels were formulated using a thin film hydration technique. The niosomes were evaluated for particle size, zeta potential and polydispersity index respectively and in-situ gel for the conversion of sol-gel transition temperature, gelling capacity, pH, viscosity and drug entrapment. Following optimization, the carvacrol-loaded niosomes showed 391 nm, -36.3 mV, 0.223 of vesicle size, zeta potential and polydispersity index respectively which lied within the desirable range and the entrapment efficiency was found to be 95.25%. The gelling temperature of niosomal in-situ gel was optimized to match body temperature, ensuring effective application and retention in the oral cavity. The gelation temperatures of the developed formulations were found to be in the range of 32–39 °C. The formulations exhibited fairly uniform drug content, pH and viscosity in range of 76.40–94.7%, 6.69-6.82 and 923.8-945.1 cps respectively. The batch formulated using 0.1% w/v carbopol 934P and 15% w/v poloxamer407 was found to be most desirable with significant mucoadhesive properties and also showed a significant zone of inhibition against both gram-positive and gram-negative bacteria. In conclusion, the in-situ gel system is a promising approach for the local delivery of carvacrol orally for the improvement of the therapeutic effect in oral ulcers.

KEYWORDS: Oral ulcer, carvacrol, thermal-induced niosomal in-situ gel, anti-microbial test,

TITLE: FORMULATION AND EVALUATION OF DUAL DRUG LOADED POLYMERIC MIXED MICELLES FOR ANTI-EPILEPTIC TREATMENT

AUTHORS: Dhanashree Rathi, Priyanka Pote, Dr. Nikita Gaikwad.

COLLEGE ADDRESS: PES MODERN COLLEGE OF PHARMACY, NIGDI, PUNE-44

CORRESPONDING AUTHOR EMAIL ID: dhanurathi2018@gmail.com

ABSTRACT: (Not more than 250 words)

Epilepsy is the fourth most common global neurological problem. Micelles are a promising strategy for delivering drugs via nose to brain , as they can improve drug bioavailability and potentially bypass the blood-brain barrier. The main objective of the present study was to formulate and evaluate the polymeric micelles of carbamazepine (CBZ) and phenethyl caffeate (CAPE) which could help to improve therapeutic efficacy and patient adherence to the therapy. Encapsulated in a novel carrier matrix of D-tocopheryl polyethylene glycol 1000 succinate vitamin E (TPGS) and soluplus . The drug CBZ corresponds to BCS class II. Poor bioavailability of BCS class II drugs, is the main problem encountered during formulation. The solubilizing ingredient was added to the nasal formulation during the study to boost solubility and subsequently the drug's bioavailability. Our objective was to develop this nanoparticulate delivery system using solvent evaporation techniques to enhance the therapeutic efficacy . The formulation process involved pre-formulation, formulation, optimization, and characterization of the micelles focusing on the effects of polymer ratios on particle size, zeta potential, entrapment efficiency (%EE) and in-vitro release study. Ex-vivo study was performed on sheep nasal mucosa to study local toxicity and In-vivo study was performed on MES model. The mean particle size of the optimal mixed micelle (F2) was 104.3 ± 10.50 nm with a polydispersity index of 0.401 ± 0.224. The average zeta potential measured was -27.0 mV. Intranasal delivery of dual drug-loaded micelles in rats effectively reduces seizure severity, showing promise as a more efficient antiepileptic therapy.

KEYWORDS: Polymeric mixed micelles, Carbamazepine , Epilepsy , Nose to brain delivery, Blood brain barrier (BBB).

TITLE: Pioneering Drug Delivery Innovations: Curcumin Suppository and Ethosomal Silymarin Systems for Enhanced Bioavailability

AUTHORS: Dr. Meera C. Singh, Ms.Nikita Bagade, Dr. Rukhsana Rub

COLLEGE ADDRESS: S.T.E.S's Sinhgad College of Pharmacy, Vadgaon (Bk) , Pune 411041 , Pune Maharashtra

CORRESPONDING AUTHOR EMAIL ID:
meerasingh2109@gmail.com

ABSTRACT:
Intellectual Property Rights (IPR) play a crucial role in driving sustainable prosperity through innovative health solutions. Dr. Meera C. Singh, Ms. Nikita Bagade, and Dr. Rukhsana Abdul Rub's first patent (No. 498110) introduces a novel suppository formulation of curcumin, overcoming challenges related to its poor solubility and membrane permeation. By utilizing eutectic mixtures, this formulation enables enhanced bioavailability and absorption, positioning it as a promising therapeutic approach for rectal and colon diseases, including cancer. The technology's adaptability extends to other poorly soluble phytochemicals in BCS classes IV and II, broadening its potential impact. Complementing this innovation, their second patent (No. 473617) outlines an ethosomal drug delivery system for silymarin. By incorporating ethosomes, liposomes, and nanoparticles, this system significantly improves the bioavailability and therapeutic efficacy of silymarin for treating skin conditions and wounds. Together, these patented technologies exemplify the power of IPR in advancing drug delivery systems that enhance therapeutic outcomes and contribute to sustainable healthcare solutions.

KEYWORDS: patents, curcumin, sylimarin,phytochemicals, ethosomes, eutectic mixtures, bioavailability, suppository, gel

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: DESIGN AND EVALUATION OF NEW FIXED DOSE COMBINATION OF ALLOPURINOL AND PROBENECID IMMEDIATE RELEASE TABLETS FOR CHRONIC TOPHACEOUS GOUT

AUTHORS: R.Natarajan, B.Nikila, V.S.Saravanan & R.Sambathkumar

COLLEGE ADDRESS: Department of Pharmaceutics & Research, The Erode College of Pharmacy, Erode-638112, Tamil Nadu, South India

CORRESPONDING AUTHOR EMAIL ID: natarajan.r@ecp.ac.in, svcpnatarajan@gmail.com

ABSTRACT: (Not more than 250 words)

Allopurinol and Probenecid are xanthine oxidase inhibitors and uricosurics that have anti-gout properties. To formulate, optimize and evaluate a New Fixed Dose Combination of Immediate Release tablets of Allopurinol and Probenecid to treat chronic tophaceous gout. Using a variety of super disintegrants, including Sodium Starch Glycolate, Crospovidone, and Croscarmellose sodium at varying concentrations, the tablets were made using direct compression technique. 2^2 factorial designs were used in the optimization process, which was completed using Central Composite Design (CCD). Weight variation, thickness, hardness, friability, wetting time, drug content, disintegration time, *in-vitro* dissolution studies, release kinetics and similarity factor are among the evaluation tests. When compared to other formulations, the optimized formulation F5 (Crospovidone-40mg) showed a better release rate. With R^2 values of 0.9544 and 0.9586, the drug release kinetic data of F5 showed that both drugs fit into first order kinetics. To study the drug release mechanism, the F5 *in vitro* release data result was fitted into the Korsmeyer-Peppas equation. The release was found to follow a non-Fickian anomalous diffusion mechanism, as indicated by the "n" values of 0.645 and 0.558. Allopurinol and probenecid in F5 were shown to have similarity factors (f_2 = 72.46 and 62.96) with respect to their individual innovator products. Based on clinical studies, it was indicated that the Novel Fixed Dose Combination of Probenecid and Allopurinol was effective in treating Chronic Tophaceous Gout. It was to develop a stable, safe, fast release and convenient immediate release tablets of combination of allopurinol and probenecid for the treatment of chronic tophaceous gout

KEYWORDS: *IR- NFDC, Optimization, In vitro dissolution, Release kinetics, Similarity factor.*

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: FORMULATION & EVALUATION OF BILAYER TABLET FOR SUSTAINED RELEASE APPLICATION.

AUTHORS: HARDIKA DINESH PATEL
ADITYA CHONDE, Dr. SMITA S. PIMPLE

COLLEGE ADDRESS: P.E.S MODERN COLLEGE OF PHARMACY, YAMUNANAGAR, NIGDI, PUNE- 411044

CORRESPONDING AUTHOR EMAIL ID: hardikapatel01@gmail.com

ABSTRACT:

Guaifenesin, a mucoactive drug, acts by loosening mucus in the airways and making coughs more productive. It is used for relief of wet cough and chest congestion due to the common cold. An ingredient in numerous over-the-counter (OTC) cough/cold medications, guaifenesin has a secondary indication for use in stable chronic bronchitis (professional indication). The main objective of this study is to prepare a bilayer tablet of Guaifensin using wet granulation technology and to formulate optimized formulation. Guaifenesin is used to assist relieve congestion caused by a cold or flu by removing mucus or phlegm (called flem) from the chest. Using a direct compression process and different quantities of sodium starch glycollate, microcrystalline cellulose the extended-release tablets were prepared. The powder's compressibility and flow characteristics were acceptable. Angle of repose, loose bulk density, tapped bulk density, compressibility index, Hausner's ratio, and other parameters were assessed for the tableting powders. The combination of powders exhibited acceptable flow characteristics. The tablets underwent tests for thickness, weight variation, drug content, hardness, friability, and in vitro release.

KEYWORDS: Guaifenesin, wet cough, chest congestion, stable chronic bronchitis, bilayer tablet, wet granulation technology, extended-release tablets.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: FORMULATION AND EVALUATION OF MEDICATED ORAL GUMMIES OF AN ANTI-HISTAMINIC DRUG

AUTHORS: Ms. Kiranmai Kokkanti ,Ma . Sweta Ulhas Thakur, Dr. Rajashree Gude

COLLEGE ADDRESS: Department of Pharmaceutics, Goa College of Pharmacy, 18th June Road, Panjim-403001, Goa, India

CORRESPONDING AUTHOR EMAIL ID:kiranmaireddy47@gmail.com

ABSTRACT: (Not more than 250 words)

Cetirizine Hydrochloride is a second generation, non-sedative, anti-histaminic drug, used for the treatment of allergic rhinitis. Cetirizine Hydrochloride is very bitter in taste, due to which it has very low acceptability among children, which inspired us to develop a novel drug delivery form in order to increase compliance among them and increase the palatability.The present study aimed to develop and evaluate Medicated Oral Gummies (MOGs) of the anti-histaminic drug, Cetirizine Hydrochloride using various gelling agents such as gelatin, agar, sodium alginate, pectin, tragacanth and xanthan gum by heating and congealing method.The formulated Gummies containing Cetirizine Hydrochloride were evaluated for different parameters like physical appearance, pH, syneresis, drug content, *in-vitro* drug release, release kinetics and stability studies.All the Gummies containing Cetirizine Hydrochloride were uniform, non-sticky and non-gritty. The pH of all the Gummies containing Cetirizine Hydrochloride was found between pH 6.27± 0.564 and 7.05±0.030 which is compatible with the saliva pH. The percent drug content of Gummies containing Cetirizine Hydrochloride was found to be in the range of 99.76% ± 1.42 to 95.87% ± 0.84.In dissolution testing, majority of the formulations were found to release almost 70% of the drug after 15 mins. Formulation F9 was found to be the best of all, and hence was identified as an optimised formulation showing highest drug release of 99.107% at the end of 20 mins following Zero order kinetics with Non-Fickian diffusion and the best fit model was Korsmeyer Peppas model.Stability testing demonstrated that the optimised Gummies containing Cetirizine Hydrochloride remained stable over a three months period at 25ºC ± 2 ºC, maintaining its general appearance, drug content and pH.It can be concluded that Medicated Oral Gummies loaded with Cetirizine Hydrochloride can be a promising delivery system for pediatrics, geriatrics and patients with dysphagia.

KEYWORDS: Cetirizine Hydrochloride, Gummies, Gelling agents, Heating and congealing method, Paediatric Patients.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: FORMULATION DEVELOPMENT AND CHARACTERIZATION OF CYCLOSPORINE LIPOSOME FORMULATION FOR OCULAR DRUG DELIVERY.

AUTHORS: Suvarna P. Phadatare, Manasi Nikam

COLLEGE ADDRESS: BHARATI VIDYAPEETH'S COLLEGE OF PHARMACY,Sector - 8, C.B.D. Belapur, Navi Mumbai - 400 614.

CORRESPONDING AUTHOR EMAIL ID: suvarna.phadtare@bvcop.in

ABSTRACT: (Not more than 250 words)

The objective of the study was to develop a novel liposome formulation containing Cyclosporine CsA, which possess low solubility, high molecular weight, and poor permeation; and to validate reversed-phase high-performance liquid chromatographic (HPLC) method for the evaluation. CsA liposomes were prepared by thin film hydration method using phospholipids and cholesterol at different ratios. Compositions of CsA liposomal formulations were optimized using 3^2 factorial design. Drug-loaded liposomes were then evaluated for determination of vesicle size, PDI, % encapsulation efficiency, TEM study, assay, stability, in vitro permeation and thermal analysis etc. Percent entrapment efficiency varied from 36.4 to 46.4 % and design expert software showed best fit of data in quadratic model. The results of regression analysis for X_1 and X_2 showed value of R^2 0.981, adjusted R^2 0.948 , predicted R^2 0.75, standard deviation SD of 0.95 and % coefficient variation (%CV) of 33%. Optimized liposomal formulation having 300-500 size range with PDI below 0.5 and maximum possible entrapment with sustained release of CsA drug for an extended time period.

KEYWORDS: CsA, liposome, film hydration method, HPLC

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: Formulation and evaluation of optimized niosomal gel of terbinafine hydrochloride for topical delivery

AUTHORS: Manushree, Rahul Shah, Ravindra Kamble

COLLEGE ADDRESS: Poona College of Pharmacy, Paud Road, Rambaug Colony, Erandwane, Pune (411038), Maharashtra, India

CORRESPONDING AUTHOR EMAIL ID: manushreeyadav4@gmail.com

ABSTRACT: The aim of the present research work is to formulate Terbinafine Hydrochloride loaded niosomes topical gel for the treatment of localized fungal infections. The formulation was prepared by modified ethanol injection (MEI) method using Cholesterol, Span 60 and Carbopol 934 (gelling agent). The developed formulations were statistically optimized by 3^2 Box–Behnken design (BBD) to obtain the size (104 ± 1 nm) and the entrapment efficacy (87.36 ± 2.86%) of the niosomes by selecting cholesterol at 20 mg and Span 50 mg. The FESEM, TEM and AFM images showed that niosomes had spherical shape with smooth surface without aggregation. *In-vitro* release studies carried out in PBS (pH 5.5) for gel exhibited a release of 82.72% and 74.92% respectively over 24 hr. *In vitro* antifungal activity study results showed that optimized gel had better antifungal activity in comparison to marketed cream. The *ex vivo* skin permeation and skin retention data revealed that niosomes can effectively improve the drug permeation through skin. *In vivo* pharmacodynamic studies demonstrated that the gel reduces fungal burden or count more effectively than marketed cream. Stability study confirmed that cholesterol-rich niosomes were stable for 3 months at room temperature and freeze condition (2-8 °C). In conclusion, the niosomal gel showed promising results to deliver terbinafine for treating skin fungal infections, and thus, it can be taken as a preferred choice of carrier system for topical drug delivery.

KEYWORDS: niosomes, terbinafine**,** topical gel, box-behnken design, topical delivery

TITLE: Pharmaceutical Application of Mixed Solvency for Solubility Enhancement of Piroxicam and its Formulation Development by Liquisolid Technique

AUTHORS: Monalee Rajabhoj, Vijay Nikam, Ravindra Kamble

COLLEGE ADDRESS: Poona College of Pharmacy, Paud Road, Rambaug colony, Erandwane, Pune, Maharashtra 411038

CORRESPONDING AUTHOR EMAIL ID: monalirajabhoj@gmail.com

ABSTRACT:

Piroxicam, a non-steroidal anti-inflammatory drug (NSAID), exhibits poor water solubility, which limits its bioavailability and therapeutic efficacy. This study aims to enhance the solubility and dissolution profile of piroxicam by employing the mixed solvency approach in conjunction with the liquisolid technique. Mixed solvency utilizes a combination of hydrotropes and cosolvents to synergistically improves solubility of poorly water-soluble drugs. The term "liquidsolid system" describes formulations that are created by combining liquid medications, drug suspensions, or drug solutions in non-volatile solvents with specific carriers and coating materials to create dry, non-adherent, free-flowing, and compressible powder combinations. The combination of these techniques resulted in a formulation with significantly enhanced solubility, faster dissolution rates, and improved bioavailability of piroxicam compared to conventional formulations. Optimized batch of liquisolid dispersion was evaluated by FTIR, SEM, DSC, in-vitro drug release & long-term stability study. The optimized formulation was selected using the desirability technique and experimentally validated. The prepared ODT (Oral Disintegrating Tablet) was compared with both a marketed formulation and pure drug formulation. Results showed that the optimized ODT achieved a drug release of 98.82% within 30 minutes, while the marketed ODT showed 96.74% release at 45 minutes. The pure drug ODT exhibited significantly slower release, with 64.10% released at 120 minutes. This approach represents a cost-effective and scalable method for overcoming the solubility challenges associated with poorly water-soluble drugs.

KEYWORDS: Piroxicam, Mixed Solvency, Liquisolid Technique, Solubility Enhancement

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: FORMULATION AND EVALUATION OF VITAMIN E TPGS BASED TRANSFEROSOMAL HYDROGEL FOR ANTIFUNGAL TREATMENT

AUTHORS: NIKITA SATYAWAN SALUNKE
DAMINI SHINDE, Dr. NIKITA M. GAIKWAD

COLLEGE ADDRESS: P.E.S MODERN COLLEGE OF PHARMACY, YAMUNANAGAR, NIGDI, PUNE- 411044

CORRESPONDING AUTHOR EMAIL ID: nikssalunke0209@gmail.com

ABSTRACT:

Itraconazole (ITZ), a triazole antifungal has a high molecular weight of about 705.633 g/mol and the poor solubility. It limits the effectiveness of ITZ in treating skin diseases due to low skin permeation. Similarly, Ibuprofen (IBU), a BCS-II drug, also struggles with poor skin permeability due to the skin's barrier properties. Transferosomes (TFS), flexible and deformable vesicles, provide a novel solution for effective drug delivery. This study aims to enhance skin permeability and antifungal activity by formulating Vitamin E TPGS-based ITZ- IBU-loaded transferosomal hydrogel. The dual drug loaded Transferosomes were synthesized using the thin film hydration method and evaluated for entrapment efficiency (EE%), particle size, polydispersity index, zeta potential, and drug release. The optimized formulation was incorporated into a Carbopol- HPMC gel and compared with a free drug gel, focusing on spreadability, pH, viscosity, drug content, skin permeation, and antifungal activity. TFS formulations exhibited small vesicle size ranging from 97.56±0.21 nm to 389.38 + 0.58 nm, high EE % ranging from 65.53 ±0.54% to 99.03 ± 0.62%, with better Stability. The formulation follows zero order model. Zeta potential values ranged from -25.7mV and to -52mV found to be stable. The transferosomes have enhanced permeability of Itraconazole and ibuprofen. Morphological analysis of the transferosomal suspension using SEM revealed spherical vesicles. The ITZ-IBU-loaded TFS hydrogel exhibited superior antifungal activity and better skin permeability than the free drug-loaded hydrogel.

KEYWORDS: Itraconazole, Ibuprofen, Transferosomes, hydrogel, Ex-vivo, Vitamin-E-TPGS, Antifungal.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: FORMULATION AND EVALUATION OF

MICROSPONGES CONTAINING BCS CLASS II DRUG

AUTHORS: Ms. Onaswi Lav Mulavi, Ms. Samiksha Datta Govenkar, Dr. Rajashree Gude

COLLEGE ADDRESS: Department of Pharmaceutics, Goa College of Pharmacy, 18th June Road, Panjim-403001, Goa, India

CORRESPONDING AUTHOR EMAIL ID:onaswimulvi24@gmail.com

ABSTRACT: (Not more than 250 words)

Tizanidine HCl is a short acting skeletal muscle relaxant. The bioavailability ranges between 30-40% and it has a half-life of 2.5 h, thus requires frequent dosing to maintain the therapeutic level of drug in the body. Microsponges loaded in an emulgel for topical application offers several advantages which can overcome the drawbacks associated with the oral administration of the drug. The chief intention of the study was to formulate microsponges of Tizanidine HCl (TZH) and to incorporate it into an emulgel to sustain the release of the drug. The study utilized Quasi-emulsion solvent diffusion technique to formulate microsponges with varying concentrations of Ethylcellulose (EC) and Polyvinyl Alcohol (PVA). The TZH microsponges were prepared and optimized by applying 3^2 factorial design and the effect of the selected factors were investigated on the Entrapment Efficiency and Production Yield which were found to be significantly affected by the concentrations of EC and PVA. The optimized TZH microsponges were characterized for Particle size, PDI, Zeta potential which depicted the narrow particle size distribution and high stability of the formulated microsponges and the DSC, XRD, FTIR studies confirmed the complete encapsulation of TZH and transformation to amorphous state. *In-vitro* dissolution studies showed sustained release of the drug. The optimized microsponges were loaded into an emulgel base which exhibited effective and extended drug release of 69.97% at the end of 8 h and showed no signs of irritation in the Wistar Albino rats. The results indicate that the TZH-microsponges have the potential to provide sustained release of the drug and thus will improve bioavailability and patient compliance.

KEYWORDS: Tizanidine HCl, Microsponges, Emulgel.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

TITLE: ETORICOXIB LIPOSOMES LOADED SUSTAINED RELEASE INTRA-ARTICULAR INJECTION

AUTHORS: Mirajkar Reshma, Madgulkar Ashwini, Khomane Pavan, Karmankar Darshan

COLLEGE ADDRESS: AISSMS College of Pharmacy, Pune 411001,Maharastra India

CORRESPONDING AUTHOR EMAIL ID: Pavan P. khomane **Gmail:** Khomanepavan1@gmail.com

ABSTRACT:

Intra-articular (IA) drug delivery provides direct access to joint spaces, enhancing targeted treatment while minimizing systemic effects, relevant for conditions like osteoarthritis. Etoricoxib, a selective COX-2 NSAID, has demonstrated effectiveness in treating joint inflammation. However oral administration has been associated with toxicity and frequent injections results in rapid drug clearance with risk of joint infection challenging its effectiveness. These issues can be addressed by innovative approaches like injection hydrogels to obtain sustained release in the joint cavity reducing distribution to non-target organs with decreased frequency of injections. Also particulate drug delivery like liposomes can improve the tissue penetration.

This research focuses on the formulation of a novel etoricoxib liposomes loaded sustained release intra-articular injection .Liposomes containing soy lecithin and cholesterol were prepared using thin film hydration and incorporated into insitu gel forming injection using thermosensitive polymer Polaxomer 407 22% and sustained release polymer HPMC K 100M 0.5% optimized through statistical experiments. The liposomes achieved high entrapment efficiency of 96.4% with particles in the desired size range 1-1.2 µm. A stable sterile injection was formulated with syringibility through 18-22 guaze needle, optimum viscosity and exhibiting a prolonged drug release over 96 hours. The pharmacokinetic studies showed reduction in the C_{max} and delayed T_{max} in comparison to the immediate-release injection. The invivo studies showed reduced knee swelling in acute inflammation with no noteworthy pathological abnormalities. Combining these liposomes of etoricoxib with an in situ hydrogel holds potential for improved joint disease treatment with fewer side effects.

KEYWORDS: Etoricoxib, liposome, *insitu* gel, osteoarthritis, intra-articular injection

TITLE: QbD based development and optimization of Aspirin enteric coated formulation of antiplatelet drugs

AUTHORS: Pooja Bhokare*, Shruti Jambhulkar, Nilesh Deshmukh-Desai

COLLEGE ADDRESS: Poona Collage of Pharmacy, Paud Rd, Rambaug Colony, Erandwane, Pune, Maharashtra 411038

CORRESPONDING AUTHOR EMAIL-ID desainilesh86@gmail.com

ABSTRACT:

The research focuses on the development of an enteric-coated Aspirin tablet to prevent gastric irritation while ensuring effective drug release in the small intestine. Aspirin, a widely used antithrombotic agent, can cause gastric irritation when exposed to the acidic environment of the stomach. To overcome this issue, the study explores a formulation where Aspirin granules are coated with enteric materials to create a gastro-resistant barrier.

The formulation process involves the use of sugar spheres as a core, coated with Aspirin and followed by multiple layers of protective coatings. The first layer is a barrier coating made of PVP K30 in isopropyl alcohol (IPA). The second layer consists of hydroxypropyl methylcellulose phthalate (HP55), forming the enteric coating, which prevents the drug from dissolving in the stomach. Finally, a cushioning layer is applied using PEG 6000 and PVP K30 to enhance stability.

The coated Aspirin granules were subjected to in-vitro dissolution studies using USP Type I apparatus to ensure the integrity of the enteric coating. The drug release was tested first in 0.1 N HCl for two hours to simulate stomach conditions and then in phosphate buffer (pH 6.8) to simulate the intestinal environment. Results confirmed the formulation's ability to withstand the acidic environment of the stomach and provide delayed release in the intestines.

This enteric-coated Aspirin formulation addresses the issue of gastric irritation, providing a targeted release in the small intestine, making it a potential option for safer antiplatelet therapy

KEYWORDS: Aspirin, Enteric Coated Tablet, QbD, Cardiovascular disease.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: Formulation and Evaluation of Transferosome-loaded Thuja Oil-. . Based Emulgel to enhance the anti-inflammatory effects of Quercetin

AUTHORS: Prajwal Lonkar, Shubham Kakade, Ashwin Mali
COLLEGE ADDRESS: Poona College of Pharmacy, Paud Road, Rambaug Colony, Erandwane,Pune (411038), Maharashtra, India
CORRESPONDING AUTHOR EMAIL ID: prajwallonkar82@gmail.com

ABSTRACT: Inflammation is a vital physiological response, but it contributes to various diseases like cardiovascular and autoimmune disorders. While NSAIDs are commonly used, they have side effects. Thus, natural alternatives, such as flavonoids like Quercetin, are gaining popularity. Quercetin is a strong antioxidant with anti-inflammatory properties but suffers from poor bioavailability, necessitating advanced delivery methods.

The aim of the present research work is to formulate and evaluate a Transferosome-loaded Thuja Oil-Based Emulgel to enhance the anti-inflammatory effects of Quercetin, offering a novel approach for treating skin inflammation. Quercetin-loaded Transferosomes were prepared using ethanol injection. Emulgel were formulated by combining Thuja oil with Tween 80 to create an emulsion, which was incorporated into the Transferosome gel.

The formulations were evaluated for particle size, zeta potential, entrapment efficiency, in vitro drug release, stability, and anti-inflammatory activity using RAW 264.7 cell lines. The optimized Transferosome formulation had a particle size of 118nm, a zeta potential of -10.8 mV, and an entrapment efficiency of 91.50%. The QCT TF-loaded Emulgel showed 72.68% inhibition of inflammation in vitro, compared to 41.85% for the Quercetin Emulgel. The co-delivery of Quercetin and Thuja Oil in a Transferosome-based Emulgel demonstrated enhanced anti-inflammatory effects, suggesting its potential as a safe and effective alternative for skin inflammation treatment.

KEYWORDS: Quercetin**,** Transferosomal Emulgel ,Inflammation, Topical delivery

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

TITLE: COMPARATIVE STUDY OF DARUNAVIR PHARMACEUTICAL CO-CRYSTALS BY LIQUID -ASSISTED GRINDING AND SLOW SOLVENT EVAPORATION METHOD

AUTHORS: PRASHANT HALAGALI[*1], BHUVANESHWARI R SHARANNAVAR[2]

COLLEGE ADDRESS: KLE COLLEGE OF PHARMACY, BELAGAVI, NEHRU NAGAR, BELAGAVI

CORRESPONDING AUTHOR EMAIL ID: brsharannavar@klepharm.edu

ABSTRACT: (Not more than 250 words)

The study, co-crystals of Darunavir (DRV) were successfully prepared using Succinic acid (SA) and Niacinamide as coformers through two methods: liquid-assisted grinding (LAG) and slow solvent evaporation. The co-crystals produced via the LAG method exhibited a greater increase in solubility compared to those prepared by the slow solvent evaporation method. Among the formulations, DRV-SA co-crystals prepared by the LAG method showed the most significant solubility enhancement. The presence of hydrogen bonding interactions between the drug and coformers was confirmed by FT-IR analysis, indicating the formation of new crystal structures. Additional characterization techniques, including differential scanning calorimetry (DSC), scanning electron microscopy (SEM), and powder X-ray diffraction (PXRD), further verified the modification in crystal properties, demonstrating altered thermal behavior and surface morphology. The in-vitro dissolution studies revealed that the dissolution rate of the co-crystals was notably superior to that of pure Darunavir, indicating potential bioavailability improvements. Stability studies conducted over a 90-day period confirmed that the co-crystals retained their structural integrity and did not undergo significant degradation. These findings suggest that the prepared co-crystals, particularly those obtained through the LAG method, could enhance the solubility and stability of Darunavir, thereby improving its therapeutic efficacy.

KEYWORDS: Darunavir, HIV-1, Co-crystals, In-vitro dissolution study.

TITLE: DESIGN AND EVALUATION OF A NOVEL DRUG DELIVERY SYSTEM.

AUTHORS: PRASHANT SAHEBRAO KAPASE
SUSHMITA PRASHANT NIKHARGE
DR. K. R. JADHAV*

COLLEGE ADDRESS: BHARATI VIDYAPEETH'S COLLEGE OF PHARMACY, SECTOR 8, C.B.D. BELAPUR, NAVI MUMBAI – 400614

CORRESPONDING AUTHOR EMAIL ID: drkrj24@gmail.com

ABSTRACT:

Diabetes Mellitus is a very difficult condition to treat especially in patients with wounds, mainly because of slow healing and increased susceptibility to infections associated with diabetic wounds. Innovative transdermal drug delivery system employing electrospun nanofibres for sustained drug release to enhance patient compliance and targeted therapy of wound sites. The study encompasses two vital anti-diabetic drugs, namely, Pioglitazone, which will increase the sensitivity of insulin and lessen the effect of inflammation, and Linagliptin, a DPP-4 inhibitor for acceleration of wound healing along with maintaining glucose level. These drugs were successfully incorporated into electrospun nanofiber films, which are known to encapsulate both hydrophilic as well as hydrophobic compounds along with providing high surface area as well as porosity. Optimization of the formulation was done using Statease Design-Expert software, followed by ex-vivo permeation and stability studies following ICH guidelines. Electrospinning formed the core techniques in this work to produce nanofibers and then analyzed the nanofibers for thickness, folding endurance, weight variation, SEM photography, drug release profile, and entrapment efficiency. Optimized formulation had an impressive 90.7% of drug release and 97.6% of entrapment efficiency. The outcomes indicate that electrospun nanofibers are promising as a transdermal delivery system. It raises the solubility, permeability, and therapeutic efficiency of Pioglitazone and Linagliptin for the treatment of diabetic wounds.

KEYWORDS:

Diabetes Mellitus, Diabetic wounds ,Electrospun nanofibers, Transdermal drug delivery, Pioglitazone, Linagliptin,Sustained drug release.

TITLE: Formulation and evaluation of Telmisartan dry emulsion and development tablet dosage form.

Authors: Pratiksha Nalawade, Laxman Shingade, Ravindra Kamble.

College Address: Poona College of Pharmacy, Paud Road, Rambaug colony, Erandwane, Pune, Maharashtra 411038

CORRESPONDING AUTHOR EMAIL ID:
pratikshanalawade2255@gmail.com

ABSTRACT:

Telmisartan, an angiotensin II receptor blocker (ARB), is widely prescribed for managing hypertension and reducing cardiovascular risk. Despite its therapeutic potential, Telmisartan's poor water solubility, as a Biopharmaceutics Classification System (BCS) class II drug, significantly limits its bioavailability. To address these challenges, this study aimed to enhance Telmisartan's solubility and bioavailability by developing a lipid-based drug delivery system. A stable microemulsion was formulated using Span 80, sodium taurocholate, and ethanol in a 1:1 surfactant-to-co-surfactant ratio. This microemulsion was selected for its high oil content and stability, and subsequently lyophilized into a dry emulsion with the addition of 4% cryoprotectant to further enhance its performance. The lyophilized emulsion was characterized using scanning electron microscopy (SEM) to assess particle morphology, X-ray diffraction (XRD) to analyse the crystalline-to-amorphous transition, and Fourier-transform infrared (FT-IR) spectroscopy to evaluate drug-excipient interactions. SEM revealed the formation of micron-sized particles in the lyophilized emulsion, while XRD confirmed a transition from crystalline to amorphous form, a change associated with improved solubility. FT-IR analysis indicated no significant chemical interactions between the drug and excipients, suggesting stability of the formulation. In-vitro dissolution studies demonstrated a marked improvement in the dissolution rate of the lyophilized dry emulsion compared to marketed tablets, achieving complete drug release within 30 minutes. These findings suggest that the lipid-based system, combined with lyophilization, is an effective approach for significantly enhancing Telmisartan’s solubility, bioavailability, and stability, offering a superior alternative to conventional marketed formulations.

KEYWORDS: Telmisartan, lyophilized dry emulsion.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: FORMULATION, CHARACTERISATION AND EVALUATION OF MEFENAMIC ACID NANOSPONGES CAPSULES

AUTHORS: PRAVIN RAMESH RATHOD
SHIVANI KUNDAP
DR. MANISHA. S . KARPE*

COLLEGE ADDRESS: BHARATI VIDYAPEETH'S COLLEGE OF PHARMACY, SECTOR 8, C.B.D. BELAPUR, NAVI MUMBAI – 400614

CORRESPONDING AUTHOR EMAIL ID: manisha.karpe@bvcop.in

ABSTRACT:

Mefenamic acid-loaded nanosponges for the controlled release of drugs using Factorial Design were developed. Nanosponges were prepared using ethyl cellulose, acetone, dichloromethane, and polyvinyl alcohol (PVA) by emulsion solvent diffusion. Optimization was done using 3^2 randomized full factorial designs (Statease Design Expert software). Drug-polymer ratio and stirring speed were selected as factors for evaluating in-vitro percent drug release and particle size. The drug-polymer ratio of 1:1 was found to be an optimized ratio. The developed nanosponges had a particle size of 538 nm and % an EE of 89.92%. The drug-polymer ratio and stirring speed were noted to have a significant impact on in vitro percent drug release and particle size. The optimized drug-loaded nanosponges appeared as porous spherical particles, as evident by a scanning electron microscopy study. Optimized nanosponges gave % drug release 95.92% for 12 hrs in a controlled manner. Nanosponges were filled in capsules and evaluated.

KEYWORDS: Nanosponges, Factorial Design, Mefenamic acid, Optimization, Rheumatoid Arthritis, Controlled drug delivery system.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: Formulation and Development of Cholecalciferol Nanoemulsion for the Treatment of Diabetes in Male Wistar Rats.

AUTHORS: Preeti Zade*, Ketaki Shinde, Nilesh Deshmukh.

COLLEGE ADDRESS: Poona college of pharmacy, Paud road, Rambaug colony, Erandwane, Pune, Maharashtra, 411038.

CORRESPONDING AUTHOR EMAIL ID: desainilesh86@gmail.com

ABSTRACT:

The research focuses on the formulation and evaluation of a Cholecalciferol (Vitamin D3) nanoemulsion for the treatment of diabetes in male Wistar rats. Diabetes mellitus, a growing global health issue, is associated with complications like insulin resistance and poor glucose metabolism. Vitamin D3 has been recognized for its role in improving insulin sensitivity and regulating blood glucose levels. However, the poor solubility and low bioavailability of Cholecalciferol limit its therapeutic effectiveness when administered orally.

To address these challenges, a nanoemulsion formulation of Cholecalciferol was developed using the spontaneous emulsification method. This approach enhances the solubility and bioavailability of lipophilic drugs like Cholecalciferol, allowing for improved absorption and therapeutic efficacy. The formulation was optimized and evaluated for key parameters such as particle size, zeta potential, and entrapment efficiency. In vitro studies were conducted to assess the drug release profile of the Cholecalciferol nanoemulsion in comparison to the pure drug, demonstrating enhanced release and stability.

In vivo studies were carried out on male Wistar rats to evaluate the antidiabetic potential of the Cholecalciferol nanoemulsion. The results showed a significant reduction in blood glucose levels and improvements in serum lipid profiles, indicating the formulation's effectiveness in managing diabetes. The findings suggest that Cholecalciferol nanoemulsion offers a promising strategy for enhancing the therapeutic potential of Vitamin D3 in diabetes management by improving its bioavailability and ensuring more consistent therapeutic outcomes.

KEYWORDS: Cholecalciferol nanoemulsion, diabetes management, Bioavailability enhancement.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

TITLE: DEVELOPMENT AND EVALUATION OF COMBINED NANOSPONGE-BASED GEL DRUG DELIVERY FOR PSORIASIS

AUTHORS: Punam Umesh Pardeshi*, Dr. N. M. Gaikwad
COLLEGE ADDRESS: PES Modern College Of Pharmacy Nigdi
CORRESPONDING AUTHOR EMAIL ID: Punampardeshi662@gmail.com

ABSTRACT: (Not more than 250 words)

The study aimed to develop a topical gel based on nanosponges (NS) containing a combination of benzocaine and hydrocortisone for psoriasis treatment. This project aimed to formulate topical nanosponges-based gel that includes a combination of hydrocortisone and benzocaine that can potentially be utilized for the treatment of psoriasis. The drug-loaded nanosponges were formulated using ethyl cellulose and polyvinyl alcohol as polymer and copolymer, with dichloromethane as an organic solvent. A fully randomized factorial design (32) examined 9 potential experimental runs. Formulation F1 was achieved after optimization, with a 195.1 nm particle size, 80.64% entrapment efficiency, 73.32% in-vitro release, 17.2 mV zeta potential, 81.69% drug loading, 50.6% percentage yield, 122% percent swelling. The gel was formulated by adjusting the concentration of polymer Guar gum and gelling agent Carbopol-934. A group of animals was used in ex vivo permeation and skin irritation study to check the safety & efficacy of the formulation. Hydrocortisone combined with benzocaine is more effective against psoriasis and inflammation than Hydrocortisone alone. The nanogel showed drug release through 8 hours, indicating that the combination of Benzocaine and hydrocortisone significantly increased anti-psoriatic efficacy. Therefore, the suggested Nanosponges-based hydrogel will be a more effective drug delivery method for anti-psoriatic therapy. Keywords: Nanosponges, psoriasis, hydrogel, hydrocortisone, benzocaine

KEYWORDS: Nanosponges, psoriasis, hydrogel, hydrocortisone, benzocaine

TITLE: DESIGN, OPTIMIZATION AND CHARACTERIZATION OF DRUG DELIVERY SYSTEM

AUTHORS: SAH RAHUL KUMAR LAL BABU
RATHOD VISHAL SANTOSH INDUBAI
MR. NILKAMAL WAGHMARE*

COLLEGE ADDRESS: BHARATI VIDYAPEETH'S COLLEGE OF PHARMACY, SEC 8, C.B.D BELAPUR, NAVI MUMBAI – 400614

CORRESPONDING AUTHOR EMAIL ID: nilkamal.waghmare@bvcop.in

ABSTRACT:

This study aimed to design, optimize, and evaluate Aceclofenac (ACF)-loaded cyclodextrin-based nanosponges (CDNS) for oral administration, to enhance the drug's bioavailability due to its limited solubility. Preformulation studies of ACF and a phase solubility study with β-cyclodextrin were conducted to assess the drug's solubility profile. Blank CDNS were synthesized using a carbonate cross-linking method and characterized for size and porosity. ACF was loaded into the nanosponges using incubation, followed by lyophilization to maintain stability. Optimization of the formulation was performed using a Box-Behnken design in StatEase® Design-Expert software to determine the optimal concentrations of nanosponges and drug, along with the stirring time. The optimization was based on the percent drug loading and particle size as response variables. The final optimized batch comprised 233.64 mg nanosponges, 899.774 mg ACF, and a stirring time of 19.1 hours, with predicted values of 75.25% drug loading and a particle size of 494.86 nm. Upon scaling up, the batch achieved 75.6% drug loading and a particle size of 477 ± 8.16 nm. Further evaluations using Fourier-transform infrared spectroscopy confirmed successful CDNS formation and ACF encapsulation through changes in peak intensity and wavenumber shifts. Differential scanning calorimetry revealed a reduction in ACF crystallinity upon loading into the nanosponges, while transmission electron microscopy confirmed nanosponge morphology and particle size. X-ray diffraction analysis indicated a conversion of ACF to an amorphous state, contributing to enhanced solubility. These findings suggest that ACF-loaded CDNS offer a promising approach to improving the oral bioavailability of poorly soluble drugs.

KEYWORDS: Aceclofenac, cyclodextrin-based nanosponges, drug loading, bioavailability, FTIR, Box-Behnken design, solubility enhancement, nanosponge optimization.

TITLE: Preparation and Evaluation of Flurbiprofen Non-Covalent derivatives for improving Physicochemical properties and Pharmacological activity

Authors: Ritesh Wali, Shraddha Jethawa, Sugandha Mulgund

College Address: Bharati Vidyapeeth (Deemed to be University) Poona College of Pharmacy, Erandwane, Pune-41103

CORRESPONDING AUTHOR EMAIL ID:

ritesh4732@gmail.com

ABSTRACT:

Flurbiprofen (FBP) is a widely used non-steroidal anti-inflammatory drug known for its analgesic properties. However, its clinical efficacy is often limited by poor solubility and dissolution rates. The current study involved the preparation of non-covalent derivatives (FBP: UREA 1:1 eutectic) to enhance its solubility, dissolution rate, and pharmacological activity. The objectives included characterizing the Eutectic Mixture (EM) and evaluating its anti-inflammatory and analgesic effects in animal models. The eutectic mixture was developed using urea as a co-former through solvent evaporation method. It was characterized using FT-IR, XRD, DSC, Raman spectroscopy, SEM, and hot-stage microscopy. The solubility and *in vitro* dissolution profiles were assessed at pH 6.8. Pharmacological evaluations were conducted using male Wistar rats, assessing anti-inflammatory effects through the carrageenan-induced paw edema model. Analgesic effects were measured using the acetic acid-induced writhing model. Analytical characterization revealed the formation of a eutectic mixture as evidenced by FT-IR, XRD, and Raman spectroscopic studies. DSC and HSM confirmed a significant reduction in melting point, indicating successful eutectic mixture formation. SEM analysis showed reduced particle size and altered morphology. The solubility profile of FBP EM demonstrated a 2.66-fold increase in aqueous solubility, while dissolution studies revealed an enhancement of 1.7 times compared to FBP alone. Pharmacological evaluations demonstrated significant enhancement in anti-inflammatory and analgesic activities compared to flurbiprofen alone and a 2.06-fold increase in bioavailability for the FBP EM formulation. The developed non-covalent derivative significantly improved the therapeutic profile of flurbiprofen, highlighting its potential for enhanced clinical efficacy.

KEYWORDS: Flurbiprofen, Non-covalent, bioavailability, Analgesic, Anti-inflammatory

TITLE: Formulation and evaluation mouth dissolving tablets of solid dispersion of fenofibrate.

AUTHORS: __ Ruchita A. Bhalerao*, Sujit S. Kakade, Ashok V. Bhosale, Riya R. Bhondve, Aditi R. Beldar, Pramod S. Biradar.

COLLEGE ADDRESS: Kharadi, Pune – 14.

CORRESPONDING AUTHOR EMAIL ID: ruchitabhalerao1110@gmail.com

ABSTRACT: (Not more than 250 words)

Fenofibrate is a drug of the fibrate class. It is a widely used hypolipidemic drug. The poor aqueous solubility of the drug leads to variable dissolution rates. It is slightly soluble in water. The present investigation was to develop and characterize mouth dissolving tablets of fenofibrate using solid dispersion technique. Mouth dissolving tablets of solid dispersion of Fenofibrate were prepared using different superdisintegrating agents like Cross Carmellose Sodium, Sodium Starch Glycolate and Cross povidone in different concentrations using direct compression method.
The formulation of solid dispersion prepared by solvent evaporation technique by using polymers like PEG 4000 and PEG 6000 respectively in various ratios such as Fenofibrate and PEG 4000 (1:1, 1:2, 1:3, 1:4, 1:5); Fenofibrate and PEG 6000 (1:1, 1:2, 1:3, 1:4, 1:5). Solid dispersion prepared by using PEG 6000 improved solubility & dissolution rate of Fenofibrate as compared to pure drug. Hence F10 formulation of PEG 6000 is selected for further formulation of mouth dissolving tablets. Then, nine batches of mouth dissolving tablets of optimized solid dispersion of fenofibrate are prepared with different concentrations of superdisintegrants of cross carmellose, sodium starch glycolate, cross povidone. The wetting time was observed to be very fast with batch F9 tablets which contain cross povidone. The total drug from the optimized batch was found to be released within the first ten minutes of dissolution study. These tablets rapidly dissolved (within 60-70 sec) in saliva. The prepared tablet gives benefit in terms of patient compliance, low dosing, rapid onset of action, increased bio-availability, low side effect and good stability which make these tablets popular as a dosage form for the treatment of hyperlipidemia.

KEYWORDS
Mouth dissolving tablet, direct compression, Fenofibrate, super disintegrants, cross povidone, wetting time

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: FORMULATION AND EVALUATION OF DRUG LOADED COLLAGEN BASED SCAFFOLD FOR WOUND CARE MANAGEMENT

AUTHORS: **S.Deepa[1]**, Sathesh Kumar K[1], Yashwan B[1], Sivaranjani S[1], Suruthelaya M[1], Bhuvanesh R[1]

COLLEGE ADDRESS: Sri Ramachandra Faculty of Pharmacy, Sri Ramachandra Institute of Higher Education & Research (SRIHER)- DU Porur, Chennai.

CORRESPONDING AUTHOR EMAIL ID: deepa.s@sriramachandra.edu.in

ABSTRACT: (Not more than 250 words)

Biomaterial scaffolds have emerged as effective tools for the delivery of drugs in wound treatment, gaining significant attention in recent times. In this study, we aimed to formulate and evaluate the mupirocin loaded collagen/pectin based electro spun scaffolds intended for wound healing application. Pre formulation studies were conducted to examine the characteristics of Mupirocin, such as its solubility and λ max. Subsequently, the isolation of collagen was done, which was then utilized in the preparation of six trail formulations containing collagen as fixed ratio pectin as varying ratio and 2% mupirocin was added to the best formulation of ColPs. Porous ColP and ColPMu scaffolds were fabricated by electrospinning technique. The scaffold's morphology, chemical composition, biocompatibility, migration parameters, and antimicrobial activity were assessed using SCM, Fourier-transform infrared spectroscopy (FTIR), the MTT assay, scratch assay, and drug sensitivity tests, respectively. Out of all the developed scaffolds, the ColPMu scaffold (MU-100 – F4) exhibits superior outcomes. The scanning electron microscopy (SEM) analysis of F4 revealed a distinctive cobblestone-like structure characterized by well-defined pores and an interconnected network. Fourier-transform infrared spectroscopy (FTIR) confirmed the successful integration of mupirocin in the ColP composite scaffold. The antibacterial activity of F4 exhibited superior inhibition against all tested microorganisms. The MTT assay demonstrated enhanced cell growth and proliferation, while the Scratch Assay indicated effective cell migration activity. Conclusion: The moulded material has superior antibacterial activity, cell proliferation and cell migration. Thus, collagen-pectin-mupirocin (ColPMu) bio-composite can be an effective wound dressing material for treating infectious and chronic wounds.

KEYWORDS: Wound, Scaffold, Collagen, Pectin, Mupirocin, Tissue Engineering.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: PREPARATION AND CHARACTERIZATION OF SOLID SUPERSATURATED SEDDS OF DARUNAVIR AND ITS ANALYTICAL METHOD DEVELOPMENT

AUTHORS: SAKSHI SHAHAPURMATH[*1], Dr. BHUVANESHWARI R. SHARANNAVAR[2]

COLLEGE ADDRESS: KLE COLLEGE OF PHARMACY BELAGAVI, NEHRU NAGAR, BELAGAVI

CORRESPONDING AUTHOR EMAIL ID: brsharannavar@klepharm.edu

ABSTRACT: (Not more than 250 words)

A solid supersaturated Self-Emulsifying Drug Delivery System (SEDDS) of Darunavir was developed to enhance the solubility and bioavailability of the BCS Class II drug, known for its potent antiviral activity against HIV-1. Darunavir's low solubility limits its bioavailability, making SEDDS, which utilize oils, surfactants, and co-surfactants, is an effective solution. A QbD approach identified particle size and entrapment efficiency as critical quality attributes (CQAs).

The SEDDS formulation was optimized using a Central Composite Design, with clove oil, Tween 80, and transcutol showing the best solubility for Darunavir. An optimized batch (F-S1) achieved an entrapment efficiency of 86.12% and a particle size of 96.02 nm, improving solubility and bioavailability. In-vitro drug release showed 76.82% release over 24 hours.

To enhance stability, the liquid SEDDS were converted into solid form using Aerosil 300 as an adsorbent. Stability studies confirmed the formulation's integrity. Scanning Electron Microscopy (SEM) revealed well-separated particles, ensuring formulation quality. An HPLC method with UV detection at 267 nm was developed for Darunavir quantification, using a 60:40 methanol-water mobile phase. Pharmacokinetic studies showed that the maximum drug concentration (Cmax) of the supersaturated SEDDS was 2.5 times higher than pure Darunavir, indicating enhanced absorption and extended biological half-life. The findings suggest that the solid supersaturated SEDDS formulation offers a promising strategy for improving Darunavir delivery and therapeutic efficacy in HIV treatment.

KEYWORDS: Darunavir, SEDDS, HIV-1, QbD, Pharmacokinetic studies

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

TITLE: Orodispersible Tablets without Superdisintegrants

AUTHORS: Saloni Naik Gaonkar*, Dr Shilpa P. Bhilegaonkar, Melanie Fernandes, Mehza Dias, Manasi Naik

COLLEGE ADDRESS: PES's Rajaram and Tarabai Bandekar College of Pharmacy

CORRESPONDING AUTHOR EMAIL ID: saloninaikgaonkar85@gmail.com

ABSTRACT: (Not more than 250 words)

Orodispersible Tablets without superdisintegrants

Orodispersible tablets (ODTs) are solid dosage forms containing drugs that disintegrate in the oral cavity rapidly leaving an easy to swallow residue. These dosage form contains superdisintegrants which imparts quick disintegration with presence of saliva and can be swallowed easily. ODTs are very good choice for the pediatric and geriatric patients. Amongst the excipients, Disintegrants and taste enhancers play a major role in success of any ODT formulation.

Many times, superdisintegrants such as modified starches, celluloses, cross povidone are used along with other diluents such as mannitol, sorbitol, xylitol to achieve faster disintegration.

In this research, we have explored the suitability of eleusine coracana as a diluent for ODT's because of its nutritional values and also because of its water absorption capability to achieve the disintegration without any of the superdisintegrant.

By using variable concentrations of eleusine coracana and sodium bicarbonate different prototype tablet formulations were prepared. Based on the disintegration time, best formula was selected and was evaluated for various pre and post compression parameters such as bulk density, tapped density, hausners ratio, carrs index, angle of repose, hardness, friability test, wetting time, drug content, disintegration and dissolution test. From the result of evaluation, it can be concluded that eleusine coracana is having potential to be used as diluent in ODT's imparting additional benefit of disintegrating agent.

KEYWORDS: Eleusine Coracana, Ragi, Orally Disintegrating tablets, sodium bicarbonate.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

TITLE: FABRICATION AND EVALUATION OF COLLAGEN - DIATOM – SILVER SULFADIAZINE COMPOSITE FILM FOR WOUND CARE

AUTHORS: **Sathesh Kumar K[1]**, S.Deepa[1], Yashwan B[1], Sivaranjani S[1], Suruthelaya M[1], Bhuvanesh R[1]

COLLEGE ADDRESS: Sri Ramachandra Faculty of Pharmacy, Sri Ramachandra Institute of Higher Education & Research (SRIHER)- DU Porur, Chennai.

CORRESPONDING AUTHOR EMAIL ID:
satheshkumar.k@sriramachandra.edu.in

ABSTRACT: (Not more than 250 words)

Recent advancements in drug delivery systems have aimed at enhancing therapeutic efficacy, reducing adverse effects, and improving patient adherence. Thin films, recognized for their ease of application and ability to facilitate controlled drug release, have emerged as a promising platform. This study presents the development of a novel drug delivery system incorporating silver sulfadiazine, an antibiotic commonly used for wound infections, with acid-treated diatoms and collagen within a thin film matrix. Conventional silver sulfadiazine formulations are limited by frequent reapplication requirements and potential systemic toxicity. To overcome these limitations, diatoms unicellular microalgae with a nanostructured silica frustule were utilized as a biocompatible matrix to enhance drug release kinetics and wound healing efficacy. The thin films were characterized using Fourier Transform Infrared (FTIR) spectroscopy to elucidate chemical interactions and Scanning Electron Microscopy (SEM) to examine the structural integrity of the diatoms. A calibration curve for silver sulfadiazine was established via UV spectrophotometry for accurate quantification, and in-vitro drug release studies were conducted using a Franz diffusion cell. Antimicrobial activity was evaluated through disc diffusion assays, demonstrating significant bacterial inhibition. Results indicated that acid-treated diatoms improved drug loading capacity and provided sustained release of silver sulfadiazine. The thin film exhibited potent antimicrobial efficacy and promoted accelerated wound healing, offering a biocompatible, cost-effective alternative to conventional therapies. This study underscores the potential of diatom-collagen thin films for wound management, with broader applications in chronic wounds, localized infections, and precision drug delivery systems.

KEYWORDS: Silver sulfadiazine, Anti-microbial, Chronic wounds, Drug delivery systems

TITLE: FORMULATION AND EVALUATION OF ETORICOXIB SELF MICRO EMULSIFYING MOUTH DISSOLVING FILMS (SMMDF)FOR PERIODONTAL DISEASES

AUTHORS: Sharvari Shendage, Dr. Ujwala Desai,

COLLEGE ADDRESS: PES MODERN COLLEGE OF PHARMACY, NIGDI, PUNE-44

RESPONDING AUTHOR EMAIL ID: sharvari2101@gmail.com

ABSTRACT: (Not more than 250 words)

OBJECTIVE: The main objective of this study was to increase the solubility and permeability of etoricoxib with antimicrobial effect for periodontal diseases.
METHODS: SMEDDs were prepared with the help of the mechanical dispersion method in that we use oil, surfactant, and cosurfactant. the drug is dissolved in the oil after that preparing an S-mix solution and add oil drug mixture in that S-mix solution and forms the SMEDDs after that, we use polymer sweetener film former, we prepared the mouth-dissolving film for periodontal diseases.in that for SMEDDs eugenol as a oil, kolisolv is surfactant and PEG 400 is the cosurfactant. And for film preparation we use HPMC E 15 polymer.
RESULT: SMEDDs formulation congaing 10% eugenol, 1:1 concentration of surfactant and co-surfactant that is 45:45% cons were found and optimize batch containing [P1] Globule size(80.7nm), zeta (-22.7mv) %transmittance (95.49%) and solubility of SMEDDs (16.68mg/ml). In the in vitro drug release of optimized SMEDDs is 98.87% release in 300 min which was higher as compared to the pure drug. it indicates drug release was enhanced due to the SNEDDs which increases the solubility of the formulation.
CONCLUSION: Thus increase the solubility and permeability also effective in topical drug delivery system was developed for etoricoxib self-micro emulsifying mouth dissolving film and also increases the effect of the drug due to the eugenol also having antiseptic, analgesic, and anaesthetic property useful for periodontal diseases.

KEYWORDS: SMEDDs, self-emulsifying mouth dissolving film, Etoricoxib, PEG200, Eugenol, kolisolv p 124.

TITLE: FORMULATION AND EVALUATION OF HYDROGEL CONTAINING ZINC OXIDE NANOPARTICLE BY QbD APPROACH

AUTHORS: SHREYASH R. PATIL[1], DR. ANJANA ADHYAPAK[2*]

COLLEGE ADDRESS: KLE COLLEGE OF PHARMACY, JNMC CAMPUS, NEHRU NAGAR, BELAGAVI, INDIA-590010

CORRESPONDING AUTHOR EMAIL ID: anjanaadhyapak@klepharm.edu

ABSTRACT: (Not more than 250 words)

Wound care presents a significant global healthcare challenge, with various dressing materials like fiber, sponge, hydrogel, foam, and hydrocolloid being utilized. Among these, hydrogels are particularly effective due to their ability to maintain a moist environment and provide mechanical support. This study investigates a novel hydrogel loaded with zinc oxide nanoparticles (ZnO NPs) to enhance wound healing. ZnO NPs were synthesized using a solvothermal method and characterized through UV-Visible spectrophotometry, FT-IR spectroscopy, DSC, and TEM. The optimized ZnO NPs measured 25±2 nm in size, had a zeta potential of -31 mV, and a polydispersity index of 0.2. Polyvinyl alcohol (PVA) was identified as a promising base for the hydrogel, which was formulated via precipitation after incorporating ZnO NPs. Key properties such as swelling and degradation rates were assessed. Additionally, an analytical method was developed for zinc estimation using Atomic Absorption Spectroscopy, allowing differentiation between ionic zinc and ZnO NPs through atomization peak deconvolution and standard addition techniques. In-vitro studies were performed to evaluate the release of zinc oxide nanoparticles from the hydrogel. The MTT assay revealed the cellular activity or metabolic activity as an indicator of proliferation and cytotoxicity.

KEYWORDS: Hydrogel, Zinc Oxide Nanoparticles, Qbd, Wound Healing, Method Validation, AAS, In-Vitro Studies, Cytotoxic Assay.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR!!*

Nov. 12-13, 2024

TITLE: Optimized Phytosomal Nanosuspension of Pterostilbene: In Vivo Evaluation of Antihyperlipidemic Potential in Rats Using Box-Behnken Design

Authors: Anushka Ambhore, Sagri mane, Dr. Sunita Bhise, Dr. Urmila Aswar.

College Address: Paud Road, Rambaug colony, Erandwane, Pune, Maharashtra 411038

CORRESPONDING AUTHOR EMAIL ID:

anushka358ambhore@gmail.com

ABSTRACT:

Pterostilbene, a naturally occurring compound found in blueberries and Pterocarpus marsupium, has potential as a defense against cardiovascular diseases by inhibiting vascular smooth muscle cell proliferation.

This study focuses on the design, formulation, and evaluation of a Pterostilbene-Phospholipid complex nanosuspension (PTS-PC) aimed at enhancing the solubility, bioavailability and therapeutic efficacy of pterostilbene. Cardiovascular diseases, a leading cause of mortality, necessitate innovative treatments that leverage natural compounds like pterostilbene, known for its antioxidant and cardioprotective properties. The study involved the preparation of the nanosuspension, followed by physicochemical characterization with particle size, percentage yield, XRD, FTIR, entrapment efficacy, in vitro and in vivo studies to assess its stability and drug release profile. Results indicated that the optimized formulation achieved an impressive 81.9% drug release within 120 minutes, compared to 65.5% for the pure drug. In vitro studies demonstrated the nanosuspension's efficacy in reducing vascular smooth muscle cell proliferation, addressing atherosclerosis pathogenesis.

In vivo pharmacodynamic evaluations revealed significant changes in lipid profiles; the disease control group exhibited increased triglycerides, LDL, and cholesterol levels after 48 hours, while the pretreatment group showed slight reductions, and the post-treatment group maintained stability. Statistically significant differences between the groups suggest that PTS-PC nanosuspension effectively stabilizes or reduces lipid levels, highlighting its potential in managing hyperlipidemia. The findings indicate that the nanosuspension formulation enhances the solubility & therapeutic impact of pterostilbene, marking it as a promising candidate for cardiovascular disease management and contributing to pharmaceutical quality assurance in natural product formulations.

KEYWORDS: Pterostilbene, Nanosuspension, Hyperlipidemia, Therapeutic efficacy

TITLE: A method of formulation of clindamycin phosphate loaded bamboo seed oil emulgel product.

AUTHORS: Indhuja. J, Dr.Soumya V.

COLLEGE ADDRESS: No:1, Sri Ramachandra Nagar, Porur, Chennai- 600116

CORRESPONDING AUTHOR EMAIL ID: sou7pharma@rediffmail.com

ABSTRACT: (Not more than 250 words)

The goal of this invention is to create an emulgel made of bamboo seed oil that is loaded with clindamycin phosphate for the purpose of treating acne and delivering topical medication. There are no known combinations of this kind; this is the first formulation approach in India. Clindamycin's anti-acne properties are improved by the emulgel, which also aids in the drug's efficient delivery. The composition of bamboo seed oil has the potential to mitigate clindamycin-induced skin irritation. To investigate the chemical interactions between clindamycin and bamboo oil, FTIR spectroscopy investigations were carried out. The objective is to create a naturally occurring, stable emulgel formulation of therapeutically effective bamboo seed oil that is loaded with clindamycin phosphate for topical medication administration. The composition is meant for use in pharmaceutical applications where it will provide perfect clindamycin phosphate drug delivery for the management of acne with less irritation to the skin.

KEYWORDS: Emulgel, clindamycin, bamboo seed oil.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: Enhancing Diosmetin Delivery: Formulation, Optimization, and Evaluation of Polymeric nanocarriers.

AUTHORS: Shruti Agarwal* , Laxmi Jadhav, Harshali Mahajan , Satish Mandlik

COLLEGE ADDRESS: Bharati Vidyapeeth Deemed to be University, Poona College of Pharmacy, Paud Road, Rumbaugh Colony, Erandwane , Pune, Maharashtra 411038

CORRESPONDING AUTHOR EMAIL ID:
shruti2282001@gmail.com

ABSTRACT:

This study aimed to develop polymeric nanocarriers (PNCs) of diosmetin for effective topical drug delivery.

Nine PNCs batches were prepared via nanoprecipitation and optimized using a 2^3 full factorial design. In order to optimize, the concentration of PCL (X1), concentration of poloxamer 188 (X2) and stirring time (X3) were selected as independent variables.The particle size (Y1), PDI (Y2) and % EE (Y3), were taken as responses or dependent variables The optimal formulation (B2) was further analyzed for particle size, % EE, and % CDR, and evaluated through transmission electron microscopy (TEM) and cell line studies on B16F10 cells.

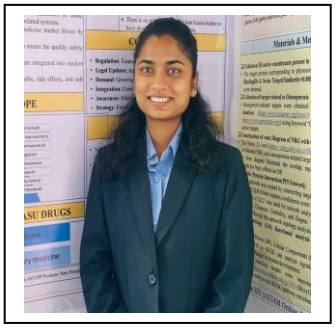
The study successfully developed and optimized nine formulations (B1–B9) of PNCs. Based on the 2^3 full factorial design, formulation B2 emerged as the optimized formulation with a particle size of 186.7 nm, % EE of 89.3%, and % CDR of 81.26% after 24 hours. In comparison, the pure drug showed only 42.04% drug release under the same conditions. TEM analysis confirmed that the particle size of the PNCs ranged between 150 and 200 nm, consistent with the results obtained from the nanoprecipitation technique. Cell line studies conducted on B16F10 cells demonstrated the biocompatibility and potential efficacy of the PNCs. Furthermore, the PNCs were successfully incorporated into a nanogel formulation, which exhibited desirable properties such as optimal viscosity, spreadability, and permeability. The nanogel formulation offers potential for enhanced topical delivery, paving the way for further preclinical studies.

KEYWORDS: Diosmetin, Polymeric nanocarriers (PNCs), Nanoprecipitation, Optimization, Entrapment Efficiency (% EE), Cumulative Drug Release (% CDR), Nanogel

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR!!*

Nov. 12-13, 2024



TITLE: **QbD based approach formulation of antiplatelet drugs in the treatment of cardiovascular diseases**

AUTHORS: Shubhshree Kadam*, Vaishanavi Kharkar, Nilesh Deshmukh- Desai

COLLEGE ADDRESS: Poona Collage of Pharmacy, Paud Rd, Rambaug Colony, Erandwane, Pune, Maharashtra 411038

CORRESPONDING AUTHOR EMAIL-ID desainilesh86@gmail.com

ABSTRACT:

This study presents the formulation and evaluation of a floating drug delivery system for clopidogrel bisulphate, designed to enhance gastric retention and provide sustained drug release. Clopidogrel, an antiplatelet agent with limited solubility in basic pH and a short half-life, requires extended gastric retention for optimal absorption. The floating tablet was developed using hydroxypropyl methylcellulose (HPMC K4M) as the release-controlling polymer and sodium bicarbonate as the effervescent agent to generate gas and maintain buoyancy.

The formulation was optimized using a factorial design to achieve a floating lag time (FLT) of less than 90 seconds and a total floating time (TFT) of up to 12 hours. The floating system was intended to retain the tablet in the upper gastrointestinal tract, ensuring prolonged drug release in the stomach, where clopidogrel's absorption is most effective. In vitro studies confirmed sustained drug release over 12 hours, with more than 95% release achieved during this period.

This floating tablet system offers improved bioavailability of clopidogrel bisulphate by prolonging its residence time in the stomach and ensuring controlled release. This approach is particularly valuable in cardiovascular disease management, providing sustained antiplatelet activity to prevent complications such as myocardial infarction and stroke. The formulation's ability to maintain clopidogrel at its absorption site over an extended period enhances therapeutic outcomes and patient compliance.

KEYWORDS: Clopidogrel, Floating Tablet, Cardiovascular disease .

TITLE: DEVELOPMENT AND EVALUATION OF NANO FORMULATION OF ALPHA ARBUTIN FOR WOUND HEALING ACTIVITY.

AUTHORS: SMITA MADHAV WARADE,
VARSHA PAWAR, Dr. KARIMUNNISA S. SHAIKH

COLLEGE ADDRESS: P.ES MODERN COLLEGE OF PHARMACY, YAMUNANAGAR, NIGDI, PUNE- 411044

CORRESPONDING AUTHOR EMAIL ID: smitawarade0817@gmail.com

ABSTRACT:

Wound healing is a complex process that can be disrupted by factors such as oxidative stress and prolonged inflammation, leading to chronic wounds. Liposomes, which are stable vesicles with a lipid bilayer, offer a promising drug delivery system due to their biocompatibility and ability to encapsulate both hydrophobic and hydrophilic drugs. This study investigates the potential of alpha-arbutin, a known therapeutic agent, in promoting wound healing when delivered via liposomal system. In silico studies using molecular docking were conducted to evaluate the binding affinity of alpha-arbutin with various target proteins involved in wound healing. such as EGFR, COX 2, VEGFR2, Interleukin 1 alpha, INF alpha, and Interleukin 1 beta. The docking data were used to influence the design of liposomes loaded with alpha-arbutin, including binding energies and interaction types. Liposomes were prepared and optimized using Central Composite Design (CCD) to determine the effects of different variables like drug concentration and lipid composition on particle size, entrapment efficiency, and drug release. The optimized liposomes were incorporated into an in-situ gel, which was characterized for various properties including pH, spreadability, viscosity, drug content, and skin permeability.

FTIR spectroscopy confirmed the chemical integrity of alpha-arbutin, and calibration curves for drug quantification were established. The optimized liposomal formulation demonstrated improved drug delivery characteristics and potential efficacy in wound healing applications.

KEYWORDS: alpha-arbutin, liposomes, Central Composite Design, wound healing, molecular docking

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: A Novel Oral Drug Delivery Approach for Enhanced Bioavailability

AUTHORS: Sreehari S. Nair, Dr. Dhanashree P. Sanap, Dr. Kisan R. Jadhav

COLLEGE ADDRESS: Bharati Vidyapeeth College of Pharmacy, Sector 8, C.B.D. Belapur, Navi Mumbai, Maharashtra, 400614.

CORRESPONDING AUTHOR EMAIL ID: sreeharisreekumarnair@gmail.com

ABSTRACT: (Not more than 250 words)

Poor solubility often hinders the oral administration of certain therapeutic agents, leading to suboptimal bioavailability. This study presents the development of an innovative nanoformulation-loaded gelatine capsule to enhance the bioavailability of a widely used pharmaceutical compound with known solubility limitations. A specialized nanoformulation system was formulated using a combination of oils, surfactants, and co-surfactants, carefully optimized for its thermodynamic stability and drug solubilization efficiency. The nanoformulation was encapsulated within gelatine shells, ensuring precise drug delivery and protection from degradation. Physicochemical characterization, including weight variation, drug content uniformity, and *in vitro* dissolution studies, revealed promising results, demonstrating enhanced dissolution rates and potential for improved therapeutic efficacy. This encapsulation strategy offers a versatile and patient-friendly delivery platform that can address significant formulation challenges in oral drug delivery. While preliminary findings are promising, further studies are required to explore the full clinical potential of this novel system. This research introduces a forward-looking approach to improving the bioavailability of drugs that face significant oral delivery hurdles.

KEYWORDS: Gelatine Capsule, Solubility, Bioavailability, Encapsulation, Therapeutic efficacy.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: DEVELOPMENT AND EVALUATION OF UFAZOMAL LOADED GEL FOR FUNGAL INFECTION

AUTHORS: Srushti Waghmare, Vishal Vare, Dr. Ujwala Desai, Dr. Praveen Chaudhari

COLLEGE ADDRESS: PES MODERN COLLEGE OF PHARMACY, NIGDI, PUNE-44

CORRESPONDING AUTHOR EMAIL ID: sswaghmare0126@gmail.com

ABSTRACT: (Not more than 250 words)

Fungal infections affecting skin, nails, and organs are significant health concerns. Ketoconazole, an antifungal agent, inhibits cytochrome P450 140-demethylase, essential for fungal lipid biosynthesis. Ufasomes, novel vesicles incorporating unsaturated fatty acids and surfactants, enhance drug permeation through the skin and improve drug retention. This study aimed to develop and evaluate ketoconazole ufasomes and their gel formulation, assessing their efficacy in drug delivery, stability, and antifungal activity. Ketoconazole ufasomes were prepared using film hydration and phosphate buffer hydration techniques. Key parameters such as particle size, zeta potential, polydispersity index, and entrapment efficiency were measured. Drug release studies were performed using Franz diffusion cells. The ketoconazole ufasomal gel was formulated with Carbopol 934 and other components, and characterized by pH measurement, viscosity, spreadability, and drug content. In vitro diffusion and ex-vivo skin permeation studies were conducted using Franz diffusion cells and goat ear skin. Antifungal activity was tested against Candida albicans using agar well diffusion method. Stability studies were performed according to ICH guidelines, assessing physical and chemical parameters over three months. Differential Scanning Calorimetry analyzed thermal properties. The ketoconazole ufasome formulation exhibited a mean particle size of 109.6 nm. The entrapment efficiency was 92.08%. batch B has highest drug release rate of 87.48%. Carbopol 934 gel demonstrated superior spreadability and viscosity, with a drug content of 93.4±0.6% and an in vitro release of 89.48%. Ex-vivo studies showed higher drug permeation from the ufasomal gel. Stability studies confirmed minimal changes over three months, and DSC indicated formulation stability and compatibility.

KEYWORDS: Ketoconazole (KTZ), Ufasomes, Polydispersity index (PDI), Fungal infection.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: FORMULATION AND DEVELOPMENT OF NANOPARTICLES LOADED OCULAR INSERT.

AUTHORS: SURAJ RAJENDRA LOBHE
NAMRATA J. DAPHALE, Dr. SMITA S. PIMPLE

COLLEGE ADDRESS: P.E.S MODERN COLLEGE OF PHARMACY, YAMUNANAGAR, NIGDI, PUNE- 411044

CORRESPONDING AUTHOR EMAIL ID: surajlobhe94@gmail.com

ABSTRACT:

In the present investigation, the effect of Brimonidine tartrate (BT) loaded Eudragit nanoparticles in ocuserts was studied as an alternative to conventional anti-glaucoma formulations. Brimonidine tartrate, alpha-2 adrenergic agonist, is used in open angle glaucoma for reduction of intra-ocular pressure (IOP) and available mostly in eye drops formulation which require frequent instillation. The aim of this study was to enhance the sustained release of Brimonidine tartrate by formulating nanoparticle-loaded ocuserts and to improve patient compliance. The BT loaded Eudragit NPs were prepared using spontaneous emulsification method and evaluated by particle size, zeta potential and entrapment efficiency, DSC, FTIR, SEM, stability studies. The ocular insert was A prepared by solvent casting method and evaluated by quality of film, thickness, drug content, folding endurance, SEM and stability study. The optimization of drug loaded NPs was done using Central Composite Design. The optimized batch had optimum particle size (130.6 nm), stable zeta potential (-20 mV) and entrapment (61.15%). The optimised BT NPs loaded ocular insert shows 24 hrs of sustained release. The drug release rate was higher in BT NPs loaded ocular insert formulation as compared to the conventional BT eye drop. The stability study indicating that the formulation was stable according to ICH guideline.

KEYWORDS: Brimonidine tartrate (BT), anti-glaucoma, nanoparticle-loaded ocuserts, solvent casting method, Central Composite Design.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: FORMULATION AND EVALUATION OF KOJIC ACID DIPALMITATE AND NIACINAMIDE LOADED NANOEMULGEL FOR MELASMA AND ITS ANALYTICAL METHOD DEVELOPMENT

AUTHORS: TAMIZMARAN V[*1],
Dr. V.S. MANNUR[2]

COLLEGE ADDRESS: KLE COLLEGE OF PHARMACY BELAGAVI, NEHRU NAGAR, BELAGAVI

CORRESPONDING AUTHOR EMAIL ID: drvsmannur@gmail.com

ABSTRACT: (Not more than 250 words)

Melasma is a common dermatological condition characterized by excessive melanin production, leading to dark patches on the skin. Hydroquinone, a widely used topical treatment, inhibits melanin synthesis but is associated with side effects such as skin irritation and potential carcinogenic risks. This study investigates Kojic Acid Dipalmitate as a safer alternative for melasma treatment, leveraging its tyrosinase inhibition properties to effectively reduce melanin formation with fewer adverse effects. The formulation employs nanoemulgel technology to enhance the therapeutic efficacy of Kojic Acid Dipalmitate. Additionally, niacinamide (vitamin B3) is included for its skin-enhancing benefits, making the formulation more appealing in skincare. A flaxseed and aloe vera herbal base is incorporated, capitalizing on flaxseed's anti-inflammatory and antioxidant properties, which improve the stability and compatibility of the nanoemulgel while providing additional therapeutic benefits. Aloe vera, known for its hydrating and soothing qualities, acts as a humectant, attracting moisture and aiding in the healing of minor skin irritations. This study aims to evaluate the effectiveness and safety profile of Kojic Acid Dipalmitate within a novel nanoemulgel formulation, positioning it as a promising, lower-risk alternative to hydroquinone for treating melasma and minimizing side effects, thus offering a beneficial option for individuals seeking safer hyperpigmentation treatments.

KEYWORDS: kojic acid Dipalmitate and Niacinamide, Nanoemulgel, QbD, *In-vitro* and *Ex- vivo* study

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: Development of Nanovesicle Loaded Thermoreversible *In-Situ* Nasal Gel for Antimigraine Drug.

AUTHORS: Ms. Tanishka Dhavjekar, Dr. Bothiraja Chellampillai, Ms. Judy Fernandes.

COLLEGE ADDRESS: Department of Pharmaceutics, Goa College of Pharmacy, 18th June Road, Panaji-403001, Goa, India.

CORRESPONDING AUTHOR EMAIL ID: tanishkadhavjekar@gmail.com

ABSTRACT:

Rizatriptan benzoate (RZ-B) belonging to BCS Class III, is used for the treatment of migraine. Orally administered RZ-B shows low brain bioavailability due to its low permeability and pre-systemic metabolism. Intranasal drug delivery is found to be reliable alternative for oral. Nasal *in-situ* gels, a low viscosity solution which form gel in the nasal cavity and release drug slowly. Ethosomes, a lipid-based vesicular carrier enhances the drug permeation via various biological barriers.

Ethosomes dispersion was prepared by Ethanol injection method. A 32 full factorial design was used to optimize the formulation by keeping ethanol and propylene glycol as independent variables and particle size and entrapment efficiency as dependent variables. The batch J3 was optimized by considering particle size (315 nm) and entrapment efficiency (83%). RZ-B Ethosomal thermosensitive *in-situ* gel was prepared using the cold method and showed the pH, $T_{sol\text{-}gel}$, gelling time, viscosity, spreadability and mucoadhesive strength of 6.30, 31°C, 47.06 sec, 109.33Cp, 1.83g cm/sec and 2090.64 dynes/cm^2 , respectively.

In-vitro diffusion study using Hi-media membrane showed a sustained release profile with 70% release at 8 h. RZ-B ethososmal *in-situ* gel showed 3-fold improvement in flux (0.0954 mg/cm^2 /h) and permeability coefficient (8.39×10^{-3}) as compared to pure RZ-B-gel (flux 0.0403 mg/cm^2 /h and permeability coefficient 2.56×10^{-3}) in goat nasal mucosa. Thus, RZ-B ethosomal thermosensitive *in-situ* nasal gel could be used as an alternative formulation and a promising non-invasive delivery system for treating Migraine.

KEYWORDS: Migraine, Rizatriptan Benzoate, *In-situ* gel, Permeability coefficient

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: Novel composition for iron deficiency anemia.

AUTHORS: Dr.Anuradha G. More
Tushar Haribhau Kshirsagar*

COLLEGE ADDRESS: PES Modern Collage of Pharmacy Nigdi

CORRESPONDING AUTHOR EMAIL ID: kshrsagartushar2018@gmal.com

ABSTRACT: (Not more than 250 words)

The aim of this study was to address the unpleasant taste of ferrous sulfate by formulating a taste-masked Iron-Resin Complex Suspension using Amberlite IRP 120 resin for the treatment of iron deficiency anemia. The Iron-Resin Complex was prepared using the batch method, and its physicochemical properties were evaluated. A Central Composite Design (CCD) optimized the production of the complex by adjusting key formulation variables. In-vitro dissolution studies were conducted in both acidic (pH 1.2) and salivary (pH 6.8) conditions using USP Apparatus II. The suspension was formulated with Xanthan gum, HPMC, and Methyl Cellulose as suspending agents. The Iron-Resin Complex in a 1:2 molar ratio was found to be optimal for taste masking and drug loading. The suspension demonstrated effective taste masking, stable physical properties, and appropriate drug release in acidic pH, while delaying release at salivary pH. Overall, the formulation successfully masked the metallic taste of ferrous sulfate, improving patient compliance without compromising drug efficacy.

KEYWORDS: Ferrous Sulfate, Ion Exchange Resin, Resinate, Suspension, Taste Masking Effectiveness.

TITLE: Influence of pH, Buffering Capacity, and pH Elevation on the Dissolution Behavior of Eudragit L100 Casted Films.

AUTHORS: Vaibhav Ambudkar, Rashmi Chauhan

COLLEGE ADDRESS: Birla Institute of Technology & Science, Pilani, Goa Campus

CORRESPONDING AUTHOR EMAIL ID: p20220050@goa.bits-pilani.ac.in; rchauhan@goa.bits-pilani.ac.in

ABSTRACT: (Not more than 250 words)

This study investigates the dissolution behavior of Eudragit L100 films in different pH media, focusing on three key aspects. First, the dissolution rate was examined at varying pH levels, showing a significant increase when the pH exceeded 6.0, with the most pronounced results at pH 6.8 and 7.2.

Second, the impact of buffering capacity on the dissolution process was thoroughly analyzed. A mixed phosphate buffer at pH 6.8, with a higher buffering capacity (Acid stage: 0.0634 mol/L/pH unit, Buffer stage: 0.0703 mol/L/pH unit), significantly enhanced the dissolution of Eudragit L100 compared to the normal phosphate buffer at pH 6.8, which exhibited a much lower buffering capacity (Acid stage: 0.0162 mol/L/pH unit, Buffer stage: 0.0250 mol/L/pH unit). This higher buffering capacity in the mixed buffer allowed for better control of the pH environment during dissolution.

Lastly, the effect of pH 7.2 on the dissolution rate was compared to that pH 6.8. At pH 7.2 phosphate buffer, a higher dissolution rate (15 mg/g·min) was observed compared to pH 6.8 phosphate buffer (12 mg/g·min). This higher dissolution rate can be attributed to the fact that Eudragit L100 becomes more soluble as the pH rises.

These results highlight the influence of pH and buffering capacity in enhancing the dissolution of Eudragit L100, aiding in the optimization of enteric coatings for targeted drug delivery.

KEYWORDS: Eudragit L100, Enteric Polymers, Dissolution Rate, Phosphate buffer, Buffer Capacity

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

TITLE: URSOLIC ACID LOADED LIPOSOMES FOR TARGETING BREAST CANCER AND ITS ANALYTICAL METHOD DEVELOPMENT

AUTHORS: VAIBHAVI D. TORGAL[*1], Dr. V.S.MASTIHOLIMATH[2]

COLLEGE ADDRESS: KLE COLLEGE OF PHARMACY BELAGAVI, NEHRU NAGAR, BELAGAVI

CORRESPONDING AUTHOR EMAIL ID: mastiholimath@rediffmail.com

ABSTRACT: (Not more than 250 words)

Breast cancer is the most common cancer among women and can rarely affect men. The uncontrolled proliferation of breast cells leads to tumor formation, which can spread to other parts of the body via the bloodstream or lymphatic system. This study aimed to evaluate the effectiveness of an optimized Ursolic Acid liposomal formulation against breast cancer using in vitro methods.

Differential Scanning Calorimetry (DSC) and Fourier Transform Infrared Spectroscopy (FTIR) employed to assess drug-excipient compatibility. DSC confirmed acceptable melting points, while FTIR verified the purity of Ursolic Acid. Liposomes were prepared using the ethanol injection method and optimized via face-centered central composite design. Soya lecithin and sonication time were the independent variables, influencing particle size and entrapment efficiency. The optimized formulation had a vesicle size of 95.62 nm, entrapment efficiency of 80.11%, and stability with a zeta potential above -30 mV. Transmission Electron Microscopy (TEM) confirmed spherical vesicles.

The liposomal formulation showed significant activity against MCF-7 breast cancer cells, with 31.79% cell viability at 100 µM/mL in MTT assays. Cisplatin (1 µM/mL) was used as a standard control. The optimized formulation was standardized using HPLC, with a retention time of 15.7 minutes and an R^2 value of 0.999.

KEYWORDS: Ursolic acid, Breast cancer, Liposomes, *In vitro* cell line

TITLE: Enhanced topical delivery of methotrexate via transferosomes-loaded microneedle arrays for the treatment of psoriasis: formulation, Optimization, and in vivo characterization

AUTHORS: Vaidehi Nikam, Snehal Shinde, Amarjitsing Rajput*

COLLEGE ADDRESS: Bharati Vidyapeeth (Deemed to be) University, Poona College of Pharmacy, Paud Road, Rambaug colony, Erandwane, Pune, Maharashtra 411038

CORRESPONDING AUTHOR EMAIL ID: amarjit.rajput@bharatividyapeeth.edu

ABSTRACT : To effectively treat psoriasis, this study examines the improved topical administration of methotrexate (MTX) utilizing a transferosome-loaded microneedle array patch. Ultra-deformable lipid vesicles (transferosomes) were prepared by ethanol injection method to increase MTX's ability to pass through the epidermal barrier. A design of experiments (DOE) method was used to create transferosomes to assess how phospholipid content and edge activator type affected the particle size and entrapment efficiency of the vesicles. The optimized transferosome showed mean diameter of 169.4 ± 0.40 nm and 69 ± 0.48 % entrapment efficiency. Optimized transferosomes were loaded into biocompatible polymer-based PVA (polyvinyl alcohol) and gelatin (2:1) dissolving microneedle array patch. Comparing the transferosome-loaded microneedle array patch to traditional formulations, *in vitro* permeation study showed a substantial increase (1.5-fold) in the permeation of MTX across the rat skin. Long-lasting therapeutic benefits at the application site are suggested by cumulative drug release profiles that showed sustained release over 24 h. *In vivo*, experiments using an animal model using transferosomes-loaded microneedle array patch were shown higher accumulation (2 to 3 folds) than the pure MTX patch and gel. The ability of the needles to penetrate the epidermal layers was proven by histological characterization. Thus, transferosome-loaded microneedle array patches offer a viable method of delivering methotrexate topically for the treatment of psoriasis.

KEYWORDS: Methotrexate; Psoriasis; Transferosomes; Microneedle array patch

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR!!*

Nov. 12-13, 2024

TITLE: FORMULATION AND EVALUATION OF FAST DISSOLVING TABLET OF ACELOFENAC BY USING NICOTINAMIDE AS A HYDROTROPIC SOLUBILIZATION TECHNIQUE

AUTHORS: Vaishnavi Jambhale, Sampada Netane, Dr. K.S. Shaikh

COLLEGE ADDRESS: PES Modern College of Pharmacy**,** Sector No-21, Yamunanagar Nigdi Pune-44.

CORRESPONDING AUTHOR EMAIL: vaishnavijambhale04@gmail.com

ABSTRACT: The objective of this study was to formulate and evaluate fast-dissolving tablet of Aceclofenac using Nicotinamide as a hydrotropic solubilization agent to improve its solubility and dissolution rate. Aceclofenac, a Cox-2 selective NSAID, provides significant anti-inflammatory and analgesic effects with fewer gastrointestinal and cardiovascular side effects compared to conventional NSAIDs. However, its poor aqueous solubility limits its bioavailability. Hydrotropic solid dispersions (HSD) of Aceclofenac were prepared using direct compression, with nicotinamide enhancing solubility from 0.069 mg/ml to 7.693 mg/ml in water. Various ratios of Aceclofenac and nicotinamide (1:1 and 1:2) were tested, with the 1:2 ratio showing superior solubility. Pre-compression parameters indicated acceptable flow properties, and post-compression evaluations met pharmacopoeial standards for weight variation, hardness, friability, and disintegration time. The optimized formulation (F9) demonstrated a rapid disintegration time and complete drug release (100%) within 5 minutes, outperforming marketed formulations. Stability studies under accelerated conditions (40°C and 75% RH) over 14 days showed no significant changes in the formulation. These results indicate that using nicotinamide as a hydrotropic agent is an effective strategy for enhancing the solubility and dissolution of aceclofenac, making it a promising candidate for fast-dissolving tablet formulations, which provide a convenient, patient-friendly dosage form for improved therapeutic outcomes.

KEYWORDS: Aceclofenac**,** Fast-dissolving tablet, Hydrotropic solid dispersions, solubility, Dissolution rate.

Title :Formulation and evaluation of calcium phosphate nanoparticles loaded cream for wound healing activity .

AUTHORS: Upendra C Galgate**,** Vedika N Salame ,Abhishekh Nagure

ADDRESS: Progressive Education society's ,Modern college of Pharmacy ,Nigdi , Pune ,Maharashtra

CORRESPONDING AUTHOR EMAIL ID: vedikasalame123@gmail.com

ABSTRACT:

Chronic wounds pose a significant health and financial burden due to prolonged inflammation, infection, and the limitations of traditional treatments. The need for innovative therapies is critical, especially with an aging population and increasing comorbidities. This study evaluates the therapeutic potential of sodium hyaluronate-loaded calcium phosphate nanoparticles (CaP-NPs) in accelerating wound healing. The focus is on prolonged drug release, enhanced cell migration and proliferation, and maintaining a moist wound environment. The nanoparticles were characterized by particle size, entrapment efficiency, and drug release. Optimized conditions of stirring (155 minutes at 2200 RPM) resulted in the smallest particle size (124.5 ± 2.84 nm), the highest drug release (94.115 ± 0.827%), and an entrapment efficiency of 72.95 ± 0.95%. Scanning electron microscopy revealed a roughly textured surface, while differential scanning calorimetry showed an exothermic peak at 83.4°C. Statistical analysis confirmed the significant influence of stirring speed and time on particle size and drug release. The final cream formulation, with a pH of 5.5 ± 0.3, demonstrated excellent spreadability (13.58 g.cm/s) and shear-thinning behavior, making it an effective transdermal drug delivery system. The sodium hyaluronate-CaP-NP cream shows great promise in wound healing, offering controlled drug release, enhanced delivery, and favorable physical properties. This formulation has the potential to improve chronic wound management and accelerate the healing process.

KEYWORDS:
Chronic wounds , Sodium hyaluronate ,Calcium phosphate nanoparticles, Wound healing, Drug release, Nanoparticles, Entrapment efficiency.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: SINOMENINE HYDROCHLORIDE LOADED CUBOSOMES FOR MANAGEMENT OF RHEUMATOID ARTHRITIS AND ITS SUITABLE ANALYTICAL METHOD DEVELOPMENT

AUTHORS: P. VINEETH BHARADWAJ[1]
Dr. V.S. MASTIHOLIMATH [2*]

COLLEGE ADDRESS: KLE COLLEGE OF PHARMACY ,JNMC CAMPUS ,NEHRU NAGAR BELAGAVI - 590010

CORRESPONDING AUTHOUR EMAIL ID: mastiholimath@rediffmail.com

ABSTRACT: (Not more than 250 words)

This study investigates the formulation of Sinomenine HCL-loaded cubosomes aimed at targeting rheumatoid arthritis, employing a Quality by Design (QbD) approach. The cubosomes were characterized for purity and compatibility using differential scanning calorimetry (DSC) and Fourier transform infrared spectroscopy (FTIR), revealing no significant interactions between the drug and excipients. The formulated cubosomes exhibited particle sizes ranging from 79.67 nm to 232.5 nm, with encapsulation efficiency (%EE) between 53.28% and 84.22%. Using Design of Experiments (DoE) principles, formulation F3 was optimized for enhanced performance. Subsequently, the optimized cubosomes were integrated into a gel matrix with xanthan gum and assessed for pH, viscosity, and ex vivo permeation, yielding favourable results. An analytical method for quantifying Sinomenine HCL was developed using HPLC under ambient conditions, employing a solvent system of HPLC-grade acetonitrile and 0.1% OPA in Millipore water in a 16:84 ratio, achieving a retention time of 4.207 minutes. Method validation confirmed rapidity, simplicity, precision, specificity, accuracy, and reproducibility. Additionally, the anti-inflammatory activity of the synthesized formulation was evaluated through protein denaturation inhibition assays. Sample 1 demonstrated a 72.09% inhibition at 1000 µg/mL, compared to 81.39% for the reference drug Diclofenac sodium. These findings suggest that Sinomenine HCL-loaded cubosomes present a promising therapeutic option for rheumatoid arthritis, combining controlled release with significant anti-inflammatory effects.

KEYWORDS: Rheumatoid Arthritis, Sinomenine Hydrochloride, Cubosomes, Quality by design, *In-vitro* study

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: FORMULATON AND CHARACTERIZATION OF NANOSUSPENSION CONTAINING OLSALAZINE SODIUM WITH INTEGRATED QbD APPROACH

AUTHORS: VINOTH BERNANDO V[1], Mrs NISHA SHIRKOLI[2*]

COLLEGE ADDRESS: KLE COLLEGE OF PHARMACY, JNMC CAMPUS, NEHRU NAGAR, BELAGAVI – 590010

CORRESPONDING AUTHOR EMAIL ID: nishashirkoli@klepharm.edu

ABSTRACT: (Not more than 250 words)

The study focuses on developing and optimizing a nanosuspension of Olsalazine Sodium for targeting inflammatory bowel disease, primarily affecting patients with Crohn's disease and ulcerative colitis. Olsalazine sodium have limitations such as systemic side effects and low oral bioavailability(5%). Nanosuspensions enhances drug solubility and bioavailability leading to improved drug absorption and systemic availability, ultimately enhancing therapeutic outcomes. Drug-excipient compatibility was assessed using Differential Scanning Calorimetry (DSC) and Fourier Transform Infrared Spectroscopy (FTIR), which confirmed no interactions and compound purity. The nanosuspension was produced via the solvent anti-solvent method and optimized using a Box-Behnken design with seventeen runs. The influence of Cellulose microcrystalline, Eudragit S100, and Tween 80 on particle size and entrapment efficiency was analyzed, yielding a formulation with a particle size of 157.6 nm and 92% entrapment efficiency. Zeta potential measurements indicated stability at -27.44 mV. Scanning Electron Microscopy (SEM) and Transmission Electron Microscopy (TEM) confirmed the spherical shape of the vesicles. In vitro drug release studies demonstrated an 85.9% release rate.

KEYWORDS: Inflammatory Bowel Disease, Olsalazine Sodium, Nanosuspension, Quality by design, Box Behnken design optimization

TITLE: Formulation and Evaluation of Self Emulsifying Drug Delivery System Loaded Buccal Film of BCS class II drug.

AUTHORS: Mr. Vishal Mudakekar, Dr. Rajashree Gude, Ms. Muskan Naik.

COLLEGE ADDRESS: Department of Pharmaceutics, Goa College of Pharmacy, 18th June Road, Panaji-403001, Goa, India.

CORRESPONDING AUTHOR EMAIL ID: vmudakekar64@gmail.com

ABSTRACT:

Darifenacin Hydrobromide (DH), an antimuscarinic agent crucial for treating conditions like Overactive Bladder and frequent urination. Despite its therapeutic potential, DHs oral administration suffers from poor bioavailability due to its inherently **lipophilic nature** and susceptibility to **extensive first-pass metabolism**. We explore the formulation of a **Self-Emulsifying Drug Delivery System** (SEDDS), designed to **enhance the solubility and subsequent absorption of DH.** Sunflower oil, chosen as the oil phase, provides the necessary **lipophilic environment** for DH, while **Tween 20** acts as a surfactant to facilitate **emulsification**, and **Ethanol** serves as a **co-solvent** to enhance drug solubility. Through a comprehensive optimization process, involving various evaluation tests most effective SEDDS formulation, based on its favourable **particle size distribution (432.3 nm)**, **Zeta Potential (-6.03 mV)** and **Polydispersity index (0.322)** was chosen. Having established an optimized SEDDS formulation, our research further explores its **integration** into **oral fast-dissolving buccal films**, a novel drug delivery platform known for its **rapid disintegration** and **enhanced patient compliance**. The optimized oral film of DH SEDDS exhibited **90.48% of drug release within 5 min** which was found to be more than pure drug suspension loaded oral film. By circumventing hepatic first-pass metabolism, our approach not only enhances DH solubility but also **improves dissolution profile**, **patient compliance**, and **safety**. This innovative drug delivery strategy holds considerable potential for addressing the challenges associated with low solubility drugs, paving the way for the development of more effective pharmaceutical formulations.

KEYWORDS: Self emulsifying drug delivery system, Buccal film, Darifenacin hydrobromide.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: TO DESIGN DEVELOPMENT AND EVALUATION OF NANOSUSPENSION FOR SOLUBILITY ENHANCEMENT OF POORLY WATER-SOLUBLE DRUGS"

AUTHORS: Mr. Yash Suresh Patil, Mr. Vinod R. Biradar

COLLEGE ADDRESS: Bhonsale Knowledge City, Building No 2 and 4, Vazarwadi, Charathe, Tal: Sawantwadi Dist: Sindhudurg 416510.

CORRESPONDING AUTHOR EMAIL ID: yashpatil12356@gmail.com

ABSTRACT:

Poor water solubility and slow dissolution rate are issues for the majority of upcoming and existing biologically active compounds. Aceclofenac is poorly water-soluble drug and its bioavailability is very low from its crystalline form. The purpose of the present investigation was to increase the solubility and dissolution rate of Acl by the preparation of nano-suspension by Solvent anti-solvent precipitation Method at laboratory scale. Prepared Nano suspension was evaluated for its particle size and in vitro dissolution study and characterized by zeta potential, and X-Ray diffractometry (XRD), motic digital microscopy, entrapment efficiency, total drug content. A 3^2 factorial design was employed to study the effect of independent variables, amount of soloplus (X1), amount of tween 80 (X2) and dependent variables are total particle size and solubility. From the obtained results batch F2 found to be optimized batch. The particle size of batch F2 was 55.9nm, zeta potential -21.6, % EE was 78.4 and drug release i.e. 69.943. The F2 batch was further characterized by IR-Spectroscopy, XRD analysis. The method used for preparation is simple, scalable, and cost effective. Therefore it can be said that nano-suspension preparation by solvent-antisolvent precipitation method is effective in improvement of aqueous solubility of poorly water soluble drug such as aceclofenac.

KEYWORDS: - Nano-suspension, Solvent antisolvent precipitation Method, QbD, Soloplus etc.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

TITLE: Formulation and evaluation of a dapsone and fexofenadine HCl immediate release combination tablet **.**

AUTHORS: Ms.Shubhangi Karkhile

COLLEGE ADDRESS: Pdea's Shankarrao Ursal College of Pharmaceutical Sciences and Research Centre, Kharadi , Pune 411014

CORRESPONDING AUTHOR EMAIL ID: shubhangi3347@gmail.com

ABSTRACT:

The purpose of the study was to formulate a conventional (immediate release) tablet using a combination of Dapsone and Fexofenadine HCl. Dapsone is a sulfone with anti-inflammatory, immunosuppressive, antibiotic, and antibacterial properties. Fexofenadine HCl is a non-sedating antihistamine approved for the treatment of allergies, whereas Dapsone is used to prevent bacteria from growing and causing red, itching welts. Fexofenadine HCl is an antihistamine that is used to treat allergic symptoms by blocking a natural substance called histamine. Direct compression methods were used to formulate the tablets, which contained super disintegrating polymers such as Ac-di-sol (Croscarmellose sodium). Four tablet formulations were compounded using the direct compression method, with polymer varying ratios. According to the evaluation results, formulations met the specifications when compared to official pharmacopoeias and standards. Different parameters, such as hardness, friability, weight variation, and dissolution studies, were used to evaluate tablets. This formulation of tablet combination of Dapsone and Fexofenadine HCl releases the drug within 60 minutes. Thus, the trial was a success in terms of achieving our goal of developing a tablet with few excipients and a simple manufacturing method.

KEYWORDS: Dapsone, fexofenadine HCl, Urticaria, immediate release, super disintegrant.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

TITLE – FORMULATION AND EVALUATION OF NAPROXEN-LOADED NANOPARTICLES IN MICROPARTICLES FOR COLON-SPECIFIC DRUG DELIVERY

AUTHORS: Osman Ibrahim, Rashmi Mathews, S Rajarajan, Beny Baby and K Ramesh

Karnataka College of Pharmacy, Bengaluru-560064

osmanibrahim501@gmail.com

COLLEGE ADDRESS: Karnataka College of Pharmacy, Thirumenahalli, Hegde Nagar, Main Road, Bangalore - 560064

CORRESPONDING AUTHOR EMAIL ID: osmanibrahim501@gmail.com

ABSTRACT:

Background and objectives: This study aims to formulate and evaluate naproxen-loaded nanoparticles in microparticles for colon-specific drug delivery. Eudragit and beta-cyclodextrin were used for nanoparticle formulation, while sodium alginate and calcium chloride were employed for microencapsulation. The delayed-release formulation aims to reduce side effects and drug instability problems related to premature drug release in the upper gastrointestinal tract.

Method: The method used for this study involved the formulation of naproxen-loaded nanoparticles using Eudragit and beta-cyclodextrin through solvent evaporation. The nanoparticles were then microencapsulated using sodium alginate and calcium chloride via ionotropic gelation. Evaluation was conducted through particle size analysis, zeta potential measurement, and in vitro drug release.

Results: The optimized formulation of naproxen-loaded nanoparticles demonstrated consistent and uniform particle size, contributing to better stability and controlled drug release. In vitro drug release studies showed delayed release of naproxen in simulated gastrointestinal conditions, reflecting 90% release in 12h, ensuring minimal release before reaching the colon, which is crucial for chronic conditions like inflammatory bowel disease. The high % encapsulation efficiency of 93% indicated that the drug was effectively incorporated into the nanoparticles-loaded microparticle, improving its therapeutic potential and bioavailability.

Conclusion: The study demonstrated that the delivery system could protect naproxen from premature degradation in the upper gastrointestinal tract while ensuring sustained release at the target site. This method can potentially enhance treatment outcomes for patients with conditions requiring targeted delivery to the colon, while also minimizing systemic side effects associated with non-specific drug release.

KEYWORDS: Inflammatory bowel disease, Naproxen, Colon-specific drug delivery, Nanoparticle, Microparticle.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

TITLE: DEVELOPMENT OF BOSWELLIA SERRATA EXTRACT LOADED NANOCOCHLEATES GEL FOR TOPICAL DELIVERY

AUTHORS: Akhilesh Gogate* , Prapti Chodankar
Dr.Mythili Krishna Jeedigunta , Bothiraja Chellampillai
Supriya Hyam , Vaishanavi Kerkar , Manjushri Raut

COLLEGE ADDRESS:[1]Department of Pharmaceutical Analysis, Goa College of Pharmacy, 18th June Road, Panaji – 403001, Goa, India.

CORRESPONDING AUTHOR EMAIL ID: gogateakhilesh123@gmail.com

ABSTRACT:

Topical application is a preferred method for targeted therapeutic delivery in inflammation treatment. Boswellia serrata extract (BSE) is a natural compound effective against inflammation. To improve oral bioavailability, a topical BSE formulation was created using nanocochleates(NC). These NC are comprised of cigar-shaped lipid bilayers formed from negatively charged liposomes and cationic calcium ions. BSE-loaded nanocochleates (BSENC) were synthesized by incorporating calcium ions into preformed nanoliposomes containing BSE, sunflower lecithin, and cholesterol, and were assessed using in vitro techniques. TEM images revealed thread-like structures, indicating incomplete NC formation possessing particle size, encapsulation efficiency and zeta potential of 787.7 nm, 72.83% and -49.6 mV, respectively were obtained from homogenous unilamellar, discrete and spherical structured nanoliposomes with diameter and zeta potential of 747.1 nm and -50.6 mV, respectively. In vitro release studies showed that BSENC released 29.95% of the drug compared to 12.78% for BSE over an 8-hour period. When BSENC was incorporated into gel, the release rate improved to 96.73%, exceeding the 73.51% release from BSE gel in the same timeframe. Cytotoxicity was evaluated via the MTT assay and pro-inflammatory cytokine analysis in an LPS induction model, assessing BSENC's toxicity on LPS-induced Raw 264.7 macrophages. This revealed that PCNC was non-toxic and significantly decreased elevated PGE2 levels in a dose-dependent manner, contrasting with lower cytokine levels in control groups. These findings indicate that nanocochleates may enhance the anti-inflammatory efficacy of BSE and serve as a viable alternative to current topical methods.

KEYWORDS: Nanoliposomes, Nanocochleates, Boswellia serrata, BSENC, TEM

TITLE: LC-MS profiling of *Vetiveria zizanioides* roots extract and assessment of neuroprotective activity using *in-silico* docking and TMT induced cognitive impairment.

AUTHORS: Amol Kumbhar, Gayatri Nadar, Swati Dhande, Sampada Bhosale.

COLLEGE ADDRESS: Bharati Vidyapeeth's College of Pharmacy, sector-8, C.B.D. Belapur, Navi Mumbai – 400614.

CORRESPONDING AUTHOR EMAIL ID: sampada.bhosale@bvcop.in

ABSTRACT:

Alzheimer's disease (AD) is the leading cause of dementia, characterized by progressive cognitive decline, memory loss, and neuropathological changes, including amyloid plaques and neurofibrillary tangles. With no definite cure available, current therapies only alleviate symptoms. Traditional medicinal plants offer potential therapeutic alternatives due to their safety and efficacy. *Vetiveria zizanioides* (VZ) is reported for nootropic, antioxidant, anxiolytic and anti-inflammatory activity. This research aims to evaluate the efficacy of ethanolic extracts of roots of VZ in combating TMT-induced cognitive impairment. Key objectives included extraction and standardization of VZ roots, *in-silico* docking studies to identify neuroprotective compounds, and evaluation of behavioural and biochemical changes in rats. Morris water maze, novel object recognition, and elevated plus maze were used to evaluate cognitive performance. Biochemical markers such as malondialdehyde, nitric oxide, glutathione reductase, catalase, and acetylcholine esterase were measured in brain homogenate to assess the oxidative stress, antioxidative defence mechanism and cholinergic activity respectively. The statistical analysis was carried out using Graphpad prism (version 9). Results revealed significant improvement in memory and learning in VZ-treated groups, along with enhanced antioxidant defence mechanism and reduced acetylcholinesterase activity, suggesting improved cholinergic function. Docking studies indicated strong binding affinities of VZ constituents like alpha vetivone with AD-related receptors such as GSK-3 and NMDA, highlighting the potential therapeutic role of VZ in AD. This study concludes that the roots of *Vetiveria zizanioides* possess significant neuroprotective properties, making it a promising candidate for further research in the prevention and treatment of Alzheimer's disease.

KEYWORDS: Alzheimer's disease, LC-MS, Molecular docking, *Vetiveria zizanoides*, neuroprotective.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

NEEM OIL MEDIATED ZINC OXIDE NANOPARTICLES ; FABRICATION, FORMULATION & DEVELOPMENT

AUTHORS: Anselyn Fernandes[1*], Sahil Gaonkar[1], Sanjana Naik[1], Manjusha Gaude[1], Anant Bhandarkar[1], Arun B Joshi[1].

COLLEGE ADDRESS: Department of Pharmacognosy, Goa College of Pharmacy; Panaji:403001,Goa, India

CORRESPONDING AUTHOR EMAIL ID: anantpharm@gmail.com

ABSTRACT:

Neem oil is an essential oil pressed from the seeds of *Azadirachta indica*, belonging to family Meliaceae. It is an effective antifungal, antiseptic, antiviral and antibacterial agent and was used in Indian folk-lore medicine. Neem oil shows skin and eye irritation, cause allergic reactions, such as contact dermatitis. Nanoparticles are effective because of their small size and high surface area-to-volume ratio, allowing them to interact with the biofilm components and disrupt microbial cells. The drawbacks of neem oil can be overcome by incorporate in to metallic nanoparticles. In this study, ZnO NPs were synthesized using Neem oil, further characterized and incorporated into a suitable formulation and evaluated.

Pre-formulation studies of Neem oil such as solubility, calibration and FTIR was carried out to determine the physicochemical parameter of the drug used in this study. The Neem oil mediated ZnONP were synthesised and the optimised batch was selected by QbD approach. Further characterization using UV-Visible Spectroscopy, Particle Size Analysis, XRD and SEM was carried out. The optimised batch has shown entrapment efficiency of 98.02% and particle size of 238.5nm. SEM revealed hexagonal wurtzite-shaped nanoparticles with smooth surface.While XRD analysis showed sharp peaks at 31.78˚, 34.44˚, 36.26˚, 47.52˚, and 56.58˚ confirms the formation of ZnONP.

The synthesized nanoparticles were formulated into a biofilm forming aerosol using film PVP and HPMC. A 2% Neem oil and 2% Neem oil ZnONP aerosol was prepared and evaluated for organoleptic properties, pH and volume per spray. The prepared aerosol showed all the parameters acceptable within pharmacopoeial limits

KEYWORDS: ZnO Nanoparticles, Neem oil, Particle size, Scanning electron microscopy, XRD, Biofilm.

TITLE: ***COMPARATIVE EVALUATION OF AYURVEDIC FORMULATION TRIPHALA CHURNA OF DIFFERENT BRANDS AND INHOUSE FORMULATION***

AUTHORS: Bhavik G. Kalamkar*, Rutuja T. Pujari and Dr. Aruna P. Jadhav

COLLEGE ADDRESS: Bharti Vidyapeeth College Of Pharmacy

CORRESPONDING AUTHOR EMAIL ID: aruna.jadhav@bvcop.in

ABSTRACT: (Not more than 250 words) :

Churna is a powdered monoherbal or polyherbal preparation with equal or varying proportions of drugs. *Triphala churna* is one of the Ayurvedic formulations consisting of three drugs namely amla, harda and baheda in equal proportion. As a part of the evaluation, eight brands' of *Triphala churna* and in-house formulations were tested for relevant organoleptic, physiochemical, and micromeritics properties. In physicochemical properties, alcohol & water soluble extractive values, total ash and moisture content were determined. In micromeritics, bulk density, tapped density, angle of repose, Carr's index, Hausner's ratio and flow properties were determined. Qualitative and quantitative chemical evaluation was carried out. Total tannins were estimated by titrimetry and gallic acid content was estimated by validated HPTLC method. All nine formulations were evaluated by intervention with modern scientific quality control measures in the traditional systems of medicine. This study on *Triphala churna* was reproducible, precise and may be considered as a method for its quality control.

KEYWORDS: Triphala Churna, HPTLC etc.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR!!*

Nov. 12-13, 2024

TITLE: Development of Biogenic Silver Copper Bimetallic Nanoparticles using *Mirabilis Jalapa* extract for improved wound healing activity in diabetic rats.

Authors: Bhumika Ahirrao, Hritika Ahire, Shilpa Shrotriya, Akshada Badgujar, Amisha Jogdankar, Priyanka Kumbhar, Vasundhara Kakade.

College Address: Paud Road, Rambaug colony, Erandwane, Pune, Maharashtra 411038.

CORRESPONDING AUTHOR EMAIL ID:

bhumiahirrao25@gmail.com

ABSTRACT:

Silver Copper Bimetallic Nanoparticles (Ag-Cu BMNPs) are known for their antimicrobial properties, and when synthesized using the bio-extract of *Mirabilis jalapa* (a medicinal plant), they offer an eco-friendly and cost-effective method for nanoparticle production. In diabetic rats, where wound healing is often impaired, these biogenic BMNPs have shown potential to accelerate wound closure, reduce infection, and promote tissue regeneration, making them a promising alternative in diabetic wound care. Biogenic Ag-Cu Bimetallic Nanoparticles were formulated by using green synthesis method. Ag-Cu BMNPs were developed using silver nitrate and Copper sulphate (50mg each), stirring time (4 hr), temperature 70°C, at pH 10. The bio-reduced BMNPs were characterized by different spectrophotometric techniques like UV-Visible spectroscopy, Particle size and polydispersity index analysis, zeta potential analysis, FTIR, XRD and SEM EDX. The prepared BMNPs were incorporated into a gel for ease of application. Wound healing activity of the developed BMNPs gel were tested on diabetic Wistar rats. Several biochemical parameters like SOD, anti-inflammatory markers, TNF- α, IL-6, MMP9, hydroxyproline content were estimated periodically. The animals were also evaluated for wound contraction, epithelization, and histopathological analysis.

The λmax of Ag-Cu BMNPs was observed at 425.00nm and 265.00nm having particle size-193.3nm, PDI-0.251, and zeta potential- -37.4mV. The Ag-NPs gel showed significantly faster wound closure, enhanced re-epithelialization, increased collagen deposition, reduction in pro-inflammatory cytokines (IL-6, TNF-α) and decreased level of MMP9 as compared to control group, suggesting better extracellular matrix remodelling. The study confirmed that Ag-Cu Bimetallic Nanoparticles significantly enhance wound healing in diabetic rat models.

KEYWORDS: Bimetallic Nanoparticles, Green synthesis, Mirabilis Jalapa, Wound Healing.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

FABRICATION, FORMULATION ANDDEVELOPMENT OF ZINC OXIDE NANOPARTICLES USING GRAPE SEED EXTRACT FOR ANTI-AGEING POTENTIAL.

AUTHORS: Ekta Parab[1*], Sahil Gaonkar[1], Anselyn Fernandes[1], Sanjana Naik[1], Manjusha Gaude[1], Anant Bhandarkar[1], Arun B Joshi[1].

COLLEGE ADDRESS: Department of Pharmacognosy,Goa College of Pharmacy; Panaji:403001,Goa, India

CORRESPONDING AUTHOR EMAIL ID: anantpharm@gmail.com

ABSTRACT:

Plant extracts are eco-friendly alternatives to physical and chemical sources for nanoparticle synthesis. In this study, zinc oxide nanoparticles (ZnO NPs) were synthesized using Grape Seed Extract (GSE) and characterized. The synthesised nanoparticles were then incorporated into a suitable formulation and evaluated.

Pre-formulation studies of grape seed extract such as solubility, FTIR and calibration studies were carried out to determine the purity and authenticity of the research candidate. The zinc oxide nanoparticles were synthesised using the optimised batch by Green synthesis method.The optimizedbatch was further characterized using PSA, XRD and SEM.The particle size of optimized batch of grape seed extract, was found to be 165.7 nm. Scanning electron microscopy (SEM) revealed hexagonal wurtzite-shaped nanoparticles with smooth surfaces, while X-ray diffraction (XRD) analysis showed sharp peaks at 31.9˚, 34.54˚, 36.42˚, 47.7˚, and 56.72˚.

The synthesized nanoparticles were formulated into a gel using carbopol 934. A 2% Grape seed extract gel and a ZnO nanoparticle-based gel (equivalent to GSE content) were prepared and evaluated for various parameters, including organoleptic properties, pH, viscosity, extrudability, spreadability, and *in-vitro* release study. The prepared gel showed all the parameters in the acceptability limit of pharmacopoeia.The *invitro* release study showed83.12% drug release from the GSE gel and 101.5% from the GSE loaded ZnO nanoparticle gel over 8 hours.

KEYWORDS: Nanoparticles, Grape seed extract, Particle size, Scanning electron microscopy, XRD, *In-vitro* release study

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: Studies on 'Guduchi-Ghrita' with reference to the '*Murcchana'* process

AUTHORS: Gauri Pai Angle[1*], Shailendra S Gurav[2]

COLLEGE ADDRESS:
[1*]PES's Rajaram Bandekar College of Pharmacy, Ponda, Goa
[2] Department of Pharmacognosy, Goa College of Pharmacy, Panaji, Goa

CORRESPONDING AUTHOR EMAIL ID: gauri.angle@gmail.com

ABSTRACT:

Background: The Ayurvedic medicinal preparation known as "Ghrita," commonly referred to as medicated ghee, involves processing ghee with some herbal decoctions and fresh herb paste. Guduchiis extensively for its various therapeutic effects,includinganti-hyperglycemic, anti-hyperlipidemic, hepatoprotective, cardiovascular protective, neuroprotective, anti-anxiety, adaptogenic and analgesic.

Objective: Present research work that deals with the development of cow ghee-based Polyherbal Guduchi ghrita formulations and evaluates them with reference to the '*Murcchana'* process.

Material and methods: Guduchi ghrita formulations were prepared using plain ghee and murcchana ghee as per standard Ayurvedic classical texts. The organoleptic characters and physicochemical parameters were analyzed after 3, 6, 9 and 12 months. Accelerated and real-time stability studies were carried out to determine the shelf life of ghrita formulations. The antioxidant potential of ghrita was determined by DPPH radical scavenging, Nitric oxide radical scavenging and Hydrogen peroxide radical scavenging assay. The *in-vitro* antidiabetic potential was determined by alpha-amylase and alpha-glucosidase methods.

Results: The results of evaluations indicate that the ghrita formulation developed from '*Murcchana'* ghee retained the organoleptic and physicochemical characteristics of ghee. The shelf life of formulations was found to be 3.5 to 3.61 years at accelerated and 4.7 to 7.1 years at real-time stability conditions. The formulations showed remarkable antioxidant activity and antidiabetic activity by in-vitro assays.

Conclusion: The *murcchana* process used in preparing Guduchi ghrita increased the shelf life and quality of ghrita against oxidative damage during storage.

KEYWORDS:
Murcchana;Ghrita;Polyherbal;Antioxidant; *Ayurveda*

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

FABRICATION, FORMULATION & DEVELOPMENT OF ZINC OXIDE NANOPARTICLES USING EXTRACT OF *BIOPHYTUM SENSITIVUM*

AUTHORS: Manjusha Gaude [1*], Sahil Gaonkar[1], Sanjana Naik[1], Anselyn Fernandes [1], Anant Bhandarkar[1], Arun B Joshi[1].

COLLEGE ADDRESS: Department of Pharmacognosy, Goa College of Pharmacy; Panaji:403001,Goa, India

CORRESPONDING AUTHOR EMAIL ID: anantpharm@gmail.com

ABSTRACT:

Herbs are more potent healers. Use of herbal extracts support in process of repair scientifically without having any side effects, as a result of which the interest to use plant based medicine is increasing. Especially due to the advancement of nanotechnology in traditional system of medicine the focus on herbal medicine is rapidly growing. In this study, zinc oxide nanoparticles (ZnONPs) were synthesized using *Biophytum sensitivum* extract and characterized. The synthesised nanoparticles were then incorporated into a suitable formulation and evaluated.

Pre-formulation studies of *Biophytum sensitivum* extract such as solubility, FTIR and calibration was carried out to determine the physical characteristics of the drug used. The ZnONPs were synthesised using the optimised batch by chemical precipitation method. The optimised batch of *Biophytum, sensitivum,* has shown entrapment of 98.09%. Further characterized using Particle Size Analysis, XRD and SEM. The particle size of optimised batch was found to be 185.1 nm. SEM analysis revealed hexagonal wurtzite shape, smooth surface nanoparticles. The sharp peaks were shown in XRD analysis depicting values of 31.74°,36.24°, 34.4°,47.5°, and 56.58° crystalline state of ZnONps..

The synthesised nanoparticles were formulated into cream. A 2% drug extract and nanoparticles based cream was prepared and evaluated for its organoleptic properties, pH, viscosity, extrudability and spreadability, The synthesised, nanoparticles of selected medicinal plants were successfully prepared and incorporated into suitable formulation which were acceptable with pharmacopoeial limits.

KEYWORDS: ZnO Nanoparticles, *Biophytum sensitivum*, Particle size, Scanning electron microscopy, wurtzite shape.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: Preparation and evaluation of eco-synthesized chitosan/zinc oxide nanocomposite for environmental bioremediation.

AUTHORS: Ms. Mekhala Salgaonkar*, Ms. Saniya Gad, Ms. Manali Vaidya, Dr. Shailendra Gurav

COLLEGE ADDRESS: Goa College of Pharmacy, Panjim - Goa

CORRESPONDING AUTHOR EMAIL ID: avnisalgaonkar05@gmail.com

ABSTRACT:

This study explores the eco-friendly synthesis of Zinc Oxide nanoparticles using *Moringa oleifera* (MO) and their conjugation with nanocomposites (MO-CS/ZnONCs). The synthesized nanocomposites were characterized and evaluated for environmental bioremediation applications, including water purification of bore well water, photocatalytic dye degradation, and antioxidant, antibacterial, and antidiabetic activities.

The formation of MO-ZnONPs and MO-CS/ZnONCs was first confirmed by color change, followed by UV-visible spectroscopy. Through XRD analysis, the crystalline peaks associated with the MO-ZnONPs in the MO- CS/ZnONCs were identified. Morphological evaluation of MO-ZnONPs and MO-CS/ZnONCs was carried out through SEM and TEM studies. The measured particle size of the nanoparticles and nanocomposite was 402 nm and 485 nm, with PDIs of 0.254 and 0.306, respectively. Zeta potentials expressed by nanoparticles and nanocomposites were -25 and 12 respectively. The MO-ZnONPs and MO-CS/ZnONCs showed good radical effectiveness with DPPH and ABTS scavenging assays.

The formulated MO-ZnONPs and MO-CS/ZnONCs displayed significant antibacterial activity against the selected bacterial pathogen. Moreover, the synthesized MO- CS/ZnONCs demonstrated excellent 99.54% photocatalytic degradation of MG dye at 40 min of irradiation, while MO/ZnONPs showed 60% and MOE showed 47% of MG degradation. The formulated MO-CS/ZnONCs showed promising results for borewell-treated water for parameters like pH, dissolved oxygen, electrical conductivity, total dissolved solids, and salinity. MO- CS/ZnONCs showed a decrease in total dissolved solids, and salinity electrical conductivity as compared to the control. Thus, the MO-CS/ZnONCs and MO- ZnONPs could be effective in the photodegradation of dyes, promising for water treatment, and have antioxidant and antibacterial potential.

KEYWORDS: Nanocomposites, Nanoparticles, *Moringa oleifera*, Water purification, Photocatalytic activity

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: Fabrication, characterization, and therapeutic assessment of food packaging films loaded with ZnO conjugated Chitosan nanocomposites for smart sensing applications

AUTHORS: Ms. Mrunali Chari*, Ms. Vrushal Sangodkar, Ms. Manali Vaidya, Dr. Shailendra Gurav

COLLEGE ADDRESS: Goa College of Pharmacy, Panjim - Goa

CORRESPONDING AUTHOR EMAIL ID: charimrunali6@gmail.com

ABSTRACT:

The current research aims at the synthesis of chitosan-conjugated *Punica granatum* (PG) derived Zinc oxide nanoparticles (PG-ZnONPs) followed by their characterization and therapeutic application for food packaging films. The biosynthesized nanoparticles and nanocomposites were physico-chemically characterized and tested for antioxidant and antibacterial properties. The synthesis of PG-ZnONPs and PO-CS/ZnONCs was first verified through a color change, subsequently followed by an analysis employing UV-visible spectroscopy.

The crystalline peaks associated with the PG-ZnONPs in PG-CS/ZnONCs were established using XRD analysis. PG-ZnONPs and PG-CS/ZnONCs were evaluated morphologically using SEM and TEM investigations. The nanoparticles were found to be 112.3 nm in size, while the nanocomposites were 160.8 nm with PDI values of 0.182 and 0.215, respectively. Nanoparticles and nanocomposites had zeta potentials of -21.98 mV and -10.6 mV, respectively. The PG-ZnONPs and PG-CS/ZnONCs demonstrated good radical scavenging activity in DPPH and ABTS experiments. The synthesized nanoparticles and nanocomposites demonstrated substantial antibacterial efficacy against bacterial pathogens.

PG-CS/ZnONCs (2.5%, 5%, and 7.5%) film was prepared using a simple solvent casting technique and assessed for mechanical properties, including tensile strength, hydrophilicity and moisture content, thermogravimetric analysis and light transmittance followed by its assessment in food packaging application to extend shelf life and prevent food deterioration. Intelligent food packaging film was also synthesized using 1% Alizarin (AZ) to monitor the freshness of the food. In conclusion, PG-CS/ZnONCs and intelligent/smart sensing films effectively extended the food's shelf life.

KEYWORDS: Nanocomposites, Nanoparticles, *Punica granatum*, Food packaging films, Smart sensing films.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: Evaluation of Anti-Diabetic Activity of Active Fractions from *Luffa acutangula* on Diabetic Nephropathy

AUTHORS: Parmeshwar Chate, Aishwarya Kharpe, Dr. Pallavi A. Patil

COLLEGE ADDRESS: Bharati Vidyapeeth's College of Pharmacy, sector-8, C.B.D. Belapur, Navi Mumbai – 400614**.**

CORRESPONDING AUTHOR EMAIL ID: pallavi.patil@bvcop.in

ABSTRACT:

Diabetes is a chronic disease that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces. Diabetic nephropathy (DN), diabetic neuropathy, and diabetic retinopathy are among the complications attributed to chronic hyperglycaemia. *Luffa acutangula* (LA) is a plant with potential medicinal properties, and its active fractions have demonstrated promising effects in managing diabetes. This study explored the ability of ethanolic extract and its ethyl acetate fraction using a high-fat diet & Streptozotocin-induced diabetic nephropathy in rat model. It was observed that the ethyl acetate fraction of LA exhibits more efficient antidiabetic activity than the ethanolic extract of LA. Increased oxidative stress, which activates the polyol pathway and causes inflammation and kidney injury, is brought on by hyperglycemia. The study shows that ethyl acetate fraction of LA and ethanolic extract of LA has the potential to prevent the formation of advanced glycosylation end products *in vitro* and based on these the ethyl acetate fraction of LA exhibited highest activity. The renal lesions and oxidant/antioxidant state were reversed by the antihyperglycemic effect of ethanolic extract of LA and ethyl acetate fraction of LA. Further, the ethyl acetate LA in addition to its antioxidant and antihyperglycemic activities, possesses an innate potential to stimulate insulin production by the MIN6-cell line. Hence, the ethyl acetate fraction of LA has shown the effect by attenuating hyperglycemia, oxidative stress, and markers of DN.

KEYWORDS: Diabetic nephropathy, chronic hyperglycaemia, advanced glycosylation.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: NANOFIBERS FOR WOUND HEALING INFUSED WITH MOMORDICA CHARANTIA EXTRACT.

AUTHORS: Ms. Radhika H. Yerawar*, Ms. Abha Deshpande, Ms. Aditi Dere, Dr. Sharvil S. Patil

COLLEGE ADDRESS: BVDU'S Poona College of Pharmacy, Erandwane, Kothrud, Pune- 411038

CORRESPONDING AUTHOR EMAIL ID: yerawarradha21@gmail.com

ABSTRACT: Antibiotic resistance is now identified as one of the causes of delay in wound healing associated with conventional treatments. Thus formulation scientists have moved towards the use of herbal medicines for wound treatment as they have different phytoconstituents which may resolve challenges associated with various stages of wound healing process owing to their antimicrobial, anti-inflammatory and tissue regeneration properties. In the present work we have prepared ethanolic extract of *Momordica charantia L*. The extract was then infused into nanofiber mats consisting of polyvinyl alcohol and chitosan using electrospinning method. The prepared nanofiber mat was characterized for SEM, FTIR, UV-Vis spectrophotometry, *in vitro* drug release and antimicrobial study against *E. coli*. Further in order to estimate the anti-inflammatory potential of the mat molecular docking studies were performed using AutoDock Vina.

SEM studies revealed formation of nanofibers with interwoven spheres. The nanofibres in the mat were ranging from 19.08-32.38 nm. FTIR studies suggested presence of momordicin and chrysin in the mat. The drug release study was performed in terms of chrysin which showed 87.35% cumulative release of chrysin. Antimicrobial studies showed zone of inhibition of nanofiber mat to be 1.8cm. Moreover, molecular docking was performed using chrysin as a ligand and 4KIK as a target protein. The binding of drug to this target suggest its anti-inflammatory potential by preventing IκB degradation responsible for inflammatory response in wound. This study suggests that the prepared nanofiber mat could offer an innovative solution for wound healing, leveraging the natural therapeutic properties of *Momordica charantia*.

KEYWORDS: *Momordica charantia L.*, nanofibers, chrysin, electrospinning.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

TITLE: Impact of Soil Characteristics on the Growth and Germination of *Capsicum annuum* L. (Harmal Cultivar)

AUTHORS: Mr. Rajat Gadekar* and Dr. Manasi Pawaskar*#

COLLEGE ADDRESS: *Dnyanprassarak Mandal's College and Research Centre, Assagao, Bardez - Goa .
 # DCT's Dhempe College of Arts & Science, Miramar, Panaji - Goa.

CORRESPONDING AUTHOR EMAIL ID: maan22X7@gmail.com

ABSTRACT: (Not more than 250 words)

This study examines the effects of Brahmakarmali, Salcete, and Arambol (Harmal) soils on the growth of the Harmal cultivar of *Capsicum annuum* L. (Chilli). Prior to germination experiments, soil samples underwent analysis for key characteristics. Results indicated uniformly acidic soil conditions, with Salcete exhibiting the lowest pH and the highest electrical conductivity. Notable variations were observed in nitrogen, phosphorus, and potassium levels, with Arambol soil generally containing the highest nutrient concentrations. Germination tests were conducted using both *in-vitro* agar-based methods and traditional *in-vivo* soil planting techniques to assess chilli seed germination and growth across these soils. Seeds germinated in agar media prepared with Arambol soil extract demonstrated superior growth rate index, vigour index, germination percentage, and energy. Similarly, in traditional soil planting, Arambol soil consistently supported the highest growth rates. The findings provide a comprehensive understanding of how soil characteristics influence the growth of the Harmal cultivar of *Capsicum annuum* L., offering valuable insights for optimizing agricultural practices and crop management strategies for this specific cultivar.

KEYWORDS: Chilli, Harmal, Soil, Seeds

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: Formulation and Evaluation of herbal capsules for Anti-Inflammatory Activity

AUTHORS: Shweta R. Kurhade, Sunmil T. Naik, Dr. Varsha M Jadhav.

COLLEGE ADDRESS: Bharti Vidyapeeth college of Pharmacy, sector 8 CBD Belapur, Navi Mumbai 400614

CORRESPONDING AUTHOR EMAIL ID: varsha.jadhav@bvcop.in

ABSTRACT:

The present study is performed to evaluate in vitro anti-inflammatory activity of *Psidium guajava* and *Ocimum sanctum* individually and in combination and incorporate them into an herbal dosage form. The drugs were extracted in the Soxhlet apparatus with ethanol for extraction. The percentage extractive yield for *Psidium guajava* and *Ocimum sanctum* was found to be 16.73 & 6.33 %w/w respectively. Preliminary phytochemical analysis revealed presence of alkaloids, flavonoids, saponins, tannins in *Psidium guajava* leaves extract while alkaloids, flavonoids, terpenoids, tannins in *Ocimum sanctum* leaves extract. Capsules of *Psidium guajava* extract and capsules comprising extracts of *Psidium guajava* and *Ocimum sanctum* in combination were prepared using a suitable adsorbent. Magnesium stearate and talc were added to obtain optimal flow. The powder blend was evaluated for flow properties using parameters such as tapped density, bulk density, angle of repose, whereas final capsule formulation was evaluated for uniformity of weight, disintegration, dissolution and drug content. Stability studies of the optimized formulation was carried out as per the conditions recommended by ICH Q1A (R2). Each of the extracts with different concentrations were prepared, which showed dose dependent anti-inflammatory activity when evaluated for percent inhibition of protein on egg albumin. Highest percent inhibition of 90% and 86% was obtained for *Psidium guajava* and *Ocimum sanctum* respectively. When tested for different ratios, 7:3 (tulsi : guava) ratio showed maximum inhibition of 93% indicating synergistic activity. Optimized herbal formulation had shown good physico-chemical and mechanical properties.

KEYWORDS: Herbal capsules, *Psidium guajava* , *Ocimum sanctum*, Anti-Inflammatory Activity, Protein denaturation

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE : PHOSPHOLIPID BASED NANOVESICULAR DELIVERY OF CHRYSIN LOADED NANOCOCHLEATES FOR IMPROVED ANXIOLYTIC ACTIVITY

AUTHORS : Rucheera Verekar, Shailendra Gurav

COLLEGE ADDRESS : Goa College of Pharmacy, 18 June Road, Panaji, Goa University, Goa, India- 403 001

CORRESPONDING AUTHOR: rucheeraverekar@gmail.com

ABSTRACT:

In this study, Chrysin-loaded nanocochleates (CRS-NC) were developed using a trapping method by the addition of calcium ions into preformed negatively charged liposomes (CRS-LP) prepared by a thin-film hydration method. Liposomes were optimized by varying the concentration of Phospholipon 90H, cholesterol and chrysin by applying QbD Box- Behnken design using Design-Expert® software. The optimized nanocochleates (CRS-NC-12) were evaluated for FTIR, DSC, physicochemical properties, such as particle size, zeta potential, SEM and TEM. Stable rods were observed using TEM with an average particle size, zeta potential and encapsulation efficiency of 345.1 nm, −11.19 mV and 83.7% respectively, indicating the formation of a stable formulation. The *in-vitro* release profile of nanocochleate suspension showed a biphasic response with a comparatively large burst effect followed by a sustained release rate.

The anxiolytic activity of CRS-NC-12 at the dose of 200 mg/Kg body weight each was evaluated using Elevated plus maze (EPM), Light & dark model (LDM) and Mirror chamber apparatus (MCA), over a duration of 28 days on Wistar albino rats. After decapitation, gamma-aminobutyric acid (GABA) was evaluated in the brain cerebral cortex, hippocampus, and striatum. The results showed that CRS-NC-12 treatment improves GABA in the three brain areas at $p<0.05$. Statistical analysis was performed using One-way ANOVA/Dunnett's test. The results of this study revealed significant anti-anxiety activity for the standard and test groups in all the animal models. Overall, the results recommended that CRS-NC-12 exhibits increased anxiolytic and mild CNS depressant effects compared to control.

KEYWORDS:
Chrysin, nanocochleates, QbD, anxiolytic activity

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR!!*

Nov. 12-13, 2024

LAGERSTROEMIA LANCEOLATA; PHYTOCHEMICL AND PHARMACOLOGICAL INVESTIGATION.

AUTHORS: Rukma R. Nagvenkar, Anisha R. Nagvenkar, Arun B. Joshi, Anant V. Bhandarkar.

COLLEGE ADDRESS: Department of Pharmacognosy, Goa College of Pharmacy, Panaji-403001, Goa, India

CORRESPONDING AUTHOR EMAIL ID: joshiarun0264@gmail.com

ABSTRACT:

Lagerstroemia lanceolata wall is also known as Crape myrtle belonging to the family Lythraceae. It is a deciduous tree originating from Southeast Asia. Phytochemical and *In-vitro* pharmacological activity was assessed for the leaves from *L.lanceolata.* After assessing it was revealed to contain glycosides, tannins, flavonoid, triterpenoids, steroids, proteins, coumarins and phenols whose presence was confirmed via preliminary phytochemical screening.

Open column chromatography was performed which resulted in isolation of two compound from methanolic extract which were identified and characterized as Botulin and Botulinic acid. Pharmacologically leaf extract of *L lanceolata*is possess anti-diabetic activity, anti-inflammatory activity, anti-cancer activity, anti-oxidant activity, etc.

In vitro cytoxicity study against the L929 cell line (normal cell line) by using MTT assay which resulted in the sample exhibiting significant cytotoxic activity at a concentration of 250µg/ml and further exhibited increase in % cell viability of 31.64 % as compared to the standard Cisplatin (10.65%). Besides that, *In-vitro* anti-diabetic activity was also performed which revealed that the ethanolic extract exhibits α-amylase inhibition activity in dose dependent manner. Ethanolic extract exhibited IC_{50} value of 101.53 µg/ml as compared to standard Metformin (IC_{50} value = 23.91 µg/ml).

Keywords: *lagerstroemia lanceolata,* Lythraceae, Botulin, Botulinic acid, L929

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

PHYSICOCHEMICAL, PHYTOCHEMICAL AND CYTOTOXIC POTENTIAL OF WHOLE PLANT OF *BIOPHYTUM SENSITIVUM* (L.) DC.

AUTHORS: Sakshi Chodankar*, Nevin Fernandes, Arun B. Joshi, Anant Bhandarkar.

COLLEGE ADDRESS: Department of Pharmacognosy, Goa College of Pharmacy, Panaji-403001, Goa, India.

CORRESPONDING AUTHOR EMAIL ID:joshiarun0264@gmail.com

ABSTRACT:

Biophytum sensitivum, a tropical annual herb designated by its vernacular name little tree plant, belongs to the Oxalidace family. It is native to wetland regions of India, Nepal, Srilanka Africa and Madagascar. It is a medicinally valuable plant, rich in flavonoids and bioflavonoids. Traditionally its holistic utility has been harnessed to alleviate various ailments including stomach ache, asthma, neurological disorders, oncological conditions, inflammation with notable emphasis on diabetic's management.

This study investigates its physicochemical, phytochemical and cytotoxic potential. Physicochemical analysis followed WHO guidelines, while phytochemical investigation involved defatting with petroleum ether, methanol extraction and ethyl acetate fractionation. The ethyl acetate soluble fraction showed significant total phenolic content of 101.49 mg of gallic acid equivalent/g extract and total flavonoid content of 100.2 mg of quercetin equivalent/g extract. Open column chromatography led to the isolation of three compounds, namely Amentoflavone, Isovitexin and Gallic acid. *In-vitro* anticancer activity was assessed against PANC-1 cell lines (Pancreatic cancer cell line) using MTT assay. The ethyl acetate fraction showed significant anti-proliferative activity with an IC_{50} value of 45.03 µg/ml, comparable to doxorubicin. The study confirms *Biophytum sensitivum's* potential as a source of anticancer agent.

KEYWORDS: *Biophytum sensitivum,* Amentoflavone, Isovitexin, Gallic acid, PANC-1, ` Pancreatic cancer.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: GREEN SYNTHESIS OF $CoFe_2O_4$ NANOPARTICLES USING ERANTHEMUM NIGRUM AND THEIR BIOLOGICAL APPLICATIONS.

AUTHORS: SAKSHI SANJAY DHAMAL,
DR. MINAL T. HARDE

COLLEGE ADDRESS: P.E.S. MODERN COLLEGE OF PHARMACY, YAMUNANAGAR, NIGDI, PUNE-411044

CORRESPONDING AUTHOR EMAIL ID: sakshidhamal21@gmail.com

ABSTRACT: The current study involves the ecological synthesis of CoFe2O4 NPs utilizing water-based leaf extract of Eranthemum nigrum using the auto-combustion process of sol-gel, along with an assessment of the compounds effectiveness as antioxidant, photocatalytic, and antibacterial agents. Due to their critical importance in advancing scientific knowledge of metallic spinel ferrite compounds have drawn a lot of interest lately in the context of magnetic substances all around and iron oxides specifically. The phase structure and crystallinity of synthesized CoFe2O4 Nanoparticles has been examined by XRD (X-ray Diffraction). The typical crystallite size is predicted to be 18.89 nm. The morphology was estimated by FESEM. The particles are regularly packed and nearly spherical in shape. The elemental surface composition of Co, Fe, and O was assessed by EDX. The superparamagnetic characteristics of biosynthesized CoFe2O4 with saturation magnetization value (MS = 3.37emu/g), coercive field (HC = 1999 Oe), and retentivity (MR = 1.59emu/g) were assessed through the VSM. The biologically active organic component present in extract of Eranthemum nigrum leaf has been found to function as both a stabilizing agent & a reducing agent. Profound antioxidant, photocatalytic, and antibacterial properties were observed in synthesized cobalt ferrite nanoparticles

KEYWORDS: $CoFe_2O_4$, Eranthemum nigrum, magnetic spinel ferrite, sol-gel auto-combustion, antioxidant, photocatalytic, antibacterial

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: Biogenic synthesis, characterization, and evaluation of polymer-conjugated nanocomposite delivery of phytohormones for agricultural application

AUTHORS: Ms. Sanjana Prabhakar Naik*, Ms. Kamini Panchbai, Ms. Manali Vaidya, Dr. Shailendra Gurav

COLLEGE ADDRESS: Goa College of Pharmacy, Panjim - Goa

CORRESPONDING AUTHOR EMAIL ID: sanjanapnaik29@gmail.com

ABSTRACT:

This research focuses on the eco-friendly synthesis of nanocomposites using tender coconut water (TCW) as a Plant growth regulator in conjunction with ZnO and chitosan (CS). TCW's biocompatibility and ZnO's nanoscale characteristics promote plant development while decreasing chemical consumption. Two nanocomposites: TCW-ZnO nanoparticles (NPs) and TCW-CS/ZnO nanocomposites (NCs) were synthesized and characterized through UV-Vis, XRD, SEM, and HRTEM, which showed unique particle structures.

SEM results revealed clustered spheroidal shapes for TCW-ZnONPs, while TCW-ZnONCs exhibited oval rod-like structures. TEM confirmed particle sizes of 27 nm for TCW-ZnONPs and 26 nm for TCW-ZnONCs. Dynamic light scattering (DLS) analysis demonstrated that TCW-ZnONPs had an average size of 283 nm, with a zeta potential of -25.8 mV, whereas TCW-ZnONCs had an average size of 183 nm with a zeta potential of -22.3 mV. The TCW-ZnONCs outperformed TCW-ZnONPs in terms of antibacterial and antioxidant activities.

Seed germination and pot studies on chickpea plants determined that 62 mg/L was the best dose for TCW-ZnONPs and TCW-CS/ZnONCs, exhibiting enhanced growth metrics and hence suited for foliar spraying. Chickpea seedlings treated with TCW-ZnONPs at this concentration had an average root and shoot length of 1.45 cm and 0.55 cm, respectively. In comparison, seedlings treated with TCW-ZnONCs had root and shoot lengths of 1.47 cm and 0.65 cm, indicating that the concentration is suitable for foliar treatment. In the pot studies, many growth characteristics were examined across seven treatments, with the findings revealing that TCW-ZnONCs performed better in growth than the other treatments. Research therefore highlights sustainable agriculture.

KEYWORDS: Nanocomposites, Nanoparticles, Tender Coconut water, Plant growth regulator

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR!!*

Nov. 12-13, 2024

TITLE: Exploring the Anticancer Potential of Herbal Extract SOL
(Provisionally Approved Patent)

AUTHORS: Mr. Shahbaz.S.Nadaf, Dr. Meera.C.Singh, Dr.Rajesh.B.Patil

COLLEGE ADDRESS: Sinhgad College of Pharmacy, Vadgaon, Pune

CORRESPONDING AUTHOR EMAIL ID: shahbaznadaf005@gmail.com

ABSTRACT:

India's rich biodiversity offers immense potential for anticancer research, with numerous medicinal herbs yet to be fully explored. This study investigates the anticancer properties of SOL, an under-researched herb known for its bioactive compounds, including flavonoids, alkaloids, and polyphenols. SOL extract was prepared using the Soxhlet method and subjected to phytochemical screening, thin-layer chromatography (TLC), and high-resolution liquid chromatography-mass spectrometry (HRLCMSMS) for compound identification. In vitro assays were performed to evaluate its antioxidant, anti-inflammatory, and cytotoxic effects. The DPPH assay revealed an IC50 value of 40.75 µg/ml, demonstrating stronger antioxidant activity compared to the standard quercetin (44.51 µg/ml). Anti-inflammatory testing via albumin denaturation assays showed higher inhibition in SOL than ibuprofen and prednisolone, with IC50 values of 51.75, 60.34, and 53.34 µg/ml, respectively. HRLCMSMS identified 80 phytochemicals, of which 20 are associated with anticancer activities. The MTT assay indicated selective cytotoxicity, with IC50 values of 43.77% and 40.15% for the standard drug and SOL, respectively, confirming its potential to inhibit cancer cell proliferation and induce apoptosis. These results suggest that SOL possesses promising anticancer properties, potentially offering an effective, plant-based alternative to synthetic drugs.

KEYWORDS: Anticancer-Phytochemicals, Antioxidant,Anti-inflammatory, IC_{50}.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

TITLE: Extraction and Applications of Plant-Derived Pigments from Species in Goa

AUTHORS: Ms. Shruti Naik* and Dr. Manasi Pawaskar*#

COLLEGE ADDRESS: *Dnyanprassarak Mandal's College and Research Centre, Assagao, Bardez - Goa .
 # DCT's Dhempe College of Arts & Science, Miramar, Panaji - Goa.

CORRESPONDING AUTHOR EMAIL ID: maan22X7@gmail.com

ABSTRACT: (Not more than 250 words)

This study investigated the extraction and application of pigments from three plants: *Clitoria ternatea* L., *Acalypha hispida*, and *Senna alata* L. using water, petroleum ether, acetone, and methanol from both dried and fresh samples. Optimal pigment extraction was achieved by assessing absorption maxima and absorbance, with red pigment peaking at 412 nm, yellow at 404 and 410 nm, and blue at 620 nm. Acetone and water were the most effective solvents, showing the highest absorbance across samples. Fresh flowers provided higher optical density compared to dried powder, particularly after 3 hours of soaking. For pigment extraction, 24 hours of soaking in acetone and 3 hours in boiling water were optimal. Pigments were applied to cotton cloth and wool yarn, with brighter colors observed after 48 hours of dyeing. Blue and yellow pigments demonstrated pH-dependent color changes and were effective as acid-base titration indicators. Yellow pigment exhibited antimicrobial activity against *Escherichia* sp. with a 13.4 mm inhibition zone. Antioxidant potential varied, with red pigment showing the highest inhibition (89%), followed by blue (49%) and yellow (29%), compared to a standard solution (94%). Natural water colors made from these pigments had a longer drying time and stickier texture compared to commercial watercolors, highlighting distinct properties. The results suggest the potential of these pigments in various applications, including as natural indicators, antimicrobial agents, and antioxidants.

KEYWORDS: Absorption, flower, Goa, extraction

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

ISOLATION OF MARINE BIOACTIVE FROM *CAULERPA PELTATA*

AUTHORS: Upendra S. Shetgaonkar[1]*, Shobha T. Gaonkar[1], Anant V. Bhandarkar[1], Arun B Joshi[1], Ajeet Kumar Mohanty[2].

COLLEGE ADDRESS: 1. Department of Pharmacognosy, Goa College of Pharmacy Panaji-403001, Goa, India.
2. ICMR National Institute of Malarial Research Panaji -403001, Goa, India.

CORRESPONDING AUTHOR EMAIID: anantpharm@gmail.com

ABSTRACT: (Not more than 250 words)

Seaweeds are abundant and diverse marine organisms that have gained interest for their potential bioactive compounds and various uses. The species *Caulerpa peltata lamouroux* from the Caulerpaceae family, also known as flattop sea grapes, was found to contain alkaloids, tannins, saponins, protein, and flavonoids.

Samples were collected for Goan coast (Cola Beach) and successively extracted using methanol and water by maceration technique. Phytochemical, and Thin Layer Chromatography (TLC) analysis was carried out. TLC of the methanol extract showed better separation of compounds in a mobile phase of Toluene: Ethyl acetate (75:25). The metabolic extract was further purified through column chromatography, leading to the isolation of radish brown crystals of Caulerpin, which was characterized using infrared (IR), proton and carbon nuclear magnetic resonance (^{1}H NMR and ^{13}C NMR), and mass spectroscopy.

The *in vitro* evaluation of larvicidal effects against *Anopheles stephensi, Culex quinquefasciatus and Aedes aegypti* was performed for methanol and water extracts. The methanolic extract at 1500 ppm, caused 60% mortality after 24 hours and 68% after 48 hours, showing increased effectiveness over time. In comparison, the water extract caused 48% mortality after 24 hours and 60% after 48 hours. This indicates that the methanolic extract of *Caulerpa peltata* was more potent than the water extract in killing mosquito larvae and may be attributed due to Caulerpin.

KEYWORDS: Seaweeds, *Caulerpa peltata,* Phytochemical analysis, Caulerpin

TITLE: PHYTOCHEMICAL INVESTIGATION AND FORMULATION OF COCCULUS HIRSUTUS NANOPARTICLES BY USING GREEN SYNTHESIS APPROACH

AUTHORS: Vaishnavi Sanjay Patil., Sushant P. Kokane.

COLLEGE ADDRESS: Sangli-Miraj Road, South Shivajinagar, Sangli. Pin code 416416

CORRESPONDING AUTHOR EMAIL ID: vaishupatil3002@gmail.com

ABSTRACT: (Not more than 250 words)

This study presents a phytochemical investigation of Cocculus hirsutus extract aimed at identifying its bioactive compounds. Various phytochemical tests were employed to detect the presence of alkaloids, flavonoids, terpenoids, phenolics, and other secondary metabolites known for their medicinal properties. Subsequently, the extract was utilized for the formulation of silver nanoparticles (AgNPs) via a green synthesis approach. The reduction of silver ions to nanoparticles was facilitated by the phytochemical constituents present in the extract, acting as both reducing and stabilizing agents. The synthesized AgNPs were characterized using techniques such as UV-vis spectroscopy, Zeta potential and particle size determine to analyze their size, shape, absorbance. Particles size of nanoparticles is158.5nm. The results indicate the successful synthesis of stable AgNPs with potential applications in various fields including medicine, catalysis, and electronics. This eco-friendly synthesis method offers a sustainable approach for nanoparticle production utilizing natural plant resources.

KEYWORDS: Silver nanoparticles, Cocculus hirsutus, Zeta potential, Particle size.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

GC-MS ANALYSIS AND STUDY OF LARVICIDAL ACTIVITY OF DAVANA OIL ANS ITS ISOLATES OBTAINED FROM *ARTEMISIA PALLENS* WALL. EX DC.

AUTHORS: Vedita Gauns[1*], Richa Kamat[1], Arun Joshi[1], Anant V. Bhandarkar[1]

COLLEGE ADDRESS: Department of Pharmacognosy, Goa College of Pharmacy, Panaji-403001, Goa, India

CORRESPONDING AUTHOR EMAIL ID: joshiarun0264@gmail.com

ABSTRACT: (Not more than 250 words)

Davana oil is an essential oil obtained from leaves and flowers of *Artemisia pallens* Wall belonging to the family *Asteraceae*. It grows wild in the temperate Himalayas. It was perceived that oil of Davana contains hydrocarbons (20%), esters (65%) and oxygenated compounds (15%). The other constituents isolated from the oil included sesquiterpene ketone 'artemone", novel sesquiterpenoids davanafurans' and isodavanone. It is reported to possess aphrodisiac, mood elevator, antiseptic, disinfectant, antioxidant, decongestant and expectorant properties. Literature survey showed no substantial work on larvicidal potentials of Davana oil. Hence, the study was under taken to perform GC-MS analysis for identify its composition and *in vitro* evaluation of its larvicidal effects against *Anopheles stephensi, Culex quinquefasciatus and Aedes aegypti* larvae.

The GC-MS analysis led to identification of different chemical constituents, Ethyl(E)-cinnamate, trans- Methyl cinnamate, 5,5,7,7-tetramethyl-1,2,3,36,4,5,6,7-octahydro-6aH-cyclopenta [a]pentalen-6a-ol, Davanone, tau.-Cadinol, a-Eudesmol, 3-methylbut-2-enyl pentanoate, Ethyl 2-phenylacetate, Methyl-3-phenylpropanoate, 4-Carvomenthenol, phellandraf, Globulol, (-)-Spathulenol, Aromadendrene oxide-(2), dihydro-y-ionone, Octadecane, 6-dehydro- 5-dehydroxy-3-deoxy-dihydroartemisinine and 4a-methyl-3,4,4a,5,6,7-hexahydro- 2H-chromen-2-one.

The *In-vitro* larvicidal study showed that Davana oil caused significant mortality in *Aedes aegypti* and *Anopheles stephensi* larvae after 24 hours, but the isolated fractions showed no activity. The larvicidal effect may be due to the synergistic action of 20 constituents in the oil. For *Culex quinquefasciatus,* the Petroleum ether: Chloroform fraction showed higher activity after 48 hours, likely due to presence of Ethyl(E)- cinnamate.

KEYWORDS: *Artemisia pallens* Wall, Davana oil, Larvicide, *Aedes aegypti*, *Anophelese stiphensi*, *Culex quinquefasciatus*

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: Betel Leaf Biochemistry: A Novel Frontier in Anti- Cancer Research

AUTHORS: Sunmil Tushar Naik, Hansa B. Gesulan, Diksha S. Gawade, Shweta Kurhade, Dr. Varsha M Jadhav.

COLLEGE ADDRESS: Bharti Vidyapeeth college of Pharmacy sector 8 CBD Belapur, Navi Mumbai 400614

CORRESPONDING AUTHOR EMAIL: varsha.jadhav@bvcop.in

ABSTRACT: *Piper betle L*. belongs to family *Piperaceae* and is widely known perennial creeping plant. Chewing betel leaf improves gastric system and oral health, leaves juice or it's combination with oil is used to treat wide range of diseases such as inflammatory and infectious diseases and illnesses affecting respiratory system of the body. *Piper betle L*. is believed to possess antioxidant properties due to presence of various phytochemicals, such as phenolic compounds and flavonoids. Major bioactive compounds in betel leaves extracts include phytol, 4-chromanol, hydroxychavicol, eugenol, carvacrol, chavicol, chavibetol and allylpyrocatechol. In this study, cytotoxic and genotoxic effects of peel of *Piper betle L*. were evaluated using Allium cepa bioassay. Onion bulbs were separated into negative control groups and treatment groups. Negative control groups were kept in alcohol and treatment groups were placed in contact with alcoholic plant extract at concentration of 10 mg/mL. The number and types of abnormalities observed are recorded and analyzed. higher number of abnormalities compared to negative control group suggests genotoxicity, indicating that the tested substance may cause damage to DNA. Allium cepa root tip assay is widely used because it's relatively simple and can provide valuable information about the genotoxic potential of substance. Other reasons are related to low-cost system, a low number of chromosomes (2n = 16), short preparation time, simplicity, sensitivity and reliability. This is an eco-friendly procedure. For investigating antioxidant properties DPPH bioassay is used. It can combat oxidative stress and reduce the risk of cell damage caused by free radicals.

KEYWORDS: *Piper betel L*. peel extract, allium cepa root tip assay, DPPH assay, genotoxicity, antioxidant.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

TITLE: Optimization and Characterization of Phytoconstituent loaded Nanostructured lipid carriers using Box Behnken Design

AUTHORS: Harshali Mahajan*, Shraddha Patil, Shruti Agarwal, Satish Mandlik

COLLEGE ADDRESS: Bharati Vidyapeeth Deemed to be University, Poona College of Pharmacy, Paud Road, Rumbaugh Colony, Erandwane , Pune, Maharashtra 411038

CORRESPONDING AUTHOR EMAIL ID: harshalibmahajan01@gmail.com

ABSTRACT:

This study focuses on developing and optimizing a novel Nanostructured lipid carriers (NLCs) formulation loaded with herbal phytoconstituent for targeted liver cancer treatment, combining the therapeutic potential of natural compounds with advanced nanotechnology.

The formulation of the NLCs was optimized using Box-Behnken Design (BBD), with concentration of lipids (X_1), Tween 80 (X_2), and Sonication time (X_3) as independent variables. The responses evaluated were particle size (PS), entrapment efficiency (EE), and polydispersity index (PDI). A total of 15 experimental runs were performed, with the goal of determining the optimal combination of these factors to produce NLCs with desirable characteristics. The statistical analysis viz best model fitting, ANOVA, quadratic equations, graphical presentations were analyzed using licensed design expert V13 software.

The Box-Behnken Design revealed that a combined concentration of lipids and Tween 80 had a greater positive effect on PS, EE, and PDI than the individual components alone. The quadratic model equation was found to be best fit models for all three responses. The responses were studied by response surface plot and contour plot. The identified predicted batches for validation were found to be in close agreement with an experimental result. Thus, model was found be validated.

The optimized NLC herbal phytoconstituent formulation exhibited a particle size of 109 nm, entrapment efficiency of 96.5%, and a PDI of 0.437. TEM images revealed spherical shaped nanoparticles. *In-vitro* release studies showed controlled release properties.

Thus, the Box-Behnken Design was found to be an effective design in optimizing NLC formulations for liver cancer treatment along with improvement in bioavailability of herbal phytoconstituents.

KEYWORDS: Nanostructured Lipid Carrier, Herbal Phytoconstituent, Liver Cancer, Box-Behnken Design, Targeted Drug Delivery.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR!!*

Nov. 12-13, 2024

TITLE: "FORMULATION AND EVALUATION OF RUTIN AND CURCUMIN LOADED LIPOSOMES TOPICAL GEL FOR TREATING STASIS DERMATITIS AND ITS ANALYTICAL METHOD DEVELOPMENT BY QbD APPROACH"

AUTHORS: ROHAN B. RAWOOL[1]
BHUVANESHWARI R. SHARANNAVAR *[2]

COLLEGE ADDRESS: KLE COLLEGE OF PHARMACY, JNMC NEHRU NAGAR, BELAGAVI, INDIA-590010

CORRESPONDING AUTHOR EMAIL ID: brsharannavar@klepharm.edu

ABSTRACT: (Not more than 250 words)

Stasis dermatitis is a chronic inflammatory skin condition that is often caused by venous insufficiency and is characterized by symptoms such as erythema, scaling, and itching. It usually affects the lower legs. Rutin can help treat chronic venous insufficiency, and Curcumin has anti-inflammatory and anti-hyperpigmentation properties.

Rutin and Curcumin-loaded liposomes were created using the ethanol injection method and optimized using a Central Composite Design (CCD) with three center points and eleven runs. The independent variables were soya lecithin and ethanol, and the dependent factors were particle size and entrapment efficiency.

To ensure stability and efficacy, particle size was measured, along with entrapment efficiency, zeta potential, and polydispersity index (PDI). TEM was used to visualize the liposomal structure and confirm the particle size of the gel. The optimized liposomes were incorporated into a gel and tested for pH, viscosity, and stability. The gel's therapeutic potential was validated through in vitro and ex vivo drug release studies, as well as in vitro anti-inflammatory activity tests.

KEYWORDS: Rutin, Curcumin, Formulation, Liposomes, Anti-inflammatory activity, QbD

TITLE: Synthesis of Antifungal Drug Loaded Silver Nanoparticles for Evaluation of Antifungal Activity on various species of Yeasts

Authors: Ruchika Deshmukh, Pooja Sawant, Sugandha Mulgund
College Address: Bharati Vidyapeeth (Deemed to be University) Poona College of Pharmacy, Erandwane, Pune-411038
CORRESPONDING AUTHOR EMAIL ID:
ruchikadeshmukh0865@gmail.com

ABSTRACT:

Silver nanoparticles (Ag-NPs) are promising in biomedical applications, particularly in drug delivery. They offer enhanced pharmacokinetics and pharmacodynamics, improved bioavailability, controlled drug release, and reduced side effects. Ag NPs exhibit strong antimicrobial, antioxidant, and antifungal properties, making them ideal carriers for antifungal drugs. This study aimed to synthesize Econazole nitrate (ECN)-loaded Ag-NPs to evaluate their antimicrobial activity against various fungal species. The objective is to develop stable ECN-coated Ag-NPs and assess their effectiveness compared to ECN. Ag-NPs were synthesized via the chemical reduction method using stabilizing agent to load ECN. The formulation was evaluated using UV-visible spectroscopy, particle size analysis, polydispersity index, and zeta potential measurements. Characterization of the stable ECN-loaded Ag NPs batch was conducted using SEM, UV-vis spectroscopy, X-ray diffraction, and FTIR to analyze the interaction between ECN and Ag NPs. Antifungal susceptibility tests were conducted against *Candida albicans, Candida glabrata, Candida tropicalis, and Malassezia furfur*. Minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) tests were performed to determine the lowest concentration with the highest antifungal activity. The Zone of Inhibition test was also used to assess sample sensitivity. The results showed that ECN-loaded Ag NPs had enhanced antifungal activity, with lower MIC and MBC values compared to pure ECN. This demonstrates that ECN-coated Ag-NPs are a more effective antifungal treatment than ECN alone.

KEYWORDS: Econazole, Antifungal, Silver nanoparticle, MIC, *Candida albicans, candida glabrata*.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR!!*

Nov. 12-13, 2024

TITLE: Design and Characterization of Epigallocatechin Gallate Topical Gel

Authors: Sakshi Chhatrikar, Harshali Shinde, Deepali A. Bansode

College Address: Paud Road, Rambaug colony, Erandwane, Pune, Maharashtra, 411038.

CORRESPONDING AUTHOR EMAIL ID:
sakshichhatrikar1409@gmail.com

ABSTRACT:

Green tea (Camellia sinensis) is a popular beverage known for its health benefits, particularly due to (-)-epigallocatechin gallate (EGCG), which has cardioprotective, antioxidant, anti-obesity, antidiabetic, anticancer, anti-inflammatory, and antimicrobial properties. This study aims to design and evaluate a thermo-reversible topical gel incorporating EGCG using Poloxamer 407 (PF-127) and Carbopol-940.

The gel was characterized using UV spectroscopy, FTIR, viscosity measurements, and HPLC. In vitro drug release studies showed that the optimized gel formulation sustained release, with 50% of the drug released within 5 hours. Kinetic analysis indicated a zero-order release profile, meaning drug release was independent of initial concentration.

Ex vivo studies revealed complete drug release from the gel in 8 hours, with greater permeation compared to in vitro conditions, likely due to hydration and skin pathways. HPLC analysis showed 82% of the drug in the epidermis, 11.1% in the dermis, and only 2.94% in subcutaneous tissue, indicating the gel is not suitable for systemic use but effective for treating epidermal bacterial infections. Histological analysis after 24 hours of treatment showed normal epidermal structure, with no inflammation or significant changes compared to the control.

Keywords: EGCG gel, Controlled release, Cold technique

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: One-pot synthesis of quercetin loaded Nanoparticulate hybrid gel as a potential tool against psoriasis and inflammation.

AUTHORS: Siddhi P. Fogueri, Dr. M. B. Patil

COLLEGE ADDRESS: KLE College of Pharmacy, Belagavi Karnataka

CORRESPONDING AUTHOR EMAIL ID: foguerisiddhi@gmail.com

ABSTRACT: This is the era of nano drug delivery where nanoparticles are extensively studied to improve the effectiveness of therapeutic agents obtained from plants. Wide research is conducted to explore the physical, chemical and biological characteristics of silver nanoparticles (SNPs). Recent studies states that SNPs serve as the ideal carrier for drug delivery due to its versatile physicochemical characteristics. Quercetin (QRT) is the major plant flavonoid used to treat psoriasis, wound healing, inflammatory diseases, hepatic diseases, and have an inherent antimicrobial property. The present research was carried out to investigate the effectiveness of Quercetin silver nanoparticles (QSNPs) loaded kaempferol (KMP) gel against induced psoriasis and inflammation. SNPs were prepared by a rapid one-pot synthesis method and characterized using FTIR, UV-Vis spectroscopy, and X-ray crystallography. Bio reduction of silver from SNPs due to conjugation of QRT helps to minimize the toxicity of SNPs and it is ensured by skin irritancy test. QSNPs-loaded KMP gel offered a noteworthy reduction in psoriasis area-severity index (PASI) scores in the induced psoriasis model which is ensured by histopathology study. In conclusion, prepared QSNPs loaded KMP gel shows promising effects against induced psoriasis and inflammation.

KEYWORDS: Psoriasis, Silver nanoparticles, Quercetin, kaempferol, green synthesis, anti-inflammatory.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR!!*

Nov. 12-13, 2024

TITLE: Development, Formulation and Exploitation of Indian Propolis as potential Nutraceutical agent and Bio-autographic method development for Anti-microbial activity of Indian Propolis

Authors: Akanksha Puri, Anushka Bakore, Dr. Sathiyanarayanan l.

College Address: Paud Road, Rambaug colony, Erandwane, Pune, Maharashtra 411038

CORRESPONDING AUTHOR EMAIL ID:

akankshapuri744@gmail.com

ABSTRACT:

Propolis, known as bee glue, a crude substance collected by bees, has possible benefits such as antimicrobial, wound-healing and antioxidant properties. The present investigation seeks to innovate dosage form of Indian propolis through the tableting process and bio-autographic assay of the propolis derived formulations against diseases. The goal is to develop an alcohol-free, free-flowing powder of propolis with improved water solubility and bioavailability for nutraceutical use.

The Soxhlet extraction method produced highest phenols that characterized by the HPTLC, HPLC methods. Bioactive compounds such as phenols and flavonoids in various PE concentrations were preserved using spray drying technique of encapsulation. During the formulation trials, propolis was incorporated and tablets were prepared with enhanced stability by spray drying. The final product was evaluated for yield, particle size, water dispersibility, TPC, TFC, and encapsulation efficiency. Spray drying using a 1:6 PE, this ratio gave excellent yields with 94% fine powder and particle size of 321.2 nm, water dispersibility 89.7%, TPC of 32.47 mg GAE/g and TFC of 30.17 mg QE/g. The encapsulation efficiency was 54.32%. The bio-autography method developed that suggests propolis can be a powerful antibacterial.

The optimized tablet formulation was found to have mousse type of nutritional composition containing carbohydrates-22.4% and proteins 4.2%. The study successfully synthesized Indian propolis as a nutraceutical tablet, revealing its potent bioactive and antimicrobial properties, thereby confirming its potential for dietary supplement preparation.

KEYWORDS: Indian Propolis, Nutraceuticals, Encapsulation, Spray Drying.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR!!*

Nov. 12-13, 2024

Formulation and Characterization of Ibuprofen Solid Dispersion and Ibuprofen Nano Liposomes

Authors: Harshita Shet [a*], Akshay [a], Pragathi Devanand Bangera [b], Mahalaxmi Rathnanand [b]

College: [a] *Department of Pharmacognosy, Goa College of Pharmacy, Panaji:403001, Goa, India*

[b] *Department of Pharmaceutics, Manipal College of Pharmaceutical Sciences, Manipal Academy of Higher Education, Manipal 576104, Karnataka, India.*

Corresponding author mail ID: mahalaxmi.r@manipal.edu

Abstract:

Ibuprofen is practically insoluble in water (21 mg/L at 25 C), relatively lipophilic (log P-4.0) and with high membrane permeability, thus dissolution becomes the rate limiting step for absorption (BCS class II). To improve its dissolution, ibuprofen solid dispersions [F (1:1), F (1:2), F (1:3), and F (1:4)] ibuprofen nano liposomes were prepared using fusion method and ethanol injection method respectively. The formulations were characterized by differential scanning calorimetry (DSC) and Fourier transform infrared spectroscopy (FTIR) and evaluated for solubility and in vitro drug release. Ibuprofen solid dispersion, F (1:1) and F (1:2) showed improved dissolution rate over that of pure ibuprofen. Ibuprofen nano liposomes formulations showed formation of nano vesicles which were in the size range of 156.1 nm. The PDI were in the range of 0.250 to 0.282. All the formulations showed Zeta potential of -31 to -40mV. Maximum entrapment efficiency of 84% was observed. In conclusion, these studies demonstrate the potential of solid dispersions and nano liposomes as effective strategies to enhance the solubility and dissolution of poorly water-soluble drugs like Ibuprofen.

Keywords: Ibuprofen, solid dispersion, Nano Liposome, Drug release

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: Evaluation of davana ether isolated from Artemisia pallens for hair growth: In silico and in vivo investigations

AUTHORS: Ritika Ravindra Konduskar, Vishin A. Patil

COLLEGE ADDRESS: Bharati Vidyapeeth College of Pharmacy, Kolhapur

CORRESPONDING AUTHOR EMAIL ID: ritikakonduskar9927@gmail.com

ABSTRACT: (Not more than 250 words)

Abstract: Hair loss is a topic that attracts significant attention, even though it is typically not a serious health concern. A few approved treatments and surgical techniques are available to manage alopecia and promote scalp hair growth. Unfortunately, these options often come with unavoidable side effects. Therefore, there is a growing need to explore suitable alternatives. In this study, we focused on the isolation of davana ether, an active compound from *Artemisia pallens* extract, and its evaluation as a hair growth promoter. Specifically, davana ether was isolated from *Artemisia pallens* using column chromatography, and its isolation was confirmed through Fourier transform infrared (FTIR) and gas chromatography-mass spectrometry (GCMS). The active fraction (Fraction X) was separated using the mobile phase. To assess the hair growth potential of davana ether, both in silico and in vivo approaches were employed. Docking studies were conducted to compare the binding conformations of davana ether with those of Minoxidil, targeting specific proteins such as 2FGF, 3B6H, and 4K7A. In the in vivo study, hair weight was measured in rats treated with davana ether (Fraction X) and 2% minoxidil. The hair weights were found to be 3.516 ± 0.0348 g and 3.4 ± 0.0255 g, respectively whereas the skin irritation test ensured good compatability with skin. In conclusion, isolation of davana ether from *Artemisia pallens* demonstrated promising hair growth potential. In the future, davana ether-loaded formulations could be developed as a novel treatment for hair loss.

Keywords: *Artemisia pallens*; davana ether; molecular docking; hair growth potential

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

TITLE: Isolation, Identification, and Antibacterial Properties of Prodigiosin, a Bioactive Product Produced by a New Serratia marcescens JSSCPM1 Strain

AUTHORS: **Rafiuddin Mohammed[1]**, Rajaguru A[1], Suresh Joghee[2]

COLLEGE ADDRESS: JSS COLLEGE OF PHARMACY, BANGALORE - MYSORE RD, NARASHIMA RAJ MOHALLA, BANNIMANTAP A LAYOUT, BANNIMANTAP, MYSURU, KARNATAKA 570015

CORRESPONDING AUTHOR EMAIL ID:
rafiuddinm91@gmail.com

ABSTRACT: (Not more than 250 words):

Prodigiosin, a red pigment produced by *Serratia marcescens*, holds great medicinal potential due to its antimicrobial, anticancer, and immunosuppressive properties. In this study, the prodigiosin compound was isolated from a newly identified strain, *Serratia marcescens* JSSCPM1, and purified using techniques like UV-visible spectroscopy, HPLC, and LC/MS, with structural confirmation via nuclear magnetic resonance (NMR). The compound exhibited strong antibacterial activity, particularly against Gram-negative bacteria, inhibiting *Escherichia coli* NCIM 2065 with a minimum inhibitory concentration of 15.9 µg/mL. Molecular docking studies also revealed prodigiosin's good binding affinity to OmpF porin proteins, key targets in antibiotic therapy. The production of prodigiosin was optimized using a central composite design (CCD) statistical model. The best conditions for maximum pigment yield were identified as 24 g/L glucose concentration, pH 7.2, 2.4 mL inoculum size, and 180 rpm agitation speed, resulting in a 4.25-fold increase in yield. Antimicrobial assays showed that prodigiosin exhibited stronger activity against *E. coli* and *Candida albicans* compared to conventional antibiotics, suggesting its potential as an effective alternative treatment for infections. These findings highlight the enhanced production and therapeutic applications of prodigiosin, making it a promising compound in pharmaceutical research.

Keywords: Prodigiosin, *Serratia marcescens*, Antibacterial Activity, Molecular Docking, Fermentation Optimization.


SPARSHA SURESH BANDEKAR

TITLE: Production of Pharmaceutical and Industrially Useful Products from Banana Plantation Wastes – A Sustainable Solution to Global Banana Wastes

AUTHORS: Ms. Sparsha Suresh Bandekar & Dr. Nagesh H. Aloorkar

COLLEGE ADDRESS: Department of Pharmacy, Dr. Babasaheb Ambedkar Technological University, Lonere, Mangaon, Raigad (M.S.), 402103

CORRESPONDING AUTHOR EMAIL ID: sparshasb@gmail.com

ABSTRACT: (Not more than 250 words)

Banana plantation is the highest fruit crop in the world. Annual banana production accounts for around 135-140 million tons. The banana plant bears fruit only once in its lifetime due to which a huge amount of waste is generated. The main objective of this study was to devise a process to utilize this waste from banana plantations. A method was developed for the separation of starch along with fibers and liquid extract from banana pseudostem employing an appropriate technology. Banana pseudostem outer sheaths and inner meristem have been evaluated for the presence of fiber content, carbohydrates, and water content. The technology was developed in such a manner that from the pseudostem sheaths starch was isolated without compromising the separation of fibers and producing liquid organic manure at the same time. The chemical tests, microscopic evaluation, microchemical evaluation, IR spectroscopy, SEM studies, and elemental analysis confirmed the isolate to be starch. Furthermore, the isolated crude fibers were found to be of good quality. Based on this laboratory process, a technology and machine have been designed that will provide the basis for the management of banana waste to a greater extent, in line with the sustainable development goals of the United Nations. The starch was produced from the banana pseudostem which is otherwise a waste. This technology can be used for the manufacturing of starch from the waste and thus can reduce the demand for food-based starches already available in the market adopting the approach of generation of wealth from waste.

KEYWORDS: starch extractor, banana pseudostem, fiber decorticator, sustainable utilization, liquid organic manure.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

TITLE: Exploring the Impact of Chemotherapy on Cognitive Function A Cross-Sectional Perspective

AUTHORS: Aisha Shafeeque Shaikh*, Sindhu R, Dr. S.N Manjula

COLLEGE ADDRESS: Bangalore - Mysore Rd, Narashima Raj Mohalla, Bannimantap A Layout, Bannimantap, Mysuru, Karnataka 570015
JSS College of Pharmacy, Mysuru

CORRESPONDING AUTHOR EMAIL ID: aisha144667@gmail.com

ABSTRACT:

Majority of the patients who underwent chemotherapy reported difficulty in concentration, multitasking, memory and learning. Cognitive impairment can influence patient ‘s quality of life by showing the impact on daily activities, treatment compliance, interpersonal relationship, work /personal and future. The objective of the present study is to determine the
incidence and pattern of chemotherapy related cognitive impairment among cancer patients and to assess the predictors of cognitive impairment.

The study aimed to determine the incidence and pattern of chemotherapy-related cognitive impairment (CRCI) in cancer patients and assess its predictors. A total of 513 patients were enrolled, with 61.59% being female, and breast cancer being the most common type (25.34%). Among the patients, 43.27% were in stage 3, and 49.12% were in the early stages of chemotherapy (1-3 cycles). The most used drugs were paclitaxel (17.49%), platinum compounds like cisplatin (16.81%) and carboplatin (16.48%), and antimetabolites (18.5%). Cognitive function was assessed using the Mini-Mental State Examination (MMSE) and Hospital Anxiety and Depression Scale (HADS).

The results showed a high prevalence of cognitive impairment, with a significant association between patient characteristics and MMSE scores ($p<0.05$). However, no significant association was found between patient characteristics and HADS levels, except in the chemotherapy + surgery + radiation group where MMSE levels showed significance. Predictors such as age, marital status, and residential area had a high impact on cognitive impairment. The study concluded that CRCI is common among chemotherapy patients, as evidenced by poor MMSE performance, but HADS scores suggested no significant relationship between hospital environment and cognitive impairment.

KEYWORDS: Chemotherapy, Cancer patients, MMSE, HADS

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR!!*

Nov. 12-13, 2024

TITLE: Anti-Parkinsons effect of *Anacyclus pyrethrum* extract on fruit fly and zebrafish model.

AUTHORS: Anwesha Singh, Priti Surwase, Swati Dhande

COLLEGE ADDRESS: Bharati Vidyapeeth's College of Pharmacy, Sector-8, C.B.D. Belapur, Navi Mumbai- 400614

CORRESPONDING AUTHOR EMAIL ID: swati.dhande@bvcop.in

ABSTRACT

Parkinson's disease (PD) is a neurodegenerative disorder wherein the major symptoms are bradykinesia, slowness of voluntary movements, and tremor. PD occurs due to a decrease in dopamine levels in the nigrostriatal area of the brain. The herb *Anacyclus pyrethrum* belongs to the family Asteraceae has been reported to possess neuroprotective potential in PD. The phytochemical screening shows flavonoids, alkaloids, glycosides, and tannins. *Anacyclus pyrethrum* root has high neurological medicinal value. The present study is designed to study the two extracts of *Anacyclus pyrethrum* root i.e. ethyl acetate and ethanolic extract for the neuroprotective action in fruit fly (*Drosophila melanogaster*) and zebrafish (*Danio rerio*) animal models. The rotenone is used as an inducing agent for the induction of PD in both models. Rotenone causes mitochondrial dysfunction in both models. The experimental paradigm was a negative geotaxis assay in fruit fly and behavioral parameters in zebra fish model. The parameters were assessment of locomotor movement of flies, behavioral parameters (travel latency and time spent near the bottom) and biochemical assays for endogenous antioxidant enzymes in zebra fish. The significant ($p < 0.05$) neuroprotective activity was obtained for both the extracts of *A. pyrethrum*, wherein the ethyl acetate extract was found more effective. Thus, this study indicates neuroprotective potential of both the extracts of *A. pyrethrum*. against mitochondrial dysfunction induced neuronal damage especially in Parkinson's disease.

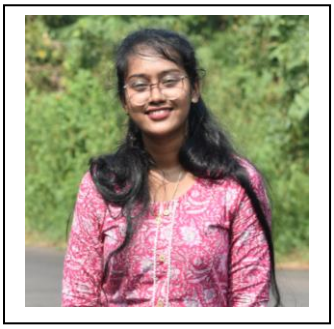
KEYWORDS – Parkinson's disease, *Anacyclus pyrethrum*, fruit fly (*Drosophila melanogaster*), zebrafish (*Danio rerio*), rotenone.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: PHARMACOLOGICAL INVESTIGATION OF *BREYNIA ANDROGYNA* (L). LEAVES FOR CENTRAL NERVOUS SYSTEM ACTIVITY IN RATS



AUTHORS: **Ms. DISHA BHUVAN DANGUI**

Dr. LIESL MARIA FERNANDES E MENDONÇA

Ms. ARATI ANIL DHATKAR

COLLEGE ADDRESS: Goa College Of Pharmacy ,18th June road Panjim – Goa (403001)

CORRESPONDING AUTHOR EMAIL ID: aratidhatkar@gmail.com

ABSTRACT: (Not more than 250 words)

Breynia androgyna (L.) is a perennial shrub belonging to the family Phyllanthaceae, and widely distributed in Southeast and South Asia. This study explored the phytochemical and pharmacological properties of the ethanolic leaf extract (EEBA) and acetone fraction (AEBA) of *Breynia androgyna* for anxiolytic activity in rats. *In-vitro*, *in-vivo*, and *in-silico* methods were used to assess the potential antioxidant and anti-anxiety effects of EEBA and AEBA. The antioxidant activity was analyzed using DPPH, nitric oxide & hydrogen peroxide free radical scavenging assays. The anxiolytic effects of EEBA and AEBA at 200 mg/kg and 400 mg/kg doses were tested over 28 days using the Elevated Plus Maze, Light & Dark Model, Mirror Chamber Apparatus, and Open Field Test. Statistical analysis was done using One-way ANOVA/Dunnett's test, and molecular docking identified potential anxiolytic compounds by targeting the $GABA_A$-Cl^- ion channel receptor. Phytochemical screening showed that EEBA and AEBA contain flavonoids, tannins, phenolics, and triterpenoids. AEBA had higher phenolic and flavonoid content, with 54.35 mg GAE/g and 67.81 mg QUE/g, respectively, compared to EEBA. AEBA showed stronger radical scavenging activity in vitro and demonstrated significant anxiolytic effects at 400 mg/kg *in vivo* ($p < 0.05$), indicating that the higher dose may provide better calming effects. *In-silico* studies showed strong interactions between active phytochemicals and the GABAA receptor, supporting AEBA's anxiolytic mechanism. In conclusion, the acetone-enriched fraction showed significant anxiolytic activity, likely due to its flavonoids, which may act by modulating the $GABA_A$-BZD-chloride ion-channel receptor.

KEYWORDS: *Breynia androgyna* (L.) , Anxiolytic Activity, Elevated Plus Maze, Light & Dark Model, Mirror Chamber Apparatus, Open Field Test, Phytochemical Screening.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: Evaluation of CNS Activities of Some Indigenous Medicinal Plants in Experimental Animals

AUTHORS: Mukund N. Urade; Dr. Sonali S. Nipate

COLLEGE ADDRESS: Department of Pharmacology, PES Modern College of Pharmacy, Nigdi, Pune

CORRESPONDING AUTHOR EMAIL ID: mukundurade@gmail.com

ABSTRACT: (Not more than 250 words)

Introduction: In the present study, antioxidant activity of *Jacaranda mimoseafolia* and *Glochidion Ellipticum* was evaluated by DPPH method.

Methods: Ethanolic extract of *Jacaranda mimoseafolia* and Aqueous extract of was prepared. Phytochemical investigation of these extracts was performed. Antioxidant activity of these extracts was studied by DPPH method. Different concentrations of extracts (20, 40, 60, 80, 100 ug/ml) were prepared and exposed to DPPH treatment. Ascorbic acid was used as reference standard.

Results and Discussion: Ethanolic extract of Jacaranda Mimoseafolia showed the presence of Phenolic compounds, flavonoids and tannins. Aqueous extract of *Glochidion Ellipticum* showed the presence of flavonoids, Alkaloids and Phlobatannins. *Jacaranda mimoseafolia* and *Glochidion Ellipticum* showed significant antioxidant activity by DPPH method.

Conclusion: *Jacaranda mimoseafolia* and *Glochidion Ellipticum showed Antioxidant activity*.

KEYWORDS: Jacaranda mimoseafolia, Glochidion Ellipticum, Antioxidant.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

TITLE: PHYTOCHEMICALS AS FUTURE ANTIDEPRESSANTS: INSIGHTS FROM MOLECULAR DOCKING AND ADMET STUDIES

AUTHORS: Mr. Sanket Bora, Dr. Pallavi Patil

COLLEGE ADDRESS: PES's Modern College of pharmacy, Yamunanagar, Pune- 411044

CORRESPONDING AUTHOR EMAIL ID: sanketbora8055@gmail.com

ABSTRACT: Depression is a widespread mental health disorder, and the need for safer and more effective treatments continues to grow. Natural compounds, particularly phytochemicals, have gained attention for their potential therapeutic effects with fewer side effects compared to synthetic drugs. This study investigates the antidepressant potential of four phytochemicals—ferulic acid, vanillic acid, catechin hydrate, and chlorogenic acid—using a thorough in silico approach. The absorption, distribution, metabolism, excretion, and toxicity (ADMET) profiles of these compounds were evaluated using SwissADME and ProTox-II tools. Molecular docking was performed using Schrödinger's Glide v9.1 software to assess the binding affinities of these compounds against serotonin transporter proteins, in comparison with established antidepressants Citalopram (PDB ID: 5I71) and Sertraline (PDB ID: 6AWO). The binding free energies were further analyzed using MM-GBSA. The results revealed that catechin hydrate exhibited a Glide score of -10.762 kcal/mol and chlorogenic acid -9.247 kcal/mol for 6AWO, indicating strong binding affinities. For PDB ID 5I71, Citalopram had the highest docking score (-11.050 kcal/mol), followed by chlorogenic acid, catechin hydrate, ferulic acid, and vanillic acid. ADMET profiling demonstrated favorable drug-like properties for all tested compounds, while toxicity predictions suggested low risk, supporting their potential as safe drug candidates. These findings highlight the promise of chlorogenic acid and catechin hydrate as potential antidepressant agents, encouraging further in vitro and in vivo studies to validate their therapeutic efficacy.

KEYWORDS: Phytochemicals, Antidepressants, Molecular Docking, ADMET Profiling, Seretonin Receptor.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

TITLE: Evaluation of Anti-anxiety Activity of Ethanolic Leaf Extract of *Benincasa hispida* (Thunb.) Cogn. in Experimental Models

AUTHORS: Saurabh A. Kshirsagar, Mrs. Vedita Hegde Desai, Shruti R. Poll *

COORDINATING AUTHOR: veds27@rediffmail.com

PRESENTING AUTHOR *: shrutipoll2001@gmail.com Shruti R. Poll

COLLEGE ADDRESS: Goa College of Pharmacy, 18th June road, Panaji-Goa, India (403001)

ING AUTHOR EMAIL ID: shrutipoll2001@gmail.com

ABSTRACT: *Benincasa hispida*, commonly known as winter melon, has been traditionally used in herbal medicine for its potential therapeutic properties. The aim of this study was to investigate the antianxiety activity of the ethanolic leaf extract of *Benincasa hispida* (EEBH) in established experimental anxiety models (Elevated Plus Maze and Opto-Varimax Autotrack System) in Adult Wistar Albino rats. Diazepam (2 mg/kg) was used as the standard and dose of EEBH (100 and 200mg/kg) was selected as per OECD guidelines. Results demonstrated that extract of EEBH significantly reduced anxiety-like behaviors in a dose-dependent manner, with 200 mg/kg showing the most pronounced effects, comparable to diazepam. These findings suggest that EEBH possesses significant antianxiety effects, supporting its traditional use and highlighting its potential as a natural alternative for anxiety management.

KEYWORDS: Ethanolic extract of *Benincasa hispida* (EEBH), Diazepam, Anxiolytics, Elevated Plus Maze (EPM), Opto-Varimax Autotrack System, Anxiety.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

TITLE: Berberine's Therapeutic Prospects in Parkinson's Disease: A Spotlight on Cholesterol Regulation for Cognitive Improvement

AUTHORS: Madhushree*, Dithu Thekkekkara

COLLEGE ADDRESS: JSS College of Pharmacy, Mysuru

CORRESPONDING AUTHOR EMAIL ID: madhushree7527@gmail.com

ABSTRACT:

Cholesterol synthesized in astrocytes plays a key role in regulating hippocampal neurogenesis and cognitive function, with dysregulation of cholesterol metabolism emerging as a significant contributor to Parkinson's disease (PD) pathogenesis. Elevated cholesterol levels in the brain have been linked to increased oxidative stress, leading to the neurodegeneration of hippocampal pyramidal neurons and cognitive impairment. Berberine, an isoquinoline alkaloid, has shown potential to modulate cholesterol synthesis through HMG-CoA inhibition. This study aimed to investigate the therapeutic potential of berberine in reducing cognitive impairment in PD by protecting hippocampal pyramidal neurons and regulating cholesterol homeostasis. Parkinson's disease was induced in male Sprague Dawley rats through the administration of rotenone (2.5 mg/kg, intraperitoneally) for 42 days, followed by oral treatment with berberine at doses of 10 mg/kg and 40 mg/kg for 21 days. The efficacy of berberine was evaluated using cognitive function tests, motor coordination assessments, locomotor activity measurements, biochemical analyses, and histopathological examinations. The results showed that berberine, particularly at a dose of 40 mg/kg, significantly ameliorated PD symptoms. This improvement was accompanied by a reduction in brain cholesterol levels and an increase in dopamine levels when compared to the disease-control group. Histopathological analysis revealed preserved pyramidal neurons and reduced infiltration of macrophages and microglia in the hippocampus of berberine-treated rats, which correlated with improved cognitive performance. Overall, the study suggests that berberine holds therapeutic potential for mitigating cognitive impairment in PD by regulating cholesterol homeostasis and protecting hippocampal neurons, highlighting its promise as a potential treatment for cognitive deficits associated with PD.

KEYWORDS: Parkinson’s Disease, Cognitive impairment, Dopamine, Cholesterol, Alpha-synuclein, Berberine.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

TITLE: An Open-Label, Single-Arm Clinical Trial Evaluating the of Rumalaya Cream in Acute Musculoskeletal Conditions.

AUTHORS: Mohammed Fazil*, Chiraj Jain, Dr. S.N Manjula

COLLEGE ADDRESS: Bangalore - Mysore Rd, Narashima Raj Mohalla, Bannimantap A Layout, Bannimantap, Mysuru, Karnataka 570015
JSS College of Pharmacy, Mysuru

CORRESPONDING AUTHOR EMAIL ID: mfazil8907@gmail.com

ABSTRACT:

Musculoskeletal conditions, particularly those associated with pain, are challenging to treat using conventional allopathic methods, highlighting the need for safe, non-invasive alternatives. Himalaya Wellness developed Rumalaya Cream, a polyherbal formulation designed to relieve pain and inflammation in various musculoskeletal disorders. This clinical study aimed to assess the efficacy and safety of Rumalaya Cream in treating acute musculoskeletal conditions, as well as the incidence of adverse events.

The open-label, single-arm study included 40 eligible subjects with musculoskeletal complaints. Participants applied a small amount of Rumalaya Cream to the affected area, with up to four applications per day if pain persisted. Clinical and laboratory assessments were conducted at baseline and the end of the study (EOS).

The results showed that Rumalaya Cream effectively reduced symptoms such as joint pain, cervical spondylosis, frozen shoulder, lumbar spondylosis, muscular pain, and sprains. Laboratory parameters remained within normal limits, and no adverse events were reported during or at the EOS. Overall, the cream was well-tolerated, and none of the participants experienced a deterioration in their general health throughout the study.

In conclusion, Rumalaya Cream was found to be both safe and effective in relieving acute musculoskeletal pain and inflammation, with no reported side effects. The study supports its use as a potential alternative treatment for managing musculoskeletal conditions.

KEYWORDS: Musculoskeletal conditions, Polyherbal formulations, Rumalaya cream, Clinical Trial, Single arm study

TITLE: TARGETING ALPHA-AMYLASE: DESIGN, SYNTHESIS AND EVALUATION OF POTENTIAL HYPOGLYCEMIC COMPOUNDS

AUTHORS: MANASI H. KUMBHAR, VISHAKHA P. HOBLE, RAGHUVIR R. S. PISSURLENKAR*

COLLEGE ADDRESS: GOA COLLEGE OF PHARMACY, 18TH JUNE ROAD, PANAJI 403001, GOA, INDIA

CORRESPONDING AUTHOR EMAIL ID: raghuvir@pissurlenkars.net

ABSTRACT:

Diabetes is one of the most common comorbidities among the citizens of India. The alpha (α)-amylase is a calcium metalloenzyme that aids digestion by breaking down polysaccharide molecules into smaller ones such as glucose and maltose. The research in the field of medicinal chemistry has shown great interest in benzimidazole moiety due to their diverse biological activities, such as antioxidant, anti-inflammatory, analgesic, anti-diabetic, antimicrobial, and anticancer properties.
This research project focuses on the computational studies involving docking, ADME and Toxicity profiling and MD simulations with subsequent microwave synthesis of benzimidazole-based inhibitors for the target alpha-amylase. Various benzimidazole derivatives were synthesized by coupling o-phenylenediamine with different aryl-alkyl carboxylic acid derivatives followed by ^{1}N-substitution with benzyl chloride derivatives. Progress of the reactions was monitored using TLC and synthesized compounds were thoroughly characterized and elucidated using IR and ^{1}H-NMR.

KEYWORDS: HYPERGLYCEMIA, APLHA-AMYLASE, ANTI-OXIDANT, DOCKING, MICROWAVE.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: The Journey of Novel Quinoline-Triazoles from Design to Promising Leads as Potential Spindle Kinase Inhibitors for Cancer Treatment

AUTHORS: Rohini Kavalapure*[1], Shankar Alegaon

COLLEGE ADDRESS: Department of Pharmaceutical Chemistry, Faculty of Pharmacy, KLE Academy of Higher Education and Research. KLE College of Pharmacy, Belagavi-590010, Karnataka, India

CORRESPONDING AUTHOR EMAIL ID: rohinikavalapure@yahoo.com

ABSTRACT: (Not more than 250 words)

This investigation explores into the development of innovative quinoline-based triazoles as promising candidates for cancer therapy. A series of 40 compounds were designed, synthesized, and characterized using FTIR, NMR, and LCMS techniques. In vitro anticancer activity was assessed against various cancer cell lines, with two lead compounds exhibiting significant potency. To elucidate the underlying mechanism of action, spindle kinase inhibition assays and flow cytometry analysis were conducted. In silico studies, including molecular docking, ADMET analysis, molecular dynamics simulations, and DFT calculations, were employed to investigate the binding affinity, drug-likeness, and structural properties of the lead compounds. Network pharmacology analysis was also performed to identify potential downstream targets and pathways. The results obtained from both in vitro and in silico experiments highlight the potential of these novel quinoline-triazole derivatives as promising anticancer agents. However, further research is necessary to elucidate their precise mechanism of action, optimize their potency and selectivity, and explore their potential for clinical application. Future studies should focus on understanding the molecular interactions with spindle kinases, refining the structural features of these compounds, and conducting in vivo studies to validate their efficacy and safety.

KEYWORDS: ***Quinoline, Cancer, Spindle kinase***

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE:
"CEPHALOSPORINS WITH METAL COMPLEXATION- CHARACTERISATION AND INVESTIGATION OF ANTIMICROBIAL ACTIVITY"

AUTHORS:
1) Mrs. Saumya S Vernekar*
(Assistant professor, PES's Rajaram and tarabai bandekar college of pharmacy)
2) Dr. Sanjay Pai P N
(Professor and Head of Dept, Goa College of Pharmacy)

COLLEGE ADDRESS:
PES's Rajaram and Tarabai Bandekar college of Pharmacy.

CORRESPONDING AUTHOR EMAIL ID:
lotlikar.reema@gmail.com

ABSTRACT: (Not more than 250 words)

Cephalosporins are a class of antibiotics used to treat infections caused mostly by bacteria. They are beta-lactam antibiotic and work by preventing bacteria from forming a cell wall. These antibiotics are made to interact with metal salts to give metal complexes which are characterized by physicochemical and spectrophotometric methods. Three complexes of cefotaxime sodium (CFX) with metal ions like Zn (II), Ni (II) and Cu (II) were synthesized and denoted as CFX-1, CFX-2 and CFX-3 respectively. Three complexes of cefpodoxime proxetil (CPD) with metal ions like Zn (II), Ni (II) and Cu (II) were synthesized and denoted as CPD-1, CPD-2 and CPD-3 respectively. Complexes were characterised with different methods like melting points, IR spectras and Elemental analysis (C,H,N). Melting points reported were higher than the parent antibiotic. The IR spectras indicated that the antibiotics are acting as chelates via lactum carbonyl and carboxylate groups. All the complexes are screened for antibacterial activity against *Staphylococcus aureus* and *Escherichia coli* by using broth dilution method to determine MIC (minimum inhibitory concentration) and spread plate method to determine MIC_{99}. The results are compared with the activity of parent cephalosporin antibiotics.

KEYWORDS: Cephalosporins, Cefotaxime sodium, Cefpodoxime proxetil, metal complexes, characterization, antibacterial activity, MIC.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR!!*

Nov. 12-13, 2024

TITLE: In-Silico Prediction and Docking of Anti-Neuroinflammatory Agents Targeting P2X7 Pathways for Epilepsy Mitigation.

AUTHORS: Harsh Kumar Yadav, Dr. Baban S. Thawkar

COLLEGE ADDRESS: Bharati Vidyapeeth's College of Pharmacy, sector-8, C.B.D. Belapur, Navi Mumbai – 400614.

CORRESPONDING AUTHOR EMAIL ID: yadavharsh4567@gmail.com

ABSTRACT: (Not more than 250 words)

Epilepsy, affecting millions globally, often leads to cognitive decline and diminished quality of life. Despite effective anti-epileptic medications, over 30% of patients experience inadequate responses and may require neurosurgery. Recent evidence highlights that CNS conditions, including epilepsy, involve inflammatory responses with proinflammatory cytokines, exacerbating seizures and brain inflammation. To improve treatment outcomes and reduce epilepsy-related inflammation, the present research uses molecular docking techniques to identify potential drug candidates that can modulate these neuroinflammatory pathways. Using Auto-Dock Vina software, docking was conducted on key proteins including TLR4 (3FXI), Caspase-1 (1RWK), NLRP3 (7ALV), and P2X7R (6U9W). The docking results revealed that flavonoid compounds exhibited the highest binding affinities, suggesting their strong potential as modulators of neuroinflammation. These interactions imply that flavonoids may be highly effective in regulating inflammatory pathways linked to epilepsy. These findings underscore the promising role of computational docking studies in the discovery of flavonoid-based drug candidates targeting neuroinflammation in epilepsy.

KEYWORDS: Epilepsy, Molecular docking, Auto dock vina, Neuroinflammation, P2X7R.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: EVALUATION OF FORCED DEGRADATION BEHAVIOR OF BEMPEDOIC ACID IN DIFFERENT INDIAN BRANDED TABLET FORMULATIONS

AUTHORS: Ms. Harshada Balkrishna Maral, Mr. Vinod R. Biradar

COLLEGE ADDRESS: : Bhonsale Knowledge City, Building No 2 and 4, Vazarwadi, Charathe, Tal: Sawantwadi Dist: Sindhudurg 416510.

CORRESPONDING AUTHOR EMAIL ID:
harshadamaral2002@gmail.com

ABSTRACT:

Bempedoic acid, a key medication for lowering low-density lipoprotein cholesterol (LDL-C), is particularly useful for patients who are intolerant to statins or require additional LDL-C reduction. This study aims to evaluate the forced degradation behavior of Bempedoic acid under stress conditions using UV spectroscopy. The drug's stability was assessed in three tablet formulations: BEMPESTA (Torrent Pharmaceutical LTD, Tablet A), nexRed (Dr. Reddy's Laboratory LMD, Tablet B), and CONSIVAS-BM (Emcure Pharmaceutical LTD, Tablet C), under various stress conditions, including acidic and basic hydrolysis, oxidation, and thermal exposure. UV absorbance measurements were taken at 258 nm using methanol as the solvent. The degradation results varied across formulations and stress conditions. Tablet A exhibited degradation of 78.02% in acidic, 85.01% in basic, 85.68% in oxidative, and 79.95% in thermal conditions. Under similar conditions, Tablet B showed 65.43%, 56.36%, 55.41%, and 61.59% degradation, respectively, while Tablet C exhibited 53.47%, 43.09%, 65.23%, and 21.76% degradation. This study provides key insights into Bempedoic acid degradation pathways, crucial for optimizing formulation and ensuring safety. The method is simple, time-efficient, and cost-effective, making it suitable for assessing Bempedoic Acid stress degradation, especially in smaller industries with limited access to advanced instruments.

KEYWORDS: Bempedoic Acid, Forced Degradation, UV Spectroscopy, Stability Analysis.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: Exploring Thiazole-DHPMs as Eg5 Inhibitors: Molecular Docking and In Silico Predictions for Breast Cancer Therapy

AUTHORS: Mitali Kamble, Dhirajkumar Nikam, Ashwini Bhange ,Shweta Jadhav

COLLEGE ADDRESS: Bharati Vidyapeeth's College of Pharmacy, Sector-8,C.B.D Belapur, Navi Mumbai-400 614

CORRESPONDING AUTHOR EMAIL ID: mitalikamble26@gmail.com

ABSTRACT: (Not more than 250 words)

Cancer, driven by genetic mutations, results in abnormal cellular proliferation and metastasis. Monastrol, a well-known antimitotic agent from the dihydropyrimidinone (DHPM) class, inhibits the Eg5 kinesin motor protein by disrupting mitotic spindle formation, leading to mitotic arrest and subsequent apoptosis in cancer cells. In this study, a series of thiazole-based DHPMs were designed using a scaffold hopping approach. Molecular docking studies were conducted with the AutoDock Cygwin program to evaluate their binding affinities against the Eg5 kinesin motor protein (PDB ID: 1QOB), a crucial target for anticancer activity.The designed compounds exhibited strong binding affinities, with docking scores ranging from -7.95 to -9.09 kcal/mol. The docking analysis revealed enhanced hydrogen bonding and hydrophobic interactions with key amino acids, including ARG-119, ALA-133, GLU-116, GLU-118, TRP-127, PRO-137, GLY-117, GLU-215, TYR-211, LEU-214, ALA-218, LEU-172, PHE-239, GLU-119, LEU-160, ILE-136, and ARG-221, when compared to Monastrol. Furthermore, most of the derivatives complied with Lipinski's Rule of Five, as assessed by the SWISSADME program, indicating favourable drug-likeness properties.

KEYWORDS: Breast cancer, Thiazole-based DHPMs, Eg5 kinesin motor protein, Molecular docking

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: SMILES 2 ACTIVITY: LIGAND-BASED PREDICTION MODELS AGAINST CANCER TARGETS

AUTHORS: HARDIK K. NAIK, ARYA J. VAIGANKAR, RAGHUVIR R. S. PISSURLENKAR*

COLLEGE ADDRESS: GOA COLLEGE OF PHARMACY, 18TH JUNE ROAD, PANAJI 403001, GOA, INDIA

CORRESPONDING AUTHOR EMAIL ID: raghuvir@pissurlenkars.net

ABSTRACT:

Cancer, in subsequence to cardiovascular disorders (CVDs), is spreading at an alarming rate globally, raising significant concerns for public health. World Health Organization (WHO), estimates nearly 10 million deaths annually due to cancer. Rapid rise in cancer necessitates immediate and focused efforts by researchers in the field of drug discovery and development to identify and design novel anticancer agents. In the treatment of various types of organ-specific cancers, the development of effective anticancer drug therapy is often hindered by the complexity, time, and financial investment required for drug discovery and design. Given these challenges, there is a need to establish efficient methodologies for screening molecules that exhibit cytotoxic activity, which could serve as potential drug candidates. Leveraging computational approaches, we have developed ML based prediction models based for multiple organ-specific cancers utilizing the wealth of SAR information available in public domain. The ML-based prediction models have been rigorously trained and validated, allowing for the reliable prediction of biological activity of any proposed chemical entity. The development of ML-based prediction model is a sub-domain of a holistic algorithm to simultaneously predict activity, similarity and binding of novel chemical entity as a potential lead candidate in the cancer therapeutics.

KEYWORDS: CANCER, MACHINE-LEARNING, STRUCTURE-ACTIVITY RELATIONSHIP, LIGAND-BASED DRUG DESIGN

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE:	DOCK 2 TARGET: STRUCTURE-BASED BINDING AFFINITY PREDICTION AGAINST CANCER TARGETS
AUTHORS:	ARYA J. VAIGANKAR, HARDIK K. NAIK, RAGHUVIR R. S. PISSURLENKAR*
COLLEGE ADDRESS:	GOA COLLEGE OF PHARMACY, 18TH JUNE ROAD, PANAJI 403001, GOA, INDIA
CORRESPONDING AUTHOR EMAIL ID:	raghuvir@pissurlenkars.net

ABSTRACT:

In the quest for more efficient drug discovery processes, our study explores the integration of structure-based drug design approaches mainly molecular docking and molecular dynamics simulations, to focus on cancer research. By leveraging public protein databases, we have curated and validated molecular structures and biological data, ensuring the accuracy and reliability of our findings. The molecular docking simulations provide insights into binding affinities, and the protocols for the current study were validated using visual verification of the superimposition of the docked pose against the experimental X-ray pose of the native ligand and RMSD calculation. Our research culminated in the development of a comprehensive database of cancer targets, to predict the binding affinity of new chemical entities as potential anti-cancer candidates. This database serves as a valuable resource to facilitate the exploration of novel therapeutic interventions against cancer. The development of database of curated protein crystal structures against various cancer targets is a sub-domain of a holistic algorithm to simultaneously predict activity, similarity and binding of novel chemical entity as a potential lead candidate in the cancer therapeutics.

KEYWORDS: CANCER, MOLECULAR DOCKING, BINDING AFFINITY, STRUCTURE-BASED DRUG DESIGN

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR!!*

Nov. 12-13, 2024

TITLE: LC-MS Profiling, Docking-Based Target Identification and In-Vivo Assessment of the Antiarthritic efficacy of *Kaempferia parviflora* rhizomes in rodent model.

AUTHORS: Aarti Bokade, Aqsa Kazi, Sampada Bhosale, Swati Dhande

COLLEGE ADDRESS: Bharati Vidyapeeth's College of Pharmacy, Sector-8, C.B.D. Belapur, Navi Mumbai- 400614

CORRESPONDING AUTHOR EMAIL ID: swati.dhande@bvcop.in

ABSTRACT

Rheumatoid arthritis is an autoimmune disease significantly impacting the lifestyle of patients. A variety of available anti-rheumatic drugs are associated with adverse effects like immune response suppression, gastric ulcer and risk of heart attack or stroke, this underscores the need for novel therapies with improved safety profiles. The *Kaempferia parviflora* (Zingiberaceae) also known as black ginger is known for its varied medicinal properties. Hence the present study aimed to evaluate analgesic, anti-inflammatory and anti-rheumatic properties. The rhizomes were standardized based on AYUSH guidelines (2008). LCMS was used for biomarker profiling. Further, the 'design of experiment' software was used to obtain maximum extraction yield. The docking study of selected constituents was performed to confirm target-specific antirheumatic activity and in vivo analgesic, anti-inflammatory and antirheumatic efficacy of methanolic extract of *Kaempferia parviflora* was evaluated in Wistar rats. The LC-MS analysis of the obtained extract revealed the presence of flavonoids such as 5,7-dimethoxyflavone and apigenin 7, 4'-dimethyl ether. The extract showed central and peripheral analgesic activity and significant anti-inflammatory effects. The rhizome extract also exhibited significant ($p \leq 0.01$, $p \leq 0.001$) dose-dependent anti-rheumatic activity in complete Freund's adjuvant rodent model based on parameters like paw volume, arthritic score, X-ray, body weight, white and red blood cell count, rheumatoid factor, and endogenous antioxidant enzymes. Overall, the study suggests that rhizomes of *Kaempferia parviflora* may have potential therapeutic benefits in the management of rheumatoid arthritis and associated symptoms.

Keywords: Rheumatoid arthritis, LC-MS analysis, docking, *Kaempferia parviflora,* 5,7-dimethoxyflavone, Apigenin 7, 4'-dimethyl ether.

TITLE: Stability-indicating HPTLC method development and validation for estimation of Meropenem in pharmaceutical formulation

Authors: Akshay Tupe, Pranjal Wagh, Savita S. Yadav, Vividha Dhapte

College Address: Bharati Vidyapeeth (Deemed to be University), Poona College of Pharmacy, Erandwane, Pune-411038

Corresponding author email id:
akshaytupe3875@gmail.com

ABSTRACT:

A stability-indicating high-performance thin-layer chromatography (HPTLC) method was developed and optimized for the estimation of Meropenem in pharmaceutical formulations using a mobile phase consisting of methanol: ethyl acetate: water (6: 2: 2, v/v/v). Detection was performed in absorbance mode at a wavelength of 297 nm. The method produced a distinct Rf value of 0.485 for Meropenem. Validation of the method was carried out according to ICH guidelines, assessing parameters such as linearity, accuracy, precision, robustness and specificity. The method demonstrated linearity study for Meropenem in the concentration range of 800- 4800 ng/band and correlation coefficient R^2 values was found to be 0.9981.LOD and LOQ were found to be 239 ng/band and 729 ng/band, respectively. % RSD was found to be less than 2 % for intraday and interday precision study and the percent recovery was found to be 99.44 %. To confirm the stability-indicating capability of the method, Meropenem was subjected to forced degradation studies under various stress conditions, including acidic, alkaline, oxidative, thermal, wet, and photolytic environments. The method successfully separated Meropenem from its degradation products, confirming its specificity and stability-indicating nature. This developed and validated stability indicating HPTLC method can be used for routine quality control and quantitative analysis for Meropenem in pharmaceutical formulations.

KEYWORDS: Meropenem, stability study, HPTLC, validation

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: DEVELOPMENT OF VALIDATED SPECTROPHOTOMETRIC METHODS FOR SIMULTANEOUS ESTIMATION ANALYSIS OF ANTIRETROVIRAL DRUGS.

AUTHORS: AMOGH DILIP KINNERKER, SUBODH JILU GAONKAR, Dr. SACHI KUDCHADKAR

COLLEGE ADDRESS: GOA COLLEGE OF PHARMACY 18th JUNE ROAD, PANAJI- GOA

CORRESPONDING AUTHOR EMAIL ID: amogh.14k@gmail.com

ABSTRACT: (Not more than 250 words)

Introduction: According to UNAIDS factsheet 2024, in 2023, there were 30.7 million people accessing antiretroviral therapy globally. In India fixed dose combinations of antiretroviral drugs such as Abacavir (ABA) and Lamivudine (LAM) are commonly used in first line ART. To ensure effective treatment, reliable and validated analytical methods for these drugs are essential. This research aims to develop and validate different spectrophotometric method for quantitative determination of ABA and LAM in marketed formulations. **Methods:** Ratio Subtraction with Extended Ratio Subtraction Method (RS-ERM), Absorption Factor Method (AFM) and Dual Wavelength Method were developed and validated as per ICH Q2 (R2). For RS-ERM, absorbance of ABA and LAM was measured at wavelength of 285 nm and 271 nm with divisor concentration of 14 µg/mL and 7 µg/mL, respectively. In AFM, ABA was measured at 298 nm and LAM at 271 nm. The Dual Wavelength Method used 260.75 nm and 279.02 nm for ABA, and 205.92 nm and 228.06 nm for LAM. **Result:** For the developed methods; Beer's law was obeyed within the concentration ranges of 8-16 µg/mL for ABA and 4-8 µg/mL for LAM. The coefficient of correlation was found to be 0.9998 and 0.9999 for ABA and LAM. Precision studies showed % RSD values less than 2% for both intra-day and inter-day measurements. Average accuracy was found to be 98% and 102% for ABA and LAM respectively. The assay results were within the acceptable pharmacopeial limits. **Conclusion:** Simple, reproducible, precise, green, and economical spectrophotometric methods of analysis were developed and validated.

KEYWORDS: Antiretroviral drugs, fixed dose combination, UV-visible spectrophotometry, Abacavir (ABA), Lamivudine (LAM), Ratio subtraction with Extended ratio subtraction method (RS-ERM), Absorption factor method (AFM), Dual wavelength method, validation of analytical methods, ICH Q2(R2).

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR!!*

Nov. 12-13, 2024

TITLE: Analytical method development and validation for estimation of Prasugrel Hydrochloride in the bulk drug and in marketed formulation by using High performance Thin Layer Chromatography (HPTLC).

AUTHOR: Apeksha Wable*, Nilesh Desai-Deshmukh

COLLEGE ADDRESS:
Department of Drug Regulatory Affairs
Bharti Vidyapeeth, Poona College of Pharmacy rambaug Colony, Paud Road Erandwane, Pune -411038

CORRESPONDING AUTHORS EMAILID: desainilesh86@gmail.com

ABSTRACT:

Heart disease is the leading cause of death in many developed countries and approximately 50% of all deaths are due to thrombotic events. This indicates the increased need for more efficient and affordable treatment for the diseases such as thrombosis and myocardial infarction. Prasugrel has better antiplatelet activity and faster onset of action. Prasugrel attains fast peak plasma concentration, requires low dose and it is 10-fold more potent than drug like clopidogrel. Therefore, the present work discusses about HPTLC method development and validation for standardization of Prasugrel hydrochloride bulk drug and also in marketed formulation. Silica gel 60 F_{254} plates with 250 µm thickness silica were employed with Toluene: Ethyl acetate: Methanol: glacial acetic acid (7:2:1:0.05) resulting in Prasugrel hydrochloride retention factor (Rf) value of e 0.75±0.005 respectively. Densitometric analysis at 254 nm showed linearity range from 150-1200 ng/spot with a R^2 value of 0.9993 for prasugrel Hydrochloride resp. The method exhibited a limit of detection (LOD) und limit of quantification (LOQ) of 77.16 ng/spot and 233.82 for Prasugrel Hydrochloride resp, So, cost-effective developed HPTLC technique is precise, specific, accurate and robust for the analysis of Prasugrel hydrochloride in formulations.

KEYWORDS: High performance thin layer chromatography, Validation, Prasugrel Hydrochloride.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR!!*

Nov. 12-13, 2024

TITLE: A Novel Compact Titration System for Enhanced Laboratory Efficiency.

AUTHORS: Ms. Fariah Fahad Rizwani

COLLEGE ADDRESS:

Bharati Vidyapeeth's College of Pharmacy, sector-8, C.B.D. Navi Mumbai-400614.

CORRESPONDING AUTHOR EMAIL ID: Fariahriz2302@gmail.com

ABSTRACT:

Conventional titration systems are often tedious and time consuming, requiring multiple components to make an assembly. Thus, a novel and compact titration system bridges the gap between conventional and industrial automation. It features a centralized burette connected by two beakers on its sides and an infused funnel at the top and has a magnetic stirrer at the bottom. It enables us to optimize our process and helps in sequential readings. Rapid cleaning and solution exchange using its innovative design helps us reducing manual handling and risk of errors and contamination. This setup streamlines titration workflows making it ideal for researchers enhancing their processes without investing in industrial automation. It's versatility and ease to use make it suitable to work with different analytical methods. The system has integrated design eliminating use of separate funnel, beakers and stirrer. Its ergonomic design makes it an asset in laboratories and at research workplaces. By bridging a gap, it offers cost effective and efficient solution for laboratories. Its ability to minimize time and make experiments optimize and convenient by its innovative design and features make it an essential tool for researchers and laboratory professionals seeking to enhance their titration workflows.

KEYWORDS: Innovation, Titration, Research, Time-efficient, Cost-effective

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR!!*

Nov. 12-13, 2024

TITLE: Bioanalytical Method Development and Validation for the Determination of Acyclovir in Spiked Human Plasma by HPTLC

AUTHORS: Gayatri Vinchurkar, Aakanksha Somvanshi, Vineeta Khanvilkar

COLLEGE ADDRESS: Bharati Vidyapeeth's College of Pharmacy, Sector-8, C.B.D. Belapur, Navi Mumbai- 400614

CORRESPONDING AUTHOR EMAIL ID: vineeta.khanvilkar@bvcop.in

ABSTRACT

High Performance Thin Layer Chromatography method was developed and validated for determination of Acyclovir in spiked human plasma by using metformin as an internal standard. Chromatographic separation was accomplished on silica gel 60F254 plate having thickness of 200mm using mobile phase consisting of n-butanol: glacial acetic acid: ethyl acetate: water (5.5:1.5:1:2, v/v/v/v). The densitometric detection of drug and the internal standard was done at 255 nm. Protein precipitation was used to extract the drug from spiked human plasma. The developed method could give a good separation of peaks for Acyclovir and Metformin. The method was validated as per the ICH M10 guidelines. The method was found to be linear in the concentration range of 100 to 700 ng/band. Lower limit of quantitation and limit of quantitation values were found to be 60 and 338.29 ng/band respectively. The intra- and inter day precision was found to be within the specified range. The accuracy recovery studies were found to be in the range of 74.32 to 93.51%. %Relative standard deviation (RSD) was found to be in the range of 0.41-1.53%. All the parameters were found to be validated from spiked human plasma. The proposed High Performance Thin Layer Chromatography method is highly accurate and rapid for the determination of Acyclovir in human plasma and can be applied for pharmacokinetic studies and therapeutic drug monitoring.

Keywords: Acyclovir, Bioanalytical, Human Plasma, High Performance Thin Layer Chromatography

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR!!*

Nov. 12-13, 2024

TITLE: Analytical method Development and Validation for the estimation of Curcumin, Caffeic acid, Gallic acid and β-sitosterol in polyherbal formulation using HPTLC.

AUTHORS: Harshada More, Pawankumar Bawadankar, Sathiyanarayanan L*

COLLEGE ADDRESS: Poona College of Pharmacy, Paud Road, Rambaug colony, Erandwane, Pune, Maharashtra 411038

CORRESPONDING AUTHOR EMAIL ID: harshadadmore@gmail.com

ABSTRACT:

Rheumatoid arthritis (RA) is a chronic autoimmune condition affecting around 1% of the global population. Many patients experiencing chronic pain and dissatisfaction with conventional treatments often seek complementary and alternative medicine (CAM). This study aimed to develop a simple, accurate, and repeatable High-Performance Thin Layer Chromatography (HPTLC) method for the simultaneous quantification of Curcumin, Gallic acid, Caffeic acid, and β-Sitosterol. Different concentrations of standard solutions of the Curcumin, Gallic acid, Caffeic acid and β-Sitosterol were applied in triplicate on HPTLC plates. And hydroalcoholic extract of a polyherbal formulation was also analyzed. The HPTLC plates were developed using a solvent system of toluene: ethyl acetate: Formic acid (5:5:0:5v/v/v) and scanned densitometrically at specific wavelengths for each compound. Calibration curves were generated to assess linearity, and intra-day and inter-day precision were evaluated. The method demonstrated high precision, with % RSD values not exceeding 2%. Robustness was confirmed through low RSD values and stability of peak areas. Limits of Detection (LOD) and Quantification (LOQ) were established, indicating good sensitivity. Recovery studies yielded results between 95-101%, reflecting excellent accuracy. The method was validated according to ICH guidelines and successfully applied to standardize the polyherbal formulation, revealing contents of 0.017% Curcumin, 0.066% Gallic acid, 0.001% Caffeic acid, and 0.043% β-Sitosterol.

The developed HPTLC method is precise, robust, and sensitive, making it suitable for the standardization of polyherbal formulations and for broader applications in both qualitative and quantitative analyses.

KEYWORDS: Curcumin; Caffeic acid; Gallic acid; β- sitosterol; HPTLC

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: DEVELOPMENT AND VALIDATION OF UV SPECTROPHOTOMETRIC METHODS FOR SIMULTANEOUS ESTIMATION OF ANTIHYPERTENSIVE DRUGS IN THEIR MARKETED DOSAGE FORM.

AUTHORS: Jason Fernandes[1*], Avani Naik[1], Bhavna Gorade[1], Deep Shetgaonkar[1], Shweta S. Borkar[1]

COLLEGE ADDRESS:[1]Department of Pharmaceutical Analysis, Goa College of Pharmacy, 18th June Road, Panaji-403001, Goa India

CORRESPONDING AUTHOR EMAIL ID: jasonfernandes1500@gmail.com

ABSTRACT:

Current research work aimed to develop simple, precise and accurate UV spectrophotometric methods for quantitative estimation of amlodipine besylate (AMLO) and nebivolol hydrochloride (NEBI) in binary mixtures and their fixed dose combination. The principle employed was based on area under curve (AUC) and dual wavelength approach. In AUC, measurements were carried out at wavelength range of 348-372 nm for AMLO and 268-292 nm for NEBI. In case of dual wavelength, two wavelengths were selected for each drug so that the difference in absorbance would be zero for another drug. The wavelengths selected for determination of AMLO were 272.42 nm and 292.42 nm, whereas, the wavelengths selected for determination of NEBI were 234.37 nm and 239.97 nm. Validation of methods were carried out as per ICH Q2(R2) guidelines. Linearity was established over concentration range of 5-25 µg/mL for AMLO (r^2 = 0.999) and NEBI (r^2 = 0.980) in AUC approach. Whereas, in dual wavelength method, linearity was determined at concentration range of 10-26 µg/mL for AMLO (r^2 = 0.999 at 272.42 – 292.42 nm) and NEBI (r^2 = 0.993 at 234.37 – 239.97 nm). % RSD of less than 2% for intra-day and inter-day precision confirmed the precision of the methods. Accuracy of the methods was found to be in range of 98-102%. The assay results were within the range of pharmacopoeial limits. The routine analysis of fixed dose combination in terms of time and cost renders the method suitable and valid as compared to other expensive techniques using sophisticated instruments.

KEYWORDS:

amlodipine besylate, nebivolol hydrochloride, UV spectrophotometry, ICH Q2(R2) guidelines.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR!!*

Nov. 12-13, 2024

TITLE: "Development of a Simple, Fast, and Precise RP-HPLC Method for Simultaneous Estimation of Levosulpiride and Pantoprazole in Capsule Formulation"

Authors: Nikhil Shinde, Savita S. Yadav, Sangeeta R Gurav, Vividha Dhapte

College Address: Bharati Vidyapeeth (Deemed to be University) Poona College of Pharmacy, Erandwane, Pune-411038

Corresponding author email id: shindenikhil8150@gmail.com

ABSTRACT:

A simple, fast, accurate, and precise Reverse Phase High-Performance Liquid Chromatography (RP-HPLC) method was developed for the simultaneous estimation of Levosulpiride and Pantoprazole in capsule formulation (Pantin-L). The chromatographic separation was achieved using a Hypersil ODS C18 column, with a mobile phase consisting of Methanol and Phosphate buffer in the ratio of 65:35 v/v. The mobile phase was delivered at a flow rate of 1 ml/min. Detection was performed at a wavelength of 290 nm, ensuring optimal sensitivity for both analytes. The method demonstrated good resolution, with retention times of 2.713 minutes for Levosulpiride and 4.453 minutes for Pantoprazole.

This method is advantageous due to its simplicity and short run time, making it suitable for routine quality control testing. Furthermore, the method was validated for accuracy, precision, and reproducibility, adhering to quality assurance standards. The pH of the mobile phase was adjusted appropriately to enhance separation and maintain the stability of the analytes. The developed RP-HPLC method offers a reliable approach for the simultaneous quantification of Levosulpiride and Pantoprazole in pharmaceutical formulations, ensuring consistent product quality and compliance with regulatory standards.

KEYWORDS: _ Levosulpiride, Pantoprazole, Reverse Phase High-Performance Liquid Chromatography

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: DEVELOPMENT OF VALIDATED SPECTROPHOTOMETRIC METHOD FOR QUANTITATIVE ESTIMATION OF DRUGS RAMIPRIL AND HYDROCHLORTHIAZIDE IN FIXED DOSE COMBINATION.

AUTHORS: Sagar Singh, Darshani Naik, Sejal Kunkolienkar, Dr.Sachi Kudchadkar

COLLEGE ADDRESS: Department of Pharmaceutical Analysis, Goa College of Pharmacy, 18th June Road, Panaji – 403001, Goa, India.

CORRESPONDING AUTHOR EMAIL ID: sagarnpps@gmail.com

ABSTRACT:

Analytical method development and validation is important because it ensures that the analytical assays used are accurate, precise, and reliable.This research focuses on developing UV spectrophotometric method for the simultaneous determination of Ramipril(RAM) and hydrochlorthiazide(HCTZ), which are used in treatment of hypertension. The method proposed by this study for the quantification of HCTZ and RAM is the Absorption factor method in fixed dose combination.The Absorption Factor Method (AFM) was developed, in which HCTZ was determined by measuring the absorbance at 271.55nm and for RAM determination absorbance factor was calculated. Along with this absorption factor value, absorbance of mixture spectra at 27 1.55nm and 207.73 nm was also determined. After computing these values in AFM formula the resultant absorbance for RAM was determined.This developed method was validated as per ICH 02 (R1) guidelines. Linear correlations were obtained in the concentration range of 4-12 ug/mL(r^2 = 999)and 10-30 ug/mL(r^2 =0.9994)for RAM and HCTZ,respectively.The %RSD of both inter-day and intraday precision was less than 2 and accuracy was between 98-102%.Greeness assesment was conducted using AGREE and ComplexGAPI software tools.The proposed method was found to be simple, rapid,green and can be used successfully for routine simultaneous estimation of Ramipril and Hydrochlorthiazide in fixed dose combination

KEYWORDS: Ramipril(RAM), Hydrochlorthiazide(HCTZ), Absorption Factor Method, UV spectroscopy, Validation, ICH Q2(R2) guidelines.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: DEVELOPMENT OF VALIDATED SPECTROPHOTOMETRIC METHODS FOR QUANTITATIVE ESTIMATION OF DRUGS OLANZAPINE AND FLUOXETINE IN FIXED DOSE COMBINATION.

AUTHORS: Sejal Kunkolienkar, Darshani Naik, Dr.Sachi Kudchadkar

COLLEGE ADDRESS: Department of Pharmaceutical Analysis, Goa College of Pharmacy, 18th June Road, Panaji – 403001, Goa, India.

CORRESPONDING AUTHOR EMAIL ID: sejalkunkolienkar221@gmail.com

ABSTRACT:

This research work highlights UV spectrophotometric methods developed to simultaneously determine Olanzapine (OLAN) and Fluoxetine (FLU), which are anti-depressant and anti-psychotic agent, in fixed dose combination. Five novel methods were developed and optimized using distilled water as primary solvent. Method(I) is Ratio Subtraction coupled with Extended Ratio Subtraction (RS-ERS), where OLAN and FLU was determined at wavelength 252.80nm and 226.20nm using FLU 8µg/mL and OLAN 4µg/mL as a divisor respectively. Method(II) is Ratio Difference (RD) method where OLAN and FLU were estimated by measuring the amplitudes difference between 247.80nm and 266.00nm on the ratio spectrum of FLU(8µg/mL) and between 226.40nm and 245.55nm on the ratio spectrum of OLAN(4µg/mL). Method(III) is ratio subtraction coupled with constant multiplication (RS-CM) method, where OLAN was determined using ratio subtraction method at 252.80nm, whereas FLU was determined by constant multiplication method at 226.20nm using FLU 8µg/mL and OLAN 4µg/mL as a divisor respectively. Method(IV) is Dual Wavelength method, where OLAN was determined by measuring the absorbance difference of 247.80nm and 276.00nm and FLU was determined using absorbance difference of 235.40nm and 259.60nm. Method(V) is Absorption Factor Method (AFM), in which OLAN was determined by measuring the absorbance at 290.77nm and for FLU determination the absorption factor was calculated. Validation of developed methods were done as per ICH guidelines Q2(R2).The assay results were linear over range of 4-12µg/mL and 8-24µg/mL for OLAN and FLU, exhibiting good correlation coefficient, precision and accuracy.The proposed methods were found to be simple, reproducible, green and economical for routine analysis.

KEYWORDS: Olanzapine, Fluoxetine, Ratio Subtraction, Extended Ratio Subtraction, Ratio Difference, Constant Multiplication, Dual Wavelength, Absorption Factor Method, UV spectrophotometry, validation, ICH Q2(R2) guidelines.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

TITLE: DEVELOPMENT OF SPECTROPHOTOMETRIC METHODS FOR QUANTITATIVE ESTIMATION OF ANTIHYPERTENSIVE DRUGS INCLUDING ITS APPLICATION IN THEIR MARKETED FORMULATION: GREEN ANALYTICAL CONCEPT.

AUTHORS: Shrutika Morajkar[1]*,Prachi Parsekar[1], Shweta Borkar[1], Anand Mahajan[1], Adison Fernandes[1]

COLLEGE ADDRESS:[1]Department of Pharmaceutical Analysis, Goa College of Pharmacy, 18th June Road, Panaji – 403001, Goa, India.

CORRESPONDING AUTHOR EMAIL ID: shrutikamorajkar7603@gmail.com

ABSTRACT:

The present research work highlights the quantitative estimation of hydrochlorothiazide (HYD) and atenolol (ATN) using novel, precise and accurate UV spectrophotometric methods. The methods used are ratio subtraction coupled with extended ratio subtraction (RS-ERS), ratio difference (RD) and absorbance correction method (ACM). All the solutions were prepared using methanol and water (50:50 v/v) as a solvent. HYD and ATN were determined using RS-ERS method at a wavelength of 271 nm and 225 nm respectively. The concentration of 12 µg/mL HYD and 24 µg/mL ATN were selected as divisor concentration to obtain ratio spectra. In RD method, concentration of HYD and ATN were determined using amplitude difference (ΔP) between 220.20 nm - 264.58 nm on the ratio spectra of ATN and between 218.18 nm - 238.58 nm on the ratio spectra of HYD. In ACM, HYD and ATN were determined using the concept of absorbance correction at a wavelength of 319 nm and 225 nm respectively. The developed methods were validated in accordance to ICH Q2(R2) guidelines. Linearity was established at concentration range of 3 - 15 µg/mL for HYD (r^2 = 0.999) and 6 - 30 µg/mL (r^2 = 0.999) for ATN. The % RSD was found to be less than 2% for intra-day and inter-day precision. Accuracy of the methods was within 98-102 %. Proposed methods were evaluated for greenness using AGREE and ComplexGAPI. The proved reliability and effectiveness of the developed methods encourages its wide use for the routine quality control analysis for its marketed formulations.

KEYWORDS: hydrochlorothiazide, atenolol, ratio subtraction coupled with extended ratio subtraction, ratio difference, absorbance correction method, UV spectroscopy, ICH Q2(R2) guidelines, green analytical concept

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: GREEN UV SPECTROPHOTOMETRIC ANALYSIS: SIMULTANEOUS DETERMINATION OF ANTIHYPERTENSIVE DRUGS AND ITS APPLICATION IN THEIR FIXED DOSE COMBINATION.

AUTHORS: Tejaswi Naik[1*], Aditya Pagi[1], Shweta Borkar[1], Anand Mahajan[1], Adison Fernandes[1]

COLLEGE ADDRESS: [1]Department of Pharmaceutical Analysis, Goa College of Pharmacy, 18th June Road, Panaji – 403001, Goa, India.

CORRESPONDING AUTHOR EMAIL ID: naiktejasvi2017@gmail.com

ABSTRACT:

The objective of present research work was to develop novel, precise and accurate UV spectrophotometric methods based on ratio subtraction coupled with constant multiplication (RS-CM), area under curve (AUC) and ratio difference (RD) approach for simultaneous estimation of telmisartan (TEL) and efonidipine hydrochloride ethanolate (EFO) in fixed dose combination. All the solutions were prepared using methanol and water (50:50 v/v) as a solvent. In RS-CM, TEL and EFO was determined at wavelength 296.2 nm and 250.8 nm using 15µg/mL TEL and 20µg/mL EFO as a divisor respectively. In AUC, measurements were carried out at wavelength range of 287–307 nm for TEL and 240.6–260.6 nm for EFO. For RD, the amplitude difference between two selected wavelengths on the ratio spectra were recorded and used for estimation of TEL and EFO at ΔP 297.5 nm – 250.5 nm and ΔP 250.5 nm – 297.5 nm respectively. Validation of the method was carried out as per ICH Q2(R2) guidelines. Linearity was established for TEL and EFO at concentration ranges of 5 - 25 µg/mL. Good correlation coefficient values were found for TEL (r^2 = 0.999) and EFO (r^2 = 0.999). Percentage relative standard deviation (% RSD) value of less than 2% for intra-day and inter-day precision confirmed the precision of the method. Accuracy of method was found to be in the range of 98-102%. Greenness of the methods were evaluated using AGREE and ComplexGAPI software's rendering the developed method ideal for ongoing quality control evaluations of the fixed dose combination.

KEYWORDS: telmisartan, efonidipine hydrochloride ethanolate, ratio subtraction coupled with constant multiplication, area under curve, ratio difference, UV spectroscopy, ICH Q2(R2) guidelines, green chemistry.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: In Silico Modeling and Bioanalytical Method Optimization for Simultaneous Determination of Trigonelline and Glipizide in Rat Plasma

Authors: Trushna Chaudhari, Shruti Sreedharan, Sathiyanarayanan L.

College Address: Poona College of Pharmacy, Erandwane, Pune, Maharashtra 411038

CORRESPONDING AUTHOR EMAIL ID:
trushnschaudhari@gmail.com

ABSTRACT:

Trigonella foenum-graecum L. (TFG) is a widely used medicinal plant in South Asia, known for treating various ailments such as fever, cold, inflammation, diarrhea, and infectious diseases. Its extract and key bioactive compound, Trigonelline (TG), exhibit a range of pharmacological properties, including anti-microbial, anti-diabetic, anti-cancer, anti-cholesterolemic, and anti-inflammatory effects. TG, a constituent of TFG, has been shown to inhibit cytochrome P450 enzymes, particularly CYP2C9 and CYP3A4, and exhibits a synergistic effect when combined with the anti-diabetic drug Sitagliptin. Glipizide (GPZ) is metabolized by CYP2C9 and CYP3A4 to form inactive metabolites, this study focuses on developing a validated high-performance liquid chromatography (HPLC) method for the simultaneous estimation of TG and GPZ in rat plasma. The method employs a mobile phase consisting of acetonitrile, methanol, and water (80:10:10 v/v) with a flow rate of 1 mL/min and detection at 222 nm, optimized for 20-minute analysis.The optimization shows good resolution of both drugs GPZ & TFG at RT of 6.3 min & 16.2 min respectively.In silico study involved molecular docking of TG and GPZ with CYP2C9, CYP3A4, and the SUR1 receptor. Notably, TG and GPZ shared two common interaction residues (ARG97 and ARG124) with CYP2C9 but had no overlapping residues with CYP3A4 or SUR1. The docking scores for TG and GPZ with CYP2C9 were -5.7 and -9.7, respectively, suggesting that TG may inhibit CYP2C9, prolonging the presence of GPZ in the system. This developed HPLC method and in silico analysis can facilitate pharmacokinetic studies of TG and GPZ in rats.

KEYWORDS: Trigonella foenum-graecum L., Glipizide, RP-HPLC, In-silico Study.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR!!*

Nov. 12-13, 2024

TITLE: "Stability indicating method development and validation for simultaneous estimation of Vildagliptin and Dapagliflozin by using RP-HPLC"

Authors: Tushar Mahajan, Savita S. Yadav, Shivani Deshmukh and Vividha Dhapte

College Address: Bharati Vidyapeeth (Deemed to be University) Poona College of Pharmacy, Erandwane, Pune-411038

Corresponding author email id:
tusharcm2000@gmail.com

ABSTRACT:

The study focuses on stability-indicating HPLC method for simultaneous determination of Vildagliptin and Dapagliflozin in pharmaceutical dosage form. Vildagliptin (VD) and Dapagliflozin (DP) were determined simultaneously by RP-HPLC using an ultraviolet (UV) detector, a Hypersil Gold C18 (250 × 4.6 mm) column, 5 µm and a mobile phase of acetonitrile: water (adjusted with O-Phosphoric acid to pH 3) in ratio 40: 60% v/v. The estimation wavelength was chosen to be 213 nm. VD and DP were shown to have retention times of 2.9 and 8.3 minutes, respectively. VD and DP correlation coefficient R^2 values were found to be 0.9993 and 0.999, respectively. Linearity were found over a concentration range of 1 to 6 µg/mL for DP and 10 to 60 µg/mL for VD. The precision and accuracy studies show % relative standard deviation (% RSD) below 2 %. Percent recovery was assessed to meet the ICH Q2 (R1) guidelines criteria. A forced degradation studies were conducted under various stress conditions (Acid-base hydrolysis, heat, light, and oxidation) to confirm the stability-indicating nature of the method. The presented research on forced degradation showed stability indicating studies. The findings also demonstrated that the suggested method is suitable for determining VD and DP precisely and accurately.

KEYWORDS: Vildagliptin, Dapagliflozin, Forced degradation studies, HPLC, Validation.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR!!*

Nov. 12-13, 2024

TITLE: Multi-pathway targeting in Alzheimer's disease: molecular docking analysis of six major constituents of Vetiveria zizanoides with key receptors.

AUTHORS: Yashashree Sawant, Dr. Deepali Jagdale, Sampada Bhosale, Gayatri Nadar

COLLEGE ADDRESS: Bharati Vidyapeeth's College of Pharmacy, sector-8, C.B.D. Belapur, Navi Mumbai – 400614.

CORRESPONDING AUTHOR EMAIL ID: syashashreec@gmail.com

ABSTRACT: (Not more than 250 words)

Alzheimer's disease is a leading cause of dementia, characterized by progressive cognitive decline and significant impairment in daily activities. The present molecular docking study explored the binding affinities of six major constituents from Vetiveria zizanoides along with the standard drug donepezil against eight key receptors involved in Alzheimer's disease, which include GSK-3, NMDA, SIRT1, TLR4, PP2A, and BACE-1, using AutoDock Vina software. The results revealed that the compounds exhibited notable binding interactions with these targets, highlighting the crucial role of the aliphatic carbonyl group in the therapeutic potential. Furthermore, the presence of aromatic hydroxy and methoxy groups was found to engage multiple pathways involved in AD pathology. These findings underscore the need for further preclinical and clinical investigations aimed at developing effective multi-target therapies for this complex neurodegenerative disorder.

KEYWORDS: Alzheimer's, Molecular Docking, Vetiveria zizanoides, Neurodegenerative, AutoDock Vina.

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: Catalyzing Commercialization: Empowering Indian Academia to Transform Patents into Market Solutions

AUTHORS: Akshay Khandke*, Satish Mandlik, Atmaram Pawar

COLLEGE ADDRESS: BVDUs Poona College of Pharmacy, Paud Rd, Rambaug Colony, Erandwane, Pune, Maharashtra 411038

CORRESPONDING AUTHOR EMAIL ID:
akshay.khandke@bharatividyapeeth.edu
akshaykhandke7@gmail.com

ABSTRACT: (Not more than 250 words)

This research rigorously examines patent data gathered through comprehensive surveys and interviews conducted with various pharmacy institutes across India, revealing significant opportunities for the commercialization of patents related to treatments for diseases such as cancer and neurodegenerative disorders. A sample size of 500 patents were studied to identify potential patents oriented towards the disease mitigation. The primary focus of this study was to analyze patents specifically related to neurodegenerative diseases; however, the scope may expand to include other diseases in future investigations.

Neurodegenerative diseases impact over 50 million individuals worldwide, with Alzheimer's disease constituting approximately 60-70% of these cases. Currently available treatments predominantly emphasize symptom management rather than addressing the underlying pathophysiology. The commercialization of innovative formulations, such as microemulsions, has the potential to bridge this critical gap by offering effective therapeutic alternatives.

A notable example among the surveyed patents is the "Curcumin Microemulsion Formulation," which exemplifies an advanced drug delivery system. Existing therapeutics for neurodegeneration, including Donepezil and Rivastigmine, frequently result in adverse effects such as nausea and diarrhea, which can compromise patient adherence. In contrast, this patented microemulsion formulation offers enhanced bioavailability and a potentially safer therapeutic profile.

The market for neurodegenerative drugs is anticipated to reach $12.5 billion by 2026, highlighting the economic viability of novel treatments. This research seeks to identify barriers to commercialization and propose strategies for enhancing innovation management within academic institutions, ultimately transforming research outputs into valuable assets and strengthening India's position in the global knowledge economy.

KEYWORDS: Neurodegenerative Diseases, Curcumin Microemulsion, Patent Commercialization, Innovation Management, Academic Institutions

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: ***Role of IPR !!***

Nov. 12-13, 2024

TITLE: Assessment of Knowledge, Attitude and Practice (KAP) for the administration of vaccinations to the paediatric population in Goa.

AUTHORS: Amogh Naik, Jeanne Da Vitoria Lobo, Neha Gouli, Shruti Shinde, Abhishek Hattaraki, Dr. Liesl M.F. Mendonca

COLLEGE ADDRESS: Goa College of Pharmacy, 18th June Road, Panaji- Goa, 403001

CORRESPONDING AUTHOR EMAIL ID: naika227@gmail.com

ABSTRACT: (Not more than 250 words)

Immunization is vital for preventing millions of deaths each year from diseases like diphtheria, tetanus, measles etc. Vaccines not only help control infectious disease outbreaks but also provide societal benefits. Parents' knowledge about immunization is crucial, as it influences vaccination rates. While vaccines protect against severe childhood diseases, some parents hesitate to follow recommended schedules due to concerns about safety, side effects, and the belief that their child may not contract the disease. Thus, addressing parental knowledge, attitudes, and practices regarding vaccination are crucial, contributing to saving lives, protecting future generations, reducing healthcare costs, and averting disabilities through timely immunization and interventions. A study was carried out with a sample size of 150 participants from rural and urban settings in Goa, through a structured questionnaire, obtaining consent through a consent form and screened using a convenient sampling method. The Institutional Ethics Committee at the Directorate of Health Services approved the study. While assessing the knowledge of the parents, it was revealed that 98% (3.7 ± 0.52) agreed that children should be immunized against certain diseases. Regarding attitudes, 28% (2.0 ± 1.28) of participants expressed a preference against the use of over-the-counter medications for managing fever post-vaccination. In practice, 8% (3.6 ± 0.70) admitted they may have missed some important vaccinations. A considerable number of respondents depicted sound knowledge about vaccines, their uses and the benefits of vaccinating their children. The participants also demonstrated a positive attitude and practice towards vaccinating their children periodically.

KEYWORDS: KAP study, Vaccination, Parents, Survey, Prevention

9th Annual International Conference on IPR

SUSTAINABLE PROSPERITY: *Role of IPR !!*

Nov. 12-13, 2024

TITLE: A case study on anorectal fistula

AUTHORS: Dr. Padmaja S. Kore

COLLEGE ADDRESS: P.E.S Modern college of pharmacy Nigdi, Pune 44.

CORRESPONDING AUTHOR EMAIL ID: utkarshamcop2002@gmail.com

ABSTRACT: (Not more than 250 words)

Anal fistula is a frequent benign illness, however the complex variety poses a challenge in clinical practice. This case was notable for its extended medical history and complicated clinical presentation. The diseases appearance is complex and unusual due to its long-term development. We made a precise diagnosis of anal fistula using medical imaging examinations, and subsequently performed a fistulectomy to correct it. During the post-operative period, the patient made a good recovery. The treatment of complex anal fistulas is the most important factor to consider. Currently, surgery is the most common way of treatment, with the goal of improving prognosis and lowering complications. Anal fistula can be treated with stem cells, which are both safe and effective.

KEYWORDS: Treatment of a complex anal fistula, Case report

TITLE: Administration of Medications for Soil transmitted Helminthiasis (STH) and Diarrhoea to the children in Goa - a KAP study.

AUTHORS: Jeanne Da Vitoria Lobo, Amogh Naik, Neha Gouli, Shruti Shinde, Abhishek Hattaraki, Dr. Liesl M.F. Mendonca

COLLEGE ADDRESS: Goa College of Pharmacy, 18th June Road, Panaji- Goa, 403001

CORRESPONDING AUTHOR EMAIL ID: jeannemdavitorialobo@gmail.com

ABSTRACT: (Not more than 250 words)

The availability of medications has led us to believe that common illnesses like Soil-Transmitted Helminthiasis (STH) and Diarrhoea are not that serious. However, several children have succumbed to these illnesses. The lack of awareness amongst parents or guardians about the cause and transmission of common diseases and administration of medications can result in suboptimal health outcomes for children. Hence, knowledge, attitude and practice (**KAP**) are crucial factors to be measured in order to understand the mindset of parents and guardians and aid in preventing and treating diseases. A survey was carried out with a sample size of 150 participants from rural and urban settings in Goa, through a structured questionnaire, obtaining written consent and screened using a convenient sampling method. The Institutional Ethics Committee at the Directorate of Health Services approved the study. When assessing knowledge of STH, 5.32% (3.52 ± 0.85) were unaware of its cause. In terms of attitude, 18.66% (3.26 ± 1.04) did not take deworming tablets at the right time. Regarding practice, 8.66% (2.77 ± 0.97) do not deworm their children every 6 months. Regarding diarrhea, 22% were unfamiliar with its definition. In attitude, 29.32% (2.06 ± 1.18) believed reducing water intake during diarrhea is appropriate. In practice, 10% (3.4 ± 0.82) do not seek medical help for their child's diarrhea. We concluded that a majority of the participants had substantial knowledge about these ailments, their attitude towards health-seeking behaviour was deemed adequate and positive healthcare practices were critical components in managing these ailments effectively.

KEYWORDS: KAP study, Diarrhoea, Soil-Transmitted Helminthiasis, Parents, Survey, Questionnaire