NATIONAL CONFERENCE ON NOVEL PHARMACEUTICAL ADVANCEMENTS

Dr. Shingade S. G.
Dr. Bhat M. R.
Dr. Raut R. G.
Mr. Shaikh K. A.

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Editors

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TITLE : National Conference On Novel Pharmaceutical Advancements

E-ISBN : 978-93-945102-7-2

Editor : Dr. Shingade S. G., Dr. Bhat M. R., Dr. Raut R. G., Mr. Shaikh K. A.

Price : 149/- INR

Published by : Cape Comorin Publisher Kanyakumari, Tamilnadu, India

Website : www. capecomorinpublisher.com

Imprint at : Cape Comorin Publisher Kanyakumari, Tamil Nadu, India

CONTENTS

15	Miss Jadhav P. G.	In both tablet and bulk dosage forms, RP-HPLC techniques were used for the design and validation of the drug felodipine.
16	Miss Shetkar S. U.	Formulating, designing, developing, and testing etodolac glycol derivatives using natural polymers
17	Mr. Sorate R. C.	The formulation procedure involves creating levetiracetam oral dispersible pills.
18	Mr. Naik S. S.	Limb stromal cells had greater expression than bone marrow, adipose-derived, and foreskin fibroblasts.Mr.
19	Mr. Zikriya A. I.	The use of subcutaneous DL is beneficial for the survival of human embryonic stem cells.
20	Miss Phadte D. D.	Boceprevir Estimation in Pharmaceutical Formulations and Bulk by Spectrophotometry.
21	Miss Kothavale T. R.	As prospective new antihistamines, 5-[2(3)-dialkylamino alkoxy] indole 2,3-diones were developed, produced, and biologically assessed.
22	Mr. Shinde A. S.	Bombax malabaricum extracts were investigated for their potential to decrease alloxan-induced hyperglycemia in rats.
23	Mr. Rajguru R. L.	Use of water-soluble carriers to improve the solubility of a low-quality medication
24	Mr. Thanekar A. M.	Methyl-2-(2-(Arylideneamino) Oxazol-4-Ylamino) Benzoxazole-5-carboxylate derivatives were developed, synthesized, and biologically tested as possible anti-inflammatory drugs.
25	Miss Mainkar A. G.	synthesis of a novel series of diphenyl-1,2,4-triazoles and derivatives with anti-inflammatory activity

Development and validation of an RP-HPLC method for Digatran Etexilate Mesylate and its degradation studies.

Dr. Shingade S. G.

Professor, Shaneshwar Shikshan Prasarak Mandal's VP College of Pharmacy

ABSTRACT

A cost-effective and reliable RP-HPLC method has been developed for the measurement of Dabigatran Etexilate Mesylate in capsules, ensuring simplicity, precision, accuracy, and repeatability. The experiment included the use of quantitative High Performance Liquid Chromatography (HPLC) utilizing a SHIMADZU LC 20AT instrument with Spin Chrome Software and a UV-Visible Detector (SPD-20A). A PHENOMENEX Luna C18 column (5µm, 250 x 4.6mm) was used for the analysis. This study used a mobile phase consisting of a mixture of 70% methanol and 30% water. The optimized parameters included a flow rate of 1.2 ml/minute, a wavelength of 230 nm, a run time of 10 minutes, and a column temperature of 500C. The retention time measured was 4.60 minutes. The linear relationship was seen within the concentration range of 0-25 g/ml. The proposed methodology was evaluated using commercially accessible Paradaxa tablets containing Dabigatran Etexilate Mesylate. The tablet had a dosage of 75 milligrams of medicine. Validation investigations and statistical analysis corroborated the analytical findings. The recovery trials demonstrated a 96.67% accuracy rate for the proposed technique. Drug accuracy was quantified by assessing its repeatability, as well as the variance seen between different days and within the same day, expressed as the percentage relative standard deviation (%RSD). The examination of medication stability was conducted using a specific approach.

Key Words: HPLC, method validation, Dabigatran Etexilate Mesylate, precision, stability studies

Comparative studies aimed at enhancing the dissolution of pitavastatin

Dr. Bhat M. R.

Professor, Shaneshwar Shikshan Prasarak Mandal's VP College of Pharmacy

Abstract:

This study employs liquisolid technology and solid dispersions to enhance the solubility, dissolution, and bioavailability of pitavastatin. Liquisolid compacts were produced using various proportions of polyethylene glycol 400, microcrystalline cellulose, and colloidal silicon dioxide. Solid dispersions were created using various carrier ratios of polyethylene glycol 6000 (1:2, 1:4, 1:6, 1:8). Each formulation was assigned certain physical attributes in order to comply with pharmacopoeial limitations. The invitro dissolution characteristics of liquisolid and solid dispersions were compared to those of the pure pitavastatin tablet formulation in a 0.1N hydrochloric acid solution. The liquisolid tablets containing microcrystalline cellulose exhibited a drug release rate of 63±2.42% after 5 minutes, which was much higher than the drug release rate of 13±1.44% seen with the pure drug. This improvement may be attributed to the enhanced wetting properties of the formulation.

Outer layer of a medication that can be dissolved. FTIR spectrum analysis revealed the absence of any interaction between the medication and excipient.

Key words: Liquisolid technologies, solid dispersions, pitavastatin, PEG6000.

The development of metronidazole-loaded microspheres for the production of modified release tablets.

Dr. Raut R. G.

Professor, Shaneshwar Shikshan Prasarak Mandal's VP College of Pharmacy

ABSTARCT:

This study develops and assesses metronidazole pills that specifically target the colon, utilizing natural polysaccharides. Developing formulations using natural polysaccharides to enhance the duration of medicine release in the stomach and small intestine. Analyze the patterns of drug release. Utilizing kinetic models for an optimized formulation. Formulations F1-F3, which included tamarind gum in different ratios, released up to 95% of the drug after 12 hours, as seen in dissolving studies conducted without caecum content. The gum karaya formulations (F4-F6) achieved a drug release rate of 97% during a duration of 10 hours. Formulations containing locust bean gum (F7-F9) exhibited a drug release rate of 95% for a duration of 8 hours. After a duration of 20 hours, the mixture of tamarind gum and gum karaya successfully released 97.8% of the drug. Formulations (F1-F3) with different ratios of tamarind gum released 93-96% of the medicine in dissolving medium, including rat caecum, after 11 hours.The gum karaya formulations (F4-F6) exhibited a drug release rate of 94-97% over a period of 9 hours. The formulations using locust bean gum (F7-F9) released 92% to 98% of the drug within 7 hours. On the other hand, the formulations including tamarind gum and gum karaya released 97.8% and 96.5% of the medication between 12 and 16 hours, respectively. The optimized formulation F11 underwent testing utilizing Zero-order, First-order, Higuchi order, Peppas model, and Hixson-Crowell model kinetics.The R^2 value of 0.9093 suggests that medicine release adheres to a zero-order pattern.

Key words: Disssolution, Peppas model, HPβCD and TPD-Z .

Formulation and Development of Fast Dissolving Tablets (FDTS) Containing Sumatriptan Succinate Using a Straightforward and Economical Approach

Mr. Shaikh K. A

Assistant Professor, Shaneshwar Shikshan Prasarak Mandal's VP College of Pharmacy

Abstract:

For the treatment of migraines, this research seeks to develop a fast-dissolving sumatriptan succinate tablet in order to reduce latency time and accelerate action. The development of fast-dissolving tablets (FDTs) containing sumatriptan is proceeding using a straightforward and economical approach. Tablets containing superdisintegrants including polyplasdone XL, polacrilin potassium, primogel, L-HPC, pregelatinized starch, pearlitol SD 200, and spray-dried lactose were manufactured via direct compression. Incorporate flavoring and sweetness into the medication to enhance its palatability. Determine the appropriate disintegrant and diluent for sumatriptan succinate tablets that dissolve rapidly. For fast-dissolving tablets, F14 containing 5% polyplasdone was the optimal formulation. The rate of drug release is 92.0% after 5 minutes and 98.17 percent after 10 minutes. The results for the suminat-25 product were comparable. The results of the optimization indicate that the process of developing tablets containing fast-dissolving sumatriptan succinate was uncomplicated and economical.

Key words: Sumatriptan succinate, Primogel,L-HPC, Pearlitol SD 200 and Polacrilin potassium

Reformulated Tablets Loaded with Antibiotic Microspheres

Miss Khade S. M.

Assistant Professor, Shaneshwar Shikshan Prasarak Mandal's VP College of Pharmacy

ABSTRACT:

This study develops and tests a novel formulation to improve the bioavailability of Ziprasidone and Flurbiprofen Inclusion Complexes, which are extremely permeable and weakly soluble. Drug cyclodextin inclusion complexed tablets were prepared using microcrystallinecellulose (Avicel101), sodiumstarchglycolate, Croscarmelose sodium, and Cross povidone, according to the literature. If released efficiently, inlusion complexed tablets may increase bioavailability of weakly water-insoluble medications like ziprasidone and flurbiprofen. This was the reasoning of the current investigation. Experimental data support complexation technology as a viable medication release method. F23 had double the drug release rate of TPD-Z, F11, and TPD-F in inclusion complexed systems. This may be related to HPβCD.Drugs complexed with HPβCD had a higher surface area exposed to dissolution medium, as the inclusion complexed formulations suspended drug molecules after disintegration.

As a molecular dispersion, the formulation may improve drug release by complexing the medication with HPβCD.

Key words: Microspheres, microcrystalline cellulose, HPβCD and TPD-Z .

The antimicrobial qualities of leaves of Jasminum grandiflorum Linn

Miss Patil R. N.

Assistant Professor, Shaneshwar Shikshan Prasarak Mandal's VP College of Pharmacy

ABSTRACT:

Using the agar diffusion method, extracts of Jasminum grandiflorum Linn (Oleaceae) were examined for their capacity to suppress bacterial growth in vitro. The outcomes were contrasted with those obtained using penicillin, a common antibacterial therapy. Aqueous extract of the plant's leaves, petroleum ether, chloroform, acetone, and methanol were tested against Staphylococcus aureus, Bacillus subtilis, Escherichia coli, and Pseudomonas aeruginosa as test organisms. Out of all the extracts that were looked at, the petroleum ether, methanol, and aqueous extracts were the most effective against all four of the bacteria that were studied.

The only bacteria that were vulnerable to Pseudomonas aeruginosa and Bacillus subtilis's impacts were those that were derived from it. The most effective treatment for Pseudomonas aeruginosa and Escherichia coli was acetone extract. Some of the terms linked to this research include in vitro antibacterial activity, Jasminum grandiflorum Linn, Bacillus subtilis, Staphylococcus aureus, Escherichia coli, and Pseudomonas aeruginosa.

Isolation and quantification of chemical elements, therapeutic and cosmetic potential of Jasminum grandiflorum Linn.

Miss Vaidya M. A.

Assistant Professor, Shaneshwar Shikshan Prasarak Mandal's VP College of Pharmacy

ABSTRACT:

Both humans and animals rely on plants. Natural plants surpass artificial drugs in their medicinal properties, and the natural world offers a plethora of therapeutic plant species. Jasminum grandiflorum Linn., a nocturnal flowering plant belonging to the Oleaceae family, synthesizes methyl jasmonates. These compounds play crucial roles in plant defense mechanisms, fruit maturation, growth decline, and several physiological activities. Jasminum grandiflorum Linn., a fragrant shrub native to tropical and warm temperate areas, with several therapeutic applications. Ayurveda use the leaves for the treatment of wounds. Plant flowers are used to decorate women's hair. This article presents a current evaluation of Jasminum grandiflorum Linn, with a specific emphasis on the isolation and measurement of its chemical components, its potential for therapeutic use, and the patents related to its use in medicinal and cosmetic formulations.

A technique using reversed-phase high-performance liquid chromatography (RP-HPLC) was developed and validated to estimate the dose of lamotrigine in tablets.

Miss Tanvi Santosh Gayak.

Assistant Professor, Shaneshwar Shikshan Prasarak Mandal's VP College of Pharmacy

ABSTRACT

A high-performance liquid chromatographic approach has been developed and validated to analyze lamotrigine in commercial pharmaceutical products. This technique is easy, sensitive, and accurate, making it suitable for identifying the presence of the chemical. The compounds were effectively separated on a BDS Hypersil C18 reverse phase column using a mobile phase composed of a mixture of phosphate buffer and acetonitrile in a 40:60 volume/volume ratio. The separation was achieved with a flow rate of 1.0 millilitre per minute and a detection wavelength of 248 nanometers. The technique was verified using many criteria, such as linearity, precision, accuracy, specificity, robustness, and solution stability. To establish the suitability of the technique for regular quality control analysis of the drug, it is crucial to highlight that the study may be completed within a mere 10 minutes.

Key words: Lamotrigine , RP-HPLC.

Create and test a novel Rp-Hplc technique for calculating bulk medication and pharmaceutical tablet pyridoxine hydrochloride and doxylamine succinate.

Mr. Bharati V. P.

Assistant Professor, Shaneshwar Shikshan Prasarak Mandal's VP College of Pharmacy

Abstract:

This work devised a straightforward, speedy, precise, precise, replicable reverse phase high performance liquid chromatographic method for concurrently quantifying pyridoxine hydrochloride and doxylamine succinate in doxinate tablets. The chromatographic separation was performed using an Inertsil ODS RP C18 column with dimensions of 4.6×250mm and a particle size of 5µm. The mobile phase consisted of a mixture of phosphate buffer with a pH of 3 ±0.02, ortho phosphoric acid, and acetonitrile in a ratio of 50:50. The separation was carried out at a flow rate of 1.0 ml/min, and the detection wavelength was set at 263nm. Pyridoxine hydrochloride had a retention time of 2.35 minutes, whereas doxylamine succinate had a retention time of 4.80 minutes. The suggested technique adheres to ICH criteria for accuracy, precision, linearity, range, and resilience. Pyridoxine hydrochloride and doxylamine succinate exhibited a linear relationship throughout the concentration range of 25µg to 150µg, with correlation values of 0.999 and 0.999, respectively.The RSD (Relative Standard Deviation) for method precision was 0.76 and 0.82, while the system precision was 0.80 and 0.71. The recovery of pyridoxine hydrochloride and doxylamine succinate ranged from 99.18% to 99.48%. The technique remains dependable even when there is a ±5% deviation in the mobile phase and reduced flow conditions. This technique is effective for routine analysis of API (Active Pharmaceutical Ingredient) and pharmaceuticals including pyridoxine hydrochloride and doxylamine succinate.

Keywords: Pyridoxine hydrochloride and Doxylamine succinate, RP-HPLC, Method development, Method validation.

The use of RP-HPLC for the aim of developing and verifying a technique for CAPTOPRIL

Miss Shet Narvekar V. G.

Assistant Professor, Shaneshwar Shikshan Prasarak Mandal's VP College of Pharmacy

ABSTRACT

It has been demonstrated that an isocratic reversed phase high-performance liquid chromatographic (RP-HPLC) approach may be used for the purpose of measuring the quantity of captopril that is contained in active pharmaceutical ingredients (API), dose formulations, and human blood. Chromatographic separation was achieved using SYMMETRY C18 150X4.6mm, 3.7µm columns. The flow rate was set at 1.0 mL min-1, and the detector was set at 272 nm. The environmental temperature was maintained throughout the process. Methanol and water were combined at a proportion of 70:30 volume/volume to form the mobile phase. With the addition of phosphoric acid at a concentration of 85%, the pH of the mobile phase was brought down to 3.0, which was successfully accomplished. A linear association was seen between the calibration curves and the range of 5-25 µg mL-1, with a correlation value of ± 0.999 representing the degree of correlation. Both the limit of detection (LOD) and the limit of quantification (LOQ) were discovered to fall within the range of 0.4 to 2.3 µg mL-1. Both within and between runs, the precision and accuracy values varied from 98.0 to 102%. This was the case for both sets of data.

KEYWORDS: Captopril, Diuretics, RP-HPLC.

The creation of formulations and the in vitro testing of tablets containing escitalopram that have an instant release mechanism

Miss Chari A. G.

Assistant Professor, Shaneshwar Shikshan Prasarak Mandal's VP College of Pharmacy

Abstract

The objective of this study is to produce a formulation for Escitalopram tablets that has a rapid release, with the goal of significantly increasing the bioavailability of these pills and reducing the negative effects that they have. In order to characterize escitalopram precompression blends, the angle of repose, bulk density, tapped density, Carr's index, and Hausner's ratio were taken into consideration. These qualities were taken into account after careful consideration. The precompression mix indicates that the flow ability and compressibility of all of the batches are good to fair. This signifies that the flow ability of the batches is great. In order to produce tablets with quick release, a number of different polymers, such as PEG 6000, Croscarmellose sodium, and Sodium-starch glycolate, were compressed in a range of concentration ratios. The tablets were manufactured with the help of these polymers. When it came to the pills that were manufactured, there were a variety of quality control features that were investigated before they were released. Every single test that was performed on the tablets was successful. It was determined that the F7 formulation, which included the drug in addition to Croscarmellose sodium, had the most favorable outcomes, which were 98.12 percent after 45 minutes. In each and every one of the formulas, this was the case. Consequently, it was evident from the dissolving data that the F7 formulation is the best formulation. This was clearly shown. via the execution of further study, including tests that are carried out in vitro.

Keywords: Escitalopram, PEG 6000, Croscarmellose sodium and Sodium-starch glycolate,Immediate release.

Propranolol-containing gastroretentive floating tablet formula development

Miss Parab A. A.

Assistant Professor, Shaneshwar Shikshan Prasarak Mandal's VP College of Pharmacy

Abstract:

The purpose of this research was to produce and evaluate floating tablets containing propranolol that are gastro-retentive. The Components and Procedures: Propranolol hydrochloride is an antihypertensive medication. An acute myocardial infarction is the most common indication for its usage. As a result, the current research developed a propranolol gastro-retentive drug delivery method that combines swelling polymer and wet granulation. Weight fluctuation, hardness, friability, drug content, and in-vitro dissolution were all evaluated for each and every formulation. These gastro-retentive dosage forms are made using hydroxypropylmethylcellulose-K4M (HPMC-K4M), which allows for the production of sustain-release tablets that remain in the stomach for a longer period of time and distribute the medication to the stomach. In terms of statistics: In tablets, the Fourier transform infrared spectrum reveals that the medicine and polymer are compatible. Within a period of twelve hours in vitro, the F2 formulation was able to release 99.14% of its medicine. After compression, the pre- and post-compression properties of every formulation were found to be within the pharmacopoeial limits. According to the findings of the dissolution tests, formulation F2, which contains 50 mg of HPMC-K4M, 25 mg of sodium bicarbonate, 25 mg of polyvinylpyrrolidone K30, 1.5 mg of magnesium stearate, and 1.5 mg of Talc, is the most effective formulation. F2 has a buoyancy lag of forty seconds and a floating endurance of twelve hours. According to this study, HPMC-K4M floating tablets, which are made of a hydrophilic polymer, have the ability to increase the gross register tonnage of stomach dissolving fluid, which in turn helps to extend the delivery of drugs.

Keywords: Wet granulation, propranolol, hydroxypropylmethylcellulose-K4M, gastrointestinal medication delivery method.

ZOLMITRIPTAN ODT is the subject of this research, which focuses on the formulation design and development process.

Miss Rane V. G.

Assistant Professor, Shaneshwar Shikshan Prasarak Mandal's VP College of Pharmacy

ABSTRACT:

Zolmitriptan is a selective agonist targeting the serotonin receptor. Migraines with aura and headaches that are acute are treated with this medication.The present research endeavors to develop and assess a Zolmitriptan tablet that can be dispersed in a short amount of time. When it comes to patients who are water-deficient, orodispersible treatment is effective.A total of eight different formulations were created by using Direct Compression to combine pure medicine with excipients. Immediately after the priming process, the powder mixture was crushed into tablets using superdisintegrants (SSG, CCS, and CP) and polymers. In a seven-minute in-vitro drug release test, the tablets were evaluated for their hardness, thickness, weight variation, friability, drug content, and disintegration time. Additionally, the tablets were evaluated for thickness.

The studies were conducted using USP dissolving rate test equipment II (50 rpm, 370C ±0.50C) at a temperature of 370C. The dissolve solution used was phosphate buffer with a pH of 6.8 (900ml). The release of Zolmitriptan from tablet formulations may be predicted using UV spectroscopy at a variety of different periods. There is reason for optimism for compositions that greatly delayed the release of medicines. F5 with Drug to Croscaramellose Sodium (CCS) at a ratio of 1:2 is the formulation that has been optimized for in-vitro dissolving time of five minutes and gives 99.24% cumulative drug release. This formulation is one of the eight formulations.

Keywords: Direct Compression technique, Zolmitriptan, Croscaramellose Sodium.

The anti-inflammatory and antioxidant effects of the roots of the INULA RACEMOSA plant are investigated in this study.

Miss Jadhav M. G.

Assistant Professor, Shaneshwar Shikshan Prasarak Mandal's VP College of Pharmacy

ABSTRACT:

The roots of Inula racemosa were examined to determine their impact on hyperlipidemia and oxidative stress in a diet-induced model, as well as on antioxidant parameters in vivo and in vitro. A hyperlipidemic state is brought on by combining a rat diet with cholesterol and saturated fats over a period of 28 days. Over the course of days 7, 14, 21, and 28, serum was extracted. For the purpose of determining cholesterol, triglycerides, HDL, LDL, glucose, AST, ALT, and bilirubin levels, separated serum was analyzed. On the 28th day, the liver was removed and analyzed for antioxidant indicators both in vivo and in vitro. Over a period of 28 days, oral administration of Inula racemosa resulted in a substantial reduction in cholesterol, triglycerides, LDL, glucose, AST, ALT, and bilirubin levels, while simultaneously increasing HDL levels ($P<0.05$). Ten milligrams per kilogram of atorvostatin was used to compare the outcomes. In terms of catalase and glutathione levels, the plant exhibited a significant increase ($P<0.01$), whereas the levels of LPO, NO, and DPPH were significantly reduced. A hyperlipidemia model demonstrated that Inula racemosa had significant antihyperlipidemic and antioxidant activity, with a p-value of less than 0.01. Research that is currently being conducted indicates that the roots of Inula racemosa has antioxidant and antihyperlipidaemic effects.

In both tablet and bulk dosage forms, RP-HPLC techniques were used for the design and validation of the drug felodipine.

Miss Jadhav P. G.

Assistant Professor, Shaneshwar Shikshan Prasarak Mandal's VP College of Pharmacy

Abstract:

The validation of felodipine is accomplished by the use of Reversed Phase High Performance Liquid Chromatography (RP-HPLC). This method used RP-HPLC (Water 2695 with PDA detector) and an ODS C18 column that measured 4.6 x 150mm and was 5 meters in length. The mobile phases consisted of a mixture of water and acetonitrile at a volumetric ratio of 80:20. At a wavelength of 305 nm, MTS was eluted, and its retention time was 3.155 minutes. The method was continued and verified in accordance with ICH standards. The validation of the method shown that it is quick, particular, precise, exact, dependable, and that it can be repeated. The plots of the calibration curve were linear all the way from 15 to 75 µg/mL (R2 = 0.9998). Both the detection limit (LOD) and the quantification limit (LOQ) were determined to be 0.19µg/ml and 0.6µg/mL, respectively. The method recoveries were outstanding, ranging from 98.9 to 100.4%. A statistical research demonstrates that the method can analyze large quantities of felodipine pills without being affected by the excipient. The examination into the kinetics of degeneration was also confirmed. The estimation of plasma and other biological fluids might be extended upon using this method.

Keywords: Felodipine, RP-HPLC, Method Development and Validation.

Formulating, designing, developing, and testing etodolac glycol derivatives using natural polymers

Miss Shetkar S. U.

Assisatnt Professor, Shaneshwar Shikshan Prasarak Mandal's VP College of Pharmacy

ABSTRACT:

Etodolac is effective in alleviating pain caused by a wide variety of conditions. As an additional benefit, it alleviates arthritic pain, edoema, and stiffness. Medicine that is non-steroidal anti-inflammatory compound. The purpose of this study was to develop a floating Etodolac delivery system by making use of natural polymers and Direct Compression. For each and every composition, the characteristics of hardness, friability, disintegration time, and dissolution were evaluated. The tablets that had disintegrated were thrown away. A closer look was taken at the floating tablets. Pectin, Xanthan gum, and Guar gum were used in the production of gastro retentive tablets. These tablets were designed to remain in the stomach for a longer period of time and to carry the medication to the stomach. Through the use of in-vitro dissolving tests, it was determined that formulation F-3, which included 150 mg of Xanthan gum, 85 mg of NaHCO3, 9 mg of stearate, 9 mg of Talc, and sufficient amounts of microcrystalline cellulose, was the most effective. Xanthan gum is included in the drug formulation F-3, which has a polymer ratio of 1:0.5. Over the course of twelve hours, F-3 expelled 98.67±0.25% of the drug. According to the findings of this study, floating tablets that include Xanthan gum, which is a natural polymer, make the stomach dissolving fluid GRT more effective in delivering the medication in a consistent manner. It is possible to accomplish the objectives of gastro retentive floating tablets by formulating floating tablets designed to represent model medicines.

Key words: Etodolac, Floating Tablets, Natural Polymers.

The formulation procedure involves creating levetiracetam oral dispersible pills.

Mr. Sorate R. C.

Assistant *Professor, Shaneshwar Shikshan Prasarak Mandal's VP College of Pharmacy*

ABSTRACT:

Levetiracetam treats epilepsy. It treats partial-onset, myoclonic, and tonic-clonic seizures. Reduces brain excitability. This project will develop and test an orodispersible Levetiracetam pill. Pediatric, geriatric, bedridden, developmentally challenged, recurrent nausea, traveling, and water-deprived patients are targeted by these unique oral dissolving/disintegrating dosage forms. Nine formulations were combined by compressing medicine and polymers in the required ratio. Tablets were made from powder mixtures employing Superdisintegrants (CP, SSG, and CCS) and Excipients. The tablets were examined for weight variation, thickness, hardness, friability, drug content, and disintegration time (Sec) in a 20-minute in vitro study utilizing phosphate buffer (pH 6.8) as a dissolving medium (900ml) (USP dissolution rate test equipment II, 50 rpm, 370C); UV spectroscopy measured Levetiracetam release from tablet formulations. Drug compositions that dramatically delayed release are promising. One of the nine formulations, F5, with Drug to Sodium Starch Glycollate (SSG) and Cross Povidone (CP), is optimized for a 10-minute in-vitro duration and 99.82±0.37% cumulative drug release.

Keywords: Levetiracetam, Orodispersible Tablets, Sodium Starch Glycollate, Cross Povidone.

Limb stromal cells had greater expression than bone marrow, adipose-derived, and foreskin fibroblasts. Mr.

Mr. Naik S. S.

Associate Professor, Shaneshwar Shikshan Prasarak Mandal's VP College of Pharmacy

ABSTRACT:

When it comes to the treatment of blindness that is brought on by corneal damage, limbal epithelial stem cells, which are also referred to as LESC, show a significant degree of promise. LESC are considered to be a promising therapy option. The name of the stem cell niche that has been used in order to keep LESC alive and well during its development process is the Palisade of Vogt. Limbal stromal cells, which are also known as LS cells, are an essential component of the niche that LESCs inhabit and contribute to the process of self-renewal that they go through. Limbal stromal cells come in a variety of different names. In addition to these cells, there are two more kinds of cells that are analogous to these cells: stem cells and mesenchymal stromal cells. These cells have the potential to differentiate into a number of different lineages. On the other hand, in contrast to MSC that are produced from a broad variety of sources, there is an extremely limited amount of information that is accessible on the gene expression profile of these cells.

Keywords: limbal stromal cells; bone marrow mesenchymal stromal cells; adipose mesenchymal stem cells; gene expression profiling; microarray;limbal epithelial stem cells

The use of subcutaneous DL is beneficial for the survival of human embryonic stem cells.

Mr. Zikriya A. I.

Assistant *Professor, Shaneshwar Shikshan Prasarak Mandal's VP College of Pharmacy*

ABSTRACT:

Islet transplantation for Type 1 Diabetes Mellitus (T1DM) has gained in popularity, although donor availability may restrict the treatment. A promising option is human embryonic stem cell (hESC) therapies, which have exhibited maturation, yield, and insulin release in response to stimulation. We developed a new subcutaneous cellular transplantation approach. This study examines the transplantation of differentiated pancreatic endoderm (PE) cells from hESC into the pre-vascularized Device-Less (DL) site to cure diabetes. In fifty immunodeficient mice, 25 were diabetic and 25 were not, PE cells were implanted. Engraftment and maturation were assessed by removing grafts from animals after 22 weeks. Although not statistically significant, diabetic mice showed increased engraftment (48% vs. 36%, $p = 0.19$) and generated more human C-peptide after glucose stimulation (0.32 ± 0.15 ng/mL vs. 0.13 ± 0.09 ng/mL, $p = 0.30$). Diabetes cure required additional maturation. Monomorphic cystic changes were seen in 12% of diabetes and 8% of non-diabetics ($p = 0.32$). The DL space's collagen wall appeared to limit all transplants. Our findings demonstrate the DL site's ability to harbor PE cells and allow safe maturation as a potential diabetic therapy.

Keywords: islet Transplantation; embryonic stem cells; cell engraftment; cellmaturation

Boceprevir Estimation in Pharmaceutical Formulations and Bulk by Spectrophotometry.

Miss Phadte D. D.

Assistant Professor, Shaneshwar Shikshan Prasarak Mandal's VP College of Pharmacy

ABSTRACT:

An anti-retroviral drug known as boceprevir has been the subject of a brand new extractive spectrophotometric method that has been developed for the purpose of determining boceprevir. This method is basic, rapid, and cost-effective. Boceprevir, a protease inhibitor that works directly on the liver, is the treatment that is used to treat hepatitis C. In addition to this, it has two isomers, with the S isomer being more active than the R-isomer in terms of its activity. These were the methods that were based on the manufacture of color chromogens, and the colorants that were used were methyl orange indicator, bromo cresol green, bromo thymol blue, and bromo phenol blue. For the purpose of carrying out the extractive spectrophotometry, phthalate buffer and chloroform were used. Using the blank concentration of the relevant reagent, the absorbances of the chromogens were measured at 410 and 415 nanometers. The results were compared to the overall blank concentration. It has been shown that the procedures that were described have been successfully applied on the drug in bulk configuration. An examination of the technique via the lens of statistical analysis has been carried out, and the findings have shown that it is precise and accurate.

Keywords: Anti-hepatitis, Anti-HIV, Chromogen, Boceprevir, Extractive spectrophotometry, Victerelis

As prospective new antihistamines, 5-[2(3)-dialkylamino alkoxy] indole 2,3-diones were developed, produced, and biologically assessed.

Miss Kothavale T. R.

Assistant Professor, Shaneshwar Shikshan Prasarak Mandal's VP College of Pharmacy

Abstract

A wide variety of one-of-a-kind items in abundance Within the scope of the present investigation, the production of 5-[2(3)-dialkylamino alkoxy] Indole 2, 3-diones was carried out. These chemicals may be traced back to the chemical compound known as 5-hydroxy isatin, which served as the beginning material. To make the 5-[2(3)-dialkylamino alkoxy] Indole 2,3-diones, a mixture of 5-hydroxy isatin, dialkylamino alkylhalide, and alcoholic potassium hydroxide was exposed to moderate agitation for a period of six hours at room temperature. This was done in order to get the desired result. It was via this action that we were able to get the results that we had hoped for. During the course of the studies that were carried out, infrared spectroscopy, nuclear magnetic resonance, and mass spectrometry were used in order to characterize the structures of the products. For the purpose of determining the antihistaminic activity of each and every chemical, the Histamine chamber method was used. For this method to be successful, it was necessary to investigate each and every chemical.

Keywords: Synthesis, 5-[2(3)-dialky amino alkoxy] indole 2, 3-diones, antihistaminic activity.

Bombax malabaricum extracts were investigated for their potential to decrease alloxan-induced hyperglycemia in rats.

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ABSTRACT:

There are a number of conditions that have traditionally been treated using the medicinal plant Bombax Malabaricum. One of these conditions is diabetes mellitus. In the present study, rats that had been given alloxan to induce diabetes as well as animals that did not have diabetes were utilized to investigate the effects of aqueous and ethanolic Bombax Malabaricum extracts on lowering blood sugar levels. Oral administration of glibenclamide at a dosage of 20 mg/kg was administered to rats, in addition to the administration of bark extracts at concentrations of 100 and 200 mg/kg in aqueous and ethanol respective. Following the administration of these doses, the animals in the research did not display any aberrant behaviors or indications of acute poisoning. It was determined that the blood glucose levels of normal rats were assessed at 0, 1, 3, and 5 hours after treatment, whereas the blood glucose levels of diabetic rats were examined at 0, 1, 3, and 5 days, respectively. Rats that were either normal or had diabetes that was generated by alloxan were shown to have significantly ($p \leq 0.05$) decreased levels of hyperglycemia when they were subjected to various extract doses. The hypoglycemia effects were most visible between 30 and 180 minutes after treatment, and the results of the tolerance tests for ethanol extracts were significant ($p \leq 0.05$). In respect to glucose, the hypoglycemic effects were most noticeable between 30 and 180 minutes.

Keywords: Bombax Malabaricum, diabetes mellitus, extract, hypoglycemic.

Use of water-soluble carriers to improve the solubility of a low-quality medication

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ABSTRACT:

Solid dispersion was utilized in order to investigate the effect that a number of water-soluble carriers have on the process of dissolving famotidine, which is a medicine that is not very soluble. The goal of this investigation was to improve the dissolution of famotidine, which is a drug that is not particularly soluble. For the purpose of accomplishing this goal, carrier chemicals such as urea, mannitol, and sorbitol were used. methods such as Fourier transform infrared spectroscopy (FTIR) and differential scanning calorimetry (DSC) were used in order to evaluate the solid dispersions. The findings of these methods demonstrated that the formulation exhibited a detectable reduction in the crystallinity of the drug. Because of this loss, the rate at which the material dissolved increased, which was the cause of the increase. Every single one of the solid dispersions that were manufactured demonstrated an improvement in dissolution when compared to the pure drug; however, the degree of improvement differed from one dispersion to the next. In comparison to sorbitol and mannitol, which were the other carriers that were used in this investigation, urea shown a more significant enhancement in terms of its solubility.

Keywords: Famotidine, Carrier, Solid dispersion, Characterization, Dissolutionenhancement.

Methyl-2-(2-(Arylideneamino) Oxazol-4-Ylamino) Benzoxazole-5-carboxylate derivatives were developed, synthesized, and biologically tested as possible anti-inflammatory drugs.

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ABSTRACT:

Due to the fact that the synthesis method was carried out, a wide range of one-of-a-kind methyl-2-(arylideneamino)oxazol-4ylamino)benzoxazole-5-carboxylate derivatives were created. As a result, the process of synthesis was the one that was responsible for the creation of these substances. The structures of these substances were determined by the use of a range of distinct methodologies, including infrared spectroscopy, nuclear magnetic resonance (1H and 13C), mass spectrum data, and elemental analysis. An experiment was conducted with the intention of establishing whether or not certain compounds have the ability to reduce inflammation. Using the framework of the approach that included the induction of rat paw edoema by carrageenan, derivatives VIId and VIIe demonstrated an anti-inflammatory efficiency that was not only exceptional but also almost comparable to that of the standard drug Diclofenac Sodium. This was the case within the framework of the method. This was shown by the fact that they were successful in lowering the level of inflammation that was present because of their effectiveness.

Keywords: Benzoxazole derivatives, IR, 1H NMR and Mass spectroscopy, methyl-2- (arylideneamino)oxazol- 4ylamino) benzoxazole -5-carboxylate and anti inflammatory.

synthesis of a novel series of diphenyl-1,2,4-triazoles and derivatives with anti-inflammatory activity

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Abstract:

The current work has led to the synthesis of a number of distinct 1-[3-(4-substitutedphenyl)-5-phenyl-4H-1,2,4-triazol-4-yl]urea and 1-[3-(4-substitutedphenyl) -5-phenyl-4H-1,2,4-triazol-4-yl]thiourea derivatives, spanning from 4-Ia to 4-IId. These derivatives have been synthesized. Characterization of the newly synthesized derivatives was accomplished by the use of the results obtained from infrared spectroscopy, nuclear magnetic resonance with 1H, and mass spectral analysis. Using a rat model of paw edoema caused by carrageenan, the target compounds that had been synthesised and characterized were then put through further testing to establish whether or not they have anti-inflammatory components. This was done in order to discover whether or not the compounds had anti-inflammatory properties. There was just one molecule, 4Id, that exhibited a significant anti-inflammatory activity ($p<0.05$) among all of the newly synthesized derivatives. On the other hand, compounds 4Ia-4Ic and 4IIa-4IId exhibited a considerable reduction in inflammation ($p<0.0001$), making them the most beneficial compounds related to this particular aspect. As a result, these chemicals have showed the ability to offer an impact that is anti-inflammatory.

Keywords: 1,2,4-triazoles, IR, 1 H NMR, Mass Spectroscopy and anti- inflammatory activity.

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