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3.3.3

Number of books and chapters in edited volumes/books published and papers published in national/international conference proceedings per teacher during the year

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3.3.3. Number of Books and Chapters in edited volumes per teacher during the year 2022-2023

Sl. No.	Name of the teacher	Title of the book/chapters published	National/ International	ISBN/ISSN number of the proceeding	Name of the publisher
1	R.E. Ugandar	pharmaceutical Engineering	National	978-93-95936-47-7	Futuristic trends in pharmacy & nursing
2	R.E. Ugandar	Drugs used in Obstetrics and Gynecology	National	978-93-6132-538-0	SIPH
3	R.E. Ugandar	Pharmacy practice	National	978-81-19152-14-8	AGPH Books
4	R.E. Ugandar	Futuristic trends in pharmacy and nursing	National	978-93-6252-496-6	IIP
5	R.E. Ugandar	Prescription Pattern on Myocardial Infarction	National	978-93-6252-496-6	IIP
6	Siva Shanker Reddy	Method development for estimation of Bortezomib by UV spectroscopy	National	978-81-19217-16-8	BP International
7	N.Madana Gopal	Method development and validation for the estimation of Bortezomib in pure and its pharmaceutical tablet dosage form by UV Spectroscopy	International	978-81-19217-16-8	BP International
8	N.Y.Subbaiah	Pioneering the future of drug discovery in Alzheimer's disease	National	9781032530-079	CRC Press
9	R.Nageswar Rao	Stability indicating method development and validation of Fisetin by UV spectroscopic method	International	978-81-973924-9-8	BP International
10	B.Pradeep	Evaluating comparative efficacy between Ivabradine & beta blockers	International	978-81-19039-59-3	BP International

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3.3.3.1 Faculty Publication-Conference proceedings

NATIONAL CONFERENCE ON EMERGING TRENDS IN MANAGEMENT IN PRESENT ERA

ACADEMIC YEAR 2022-2023

Sl. No.	Author	Dept	Title of the paper	Type of publication (national/International)	Name of the journal	Date	ISBN No.
1	N.Madan gopal	Pharmaceutical Analysis	Method development,validation and stability indicating studies of Cilnidipineim its API and formulation by using RP-HPLC	National	Research Stratagems in Pharmaceutical sciences	10 Feb 2023	978-81-957717-2-1
2	L. Siva Sanker Reddy	Pharmaceutical Analysis	Method development,validation and stability indicating studies of AVANAFIL in its API and formulation by using RP-HPLC	National	Research Stratagems in Pharmaceutical sciences	10 Feb 2023	978-81-957717-2-1
3	R.Nageswar Rao	Pharmaceutical Analysis	Method development,validation and stability indicating studies of PRULIFLOXACIN in its API and formulation by using RP-HPLC	National	Research Stratagems in Pharmaceutical sciences	10 Feb 2023	978-81-957717-2-1
4	Shaik Muneer	Pharmaceutical Analysis	Stability indicating RP-HPLC method development and validation for estimation of	National	Research Stratagems in Pharmaceutical sciences	10 Feb 2023	978-81-957717-2-1

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			Flucytosine in bulk and pharmaceutical formulation				
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Book

Pharmaceutical Engineering

December 2022

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Authors:

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Abstract

The pharmaceutical business may be classified as either bulk medication or intermediate or final pharmaceutical formulation manufacture. Both sub-industries within the pharmaceutical sector include several different unit operations that carry out a wide range of routine tasks. Any personnel involved in these processes should be well-versed in unit operations to carry them out effectively. Since it comes under the healthcare industry, the pharmaceutical industry is one the biggest in the world, with revenue generated of 1.42 trillion US dollars per annum (2021). The size of the industry is gigantic, and naturally, for the operationalization of the industry of this volume, some processes and mechanisms must be implanted in the production. In manufacturing bulk drugs, implementing effective methods and machinery with a standard procedure is of prime importance, and for this reason, pharmaceutical engineering is necessary. Pharmaceutical engineering is the process in which different methods, processes, and machinery are employed to ease the procedure of drug manufacturing in the factories; these might involve different types of chemical and biological reactions or any physical activities such as oxidation, reduction, evaporation, distillation or grinding and many other. These methods are deployed to get both quantitatively and qualitatively accurate results and high efficiency in

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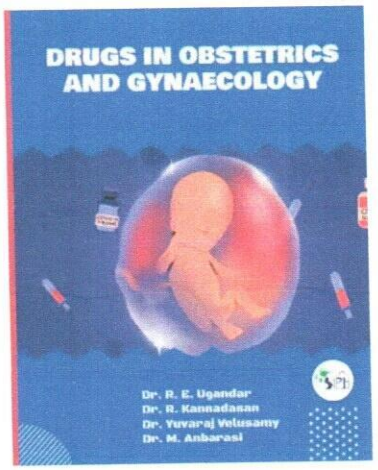

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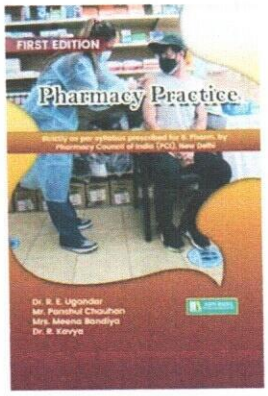

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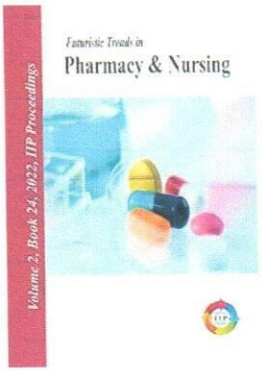

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PRESCRIPTION PATTERN ON MYOCARDIAL INFARCTION

Abstract

Background: Myocardial infarction is a major cause of death and disability worldwide. Myocardial infarction is majorly divided into two types based on the ECG findings Non-ST segment elevated myocardial infarction (NSTEMI) and ST segment elevated myocardial infarction (STEMI). Here, the prescription pattern is evaluated by using the WHO's five core indicators.

Objectives: To observe the best treatment option that is used in the treatment of NSTEMI and STEMI. To identify the risk factors that are encountered in the occurrence of myocardial infarction.

Methods: A prospective observational study.

Results: In this study, Rational prescribing of drugs in a prescription was analyzed by the index of rational use of medicines. For analyzing the rational prescription five dimensions or five core indicators are used according to WHO they are polypharmacy, injection, generic names, essential drugs, and antibiotics. In this present study, the polypharmacy was found to be 8.3, and the optimal value is less than three; the index of generic prescribing was 72%, and the value according to WHO is 100%. The optimal value of antibiotic prescribing was set to less than 30% and in this study, it is found to be 6.6%. The injection prescribing index was found to be 23.9% and its optimal value is less than 10%. All the drugs that are present in the prescription were prescribed by the EDL/Formulary of the hospital. The primary goal for maintaining the rational prescription is to maintain the cost, efficacy, and safety.

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Chapter 13
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Method Development and Validation for the Estimation of Bortezomib in Pure and Its Pharmaceutical Tablet Dosage form by UV Spectroscopy

R. Nageswara Rao [a*], V. Ravikumar [b], L. Shiva Shankar Reddy [a], D. Madhuri [c], N. Yellasubbaiah [a], S. V. Suresh Kumar [a], N. Madana Gopal [a], S. Indradev [c], S. Vinay [c], S. Mahesh [c] and P. Ajay Kumar [c]

DOI: 10.9734/bpi/napr/v1/6009A

ABSTRACT

Background: Bortezomib is an anti-cancer medication used to treat multiple myeloma and mantle cell lymphoma.
Methods: The UV Spectroscopy method for analysis of bortezomib was developed and validated as per ICH guidelines. The estimation of bortezomib in the pure and tablet dosage form was carried out at the maximum absorbance at 365 nm.
The Results: The method was found to be linear and obeys beers law in the concentration range 5-25µg/ml with a correlation coefficient 0.999, the developed method was validated as per ICH guidelines and was found to be accurate and precise.
Conclusion: A rapid novel precise and accurate UV Spectroscopy method was developed and validated and can be used for regular analysis for the estimation of bortezomib.

Keywords: Bortezomib; UV spectroscopy; velcade; validation; ICH guidelines.

1. INTRODUCTION

Bortezomib is chemically [(1R) -3-methyl-1-({(2S)-3-phenyl-2-[(pyrazin-2-ylcarbonyl) amino] propanoyl} amino) butyl] boronic acid. Bortezomib, sold under

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METHOD DEVELOPMENT AND VALIDATION OF CILNIDIPINE IN TABLET DOSAGE FORM BY USING ULTRA VIOLET SPECTROPHOTOMETRY

Abstract

A simple, quick, and accurate UV Spectroscopic method was developed to quantify celecoxib in API and tablet formulations. Celecoxib was used to treat rheumatoid arthritis and osteoarthritis. The proposed procedure was developed using acetonitrile and distilled water as the solvents in a 50:50 volume-to-volume ratio, and it was optimized using a Shimadzu UV-1800 ENG240V at a maximum wavelength of 240 nm with an absorbance of 0.558. The sensitivity, robustness, accuracy, and precision of the improved technique Degradation studies were also conducted and determined to be within the constraints. The regression coefficient was 0.996, and the linearity ranged from 2.5 to 12.5 µg/ml. LOD and LOQ values were 0.16 µg/ml and 0.052 µg/ml, respectively. According to ICH Q2R1, a straightforward, exact, and reliable approach was created.

Keywords: Celecoxib, acetonitrile, Spectrophotometer, ICH Guidelines.

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10 Virtual Screening
Pioneering the Future of Drug Discovery in Alzheimer's Disease

*N. Yellasubbaiah, B. Sivakumar and B. Nagasudha**

10.1 INTRODUCTION

Although Alzheimer's disease (AD) is a multifactorial disease (Rosini, Simoni et al. 2016; Alvariño, Alonso et al. 2018), it is defined by increased generation and/or accumulation of amyloidogenic peptides (particularly A) produced by amyloid precursor protein (APP) proteolysis (Li, Zhao et al. 2019). The presence of senile plaques in the cerebral cortex is thought to stimulate inflammatory and neurotoxic processes, resulting in NO, cytokines, and reactive oxygen species (ROS) (Sivandzade, Bhalerao et al. 2019). In AD, this process contributes to neurodegeneration and neuronal cell death.

Depending on their concentration, ROS can have a favourable or negative impact on cellular activity (Zekry, Epperson et al. 2003; Manoharan, Guillemin et al. 2016). ROS in low concentrations can alter cellular activities via redox-dependent signalling and transcription factors (Tang and Le 2016; Kumar, Ganeshpurkar et al. 2018), whereas high levels of ROS can impair critical cellular functioning by causing damage to proteins, lipids, and DNA (Asiimwe, Yeo et al. 2016). Normal biological functions necessitate a delicate balance between the generation and elimination of ROS. Homeostasis imbalances can result in oxidative stress and the development of pathogenic illnesses (Islam 2017).

Stress causes deposition, tau hyperphosphorylation, and cognitive impairment. The reduction of endogenous antioxidant systems with age promotes the development of AD. As a result, oxidative stress is important to the aetiology of Alzheimer's disease (Santos, Correia et al. 2012; Chhetri, King et al. 2018). Current AD treatments include donepezil, galantamine, and rivastigmine, which are acetylcholinesterase inhibitors, and meanwhile, which is a noncompetitive inhibitor of N-methyl-D-aspartate (Bachurin, Bovina et al. 2017). These inhibitors work by blocking cholinergic and glutamate receptors. This is because AD (Kwong and Molkentin 2015) is linked to oxidative glutamate toxicity (Albrecht, Lewerenz et al. 2010), which is an excitatory neurotransmitter in the central nervous system (CNS).

Excess glutamate inhibits cysteine uptake by the xc system, which in turn limits glutathione synthesis (GSH), leading in the accumulation of reactive oxygen species (Albrecht, Lewerenz et al. 2010). Neurochemical dysfunction of cholinergic neurons in the central nervous system (CNS) can also contribute to AD aetiology (Albrecht, Lewerenz et al. 2010). Although these medications are the most effective pharmacological treatments for AD, they have a relatively small average overall effect and have no influence on the course of the underlying neurodegenerative process (Briggs, Kennelly et al. 2016). This is most likely related to the fact that AD is multifactorial and is linked to the activation or inactivation of a number of homeostatic enzymes.

Given that oxidative stress is important to AD pathology, oxidative defence mechanisms appear to be critical targets for creating new and potential AD treatments. One of the most effective anti-oxidative stress defence systems is the Kelch-like ECH-associated protein 1 (Keap1)/Nrf2/ARE pathway (Lu, Zhang et al. 2019). Furthermore, cyclooxygenase-2 (COX-2) has been linked to the expression of anti-inflammatory mediators, neuroprotection, and ROS regulation, and thus

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Chapter 2
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Stability Indicating UV Spectrophotometric Method Development and Validation of Fisetin in Pure and Pharmaceutical Capsule Dosage Form

R. Nageswara Rao [a++*], L. Siva Shankar Reddy [a], N. Madangopal [a], M Lakshmi Devi [a], R. Dharani [a], K. Raj Kumar [a], N. Venkateswara Reddy [a], P. Chandana [a], V. Ravikumar [b] and J. Kumar Raja [c]

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ABSTRACT

Objective: The objective of the study was to develop and UV Spectrophotometric method and apply the method to dosage form.
Methods: A simple, precise and sensitive ultraviolet spectrophotometric method was developed for the determination of Fisetin in pure and pharmaceutical capsule dosage form; the spectroscopic method was run through Shimadzu UV-1800 with solvent of Methanol: 0.1%OPA was used in this method-working wavelength was selected at 362nm.
Results: Beer-Lambert's law revealed a good correlation in the concentration range of 3-15µg/ml. The absorbance was found to be 0.385 with %RSD for interday precision and intraday Precision was 0.53% & 0.51%.
Conclusion: The developed method was successfully applied to the determination of Fisetin in commercially available dosage forms. A statistical comparison of the results showed an insignificant difference between the proposed method and reference method. The proposed methods offered the

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Research Article

A PROSPECTIVE STUDY ON COMPARATIVE EFFICACY BETWEEN IVABRADINE AND BETA-BLOCKERS IN INDIAN ACUTE CORONARY SYNDROME PATIENTS

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ABSTRACT

Objective: The main objective of this study was to assess the tolerability and efficacy between ivabradine and beta-blockers in acute coronary syndrome (ACS) patients with reduced ejection fraction and also assess the contraindications for beta-blockers.

Methods: A prospective observational study was conducted for duration of 6 months. The study population includes 100 patients in which Group-A – 50 and Group-B – 50. The subjects were selected according to inclusion and exclusion criteria. The patients were classified based on their symptoms in regards to normal breathing and varying degrees in shortness of breath using the New York Heart Association classification.

Results: The majority of the patients were highly affected in the age group between 55 and 64 (32%) years of age. The prevalence of ACS was high in rural (56%). Both drugs showed a decrease in the mean heart rate from 112.98±23.90 to 89.97±10.27 beats/min in Group-A and 99.6±20.44 to 86.76±13.14 beats/min in Group-B (p=0.24). The results obtained were clinically and statistically significant with standard p-value (p>0.05).

Conclusion: Ivabradine was equally effective as beta-blockers but it clinically was shown that it lowers heart rate with no negative inotropism.

Keywords: Acute coronary syndrome, Beta-blockers, Ivabradine, Heart rate, New York Heart Association.

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INTRODUCTION

A variety of clinical conditions from unstable angina to ST-elevation myocardial infarction (STEMI) consequent to myocardial ischemia called as acute coronary syndrome (ACS). Clinically severe chest pain is a hallmark symptom of ACS, which lasts for more than 15 min. Electrocardiogram and cardiac biomarkers such as troponins T/I or creatine phosphokinase-myocardial band are useful to decide about the type of ACS. The chance of rising coronary artery disease (CAD) in Indians is higher than Caucasian Americans, Chinese, and Japanese. It is also one of the highest reasons for death and burden causing disease in India and also all over the globe [1]. Heart rate is one of the principal determinants of myocardial oxygen consumption, and elevated heart rate is a condition where energy requirements and myocardial oxygen demands are increased and also causes shorten the length of each cardiac cycle, thereby reducing diastolic perfusion time and oxygen supply [2-4]. Epidemiological data have shown that a heart rate >85 beats/min is associated with a greater risk of cardiovascular events and higher mortality [5,6]. We are conducting this study to assess the tolerability and efficacy between ivabradine and beta-blockers in ACS patients with reduced ejection fraction (EF) and also assess the contraindications for beta-blockers. Beta-blockers are the most frequently used first-line therapy [7,8]. Ivabradine is a selective inhibitor of the funny current (I_f). Inhibition of I_f are associated with reduction in sinus rate and a prolong sinus recovery time and reduced infarct size [9-17]. Ivabradine should be administered in symptomatic patients (New York Heart Association [NYHA] II-IV) with left ventricular (LV) EF ≤35% [18]. Ivabradine exerts some of its favorable effects by declining cardiac pro-inflammatory cytokines and also inhibits peroxidants and collagen buildup in atherosclerosis or congestive heart failure [19-23].

METHODS

A prospective observational study was conducted in MyCure Hospitals, Kurnool, Andhra Pradesh, inpatient of cardiology ward for duration of 6 months. The study populace includes 100 patients, in which Group-A was 50 patients and Group-B was 50 patients. Group-A and Group-B were treated with ivabradine (some patients received in combination with beta-blockers, some were shifted from beta-blockers and remaining treated with ivabradine alone) and β-blockers respectively. These research inclusion criteria include patients who were diagnosed with ACS, age >18 years, EF ≤50% and blood pressure (BP) ≥120/80. Exclusion criteria include those having active myocarditis, bradycardia (heart rate <50 beats/min) or conditions associated with increased risk for bradycardia, stroke within previous 4 weeks, hypotension (systolic BP <90), severe primary valvular disease, patients with functional (or) orthopedic limitations that could impair performance during cardiovascular functional tests, pregnant women, third-degree atrioventricular (AV) block, known hypersensitivity to beta-blockers or ivabradine. The patients were classified into four categories based on their symptoms of normal breathing and varying degrees in shortness of breath using the NYHA classification. All the data were entered and analyzed in Microsoft Excel 2010 version and data were presented as mean±standard deviation. To analyze the difference between the treatment groups, unpaired two-tailed t-test selected for continuous variables. We accept the null hypothesis if p>0.05 and reject if p<0.05.

- Null hypothesis (H_0): No difference between ivabradine and beta-blockers in terms of efficacy in reducing heart rate
- Alternative hypothesis (H_1): There is a difference between ivabradine and beta-blockers in terms of efficacy in reducing heart rate.

RESULTS

Our study sample size was 100 patients, in that Group-A was 50 patients and Group-B was 50 patients. These groups were treated with ivabradine and beta-blockers respectively. In the Group-A (50) patients, treatment with daily doses of ivabradine was 2.5 mg in 11 (22%) patients, 5 mg in 37 (74%) patients, and 7.5 mg in 2 (4%) patients. In Group-B (50) patients, the metoprolol daily doses were 12.5 mg in 2 (4%) patients, 25 mg in 40 (80%) patients, and 50 mg in 2 (4%)

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Abstract No: CESCOP/PAPA/0-01

METHOD DEVELOPMENT, VALIDATION AND STABILITY INDICATING STUDIES OF CILNIDIPINEIN ITS API AND FORMULATION BYUSING RP-HPLC

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Abstract:

Cilnidipineis a dihydropyridinecalcium channel antagonist and anti hypertensive agent ,and has been reported to have a long-lasting anti-hypertensive effect . It is soluble in organic solvents such as ethanol, DMSO, water,methanol.The main objective is to develop and validate a simple, precise and accurate method.Column C18 (4.6×250mm); 5µm.We have chosen to finalise methanol: 0.1% Isopropyl alcohol-90:10% v/v for this project. The λ_{max} was found at 245nm. System suitability parameters that included retention time (3.234min), area (415632), number of theoretical plates (4234), tailing factor (1.134) found to be within limits. Linearity range was from 2- 10µg/ml and the regression value was 0.995. Accuracy and precision were within the limits. Robustness studies was performed. LOD and LOQ values were 1.4µg/ml and 3.5µg/ml respectively. Degradation studies was also performed and was found to be within the limits.A simple, precise, accurate method was developed and validated according to ICH Q2R1.

Key words: Cilnidipine, Methanol, Acetonitrile, IPA, Retention time, Accuracy, Precision, HPLC,linearity.

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Abstract No: CESCOP/PAPA/0-02

METHOD DEVELOPMENT, VALIDATION AND STABILITY INDICATING STUDIES OF AVANAFIL IN ITS API AND FORMULATION BY USING RP-HPLC

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Abstract:

Avanafil is a selective inhibitor of cGMP specific type 5 phosphodiesterase. It is used to treat erectile dysfunction . It is soluble in organic solvents such as ethanol, DMSO, methanol, sparingly soluble in aqueous buffers. The main objective of this project is to develop and validate a simple, precise and accurate method. In the literature review, the solvents used are water:acetonitrile: Triflouro Acetic Acid; methanol: buffer pH 4.2; acetonitrile: water: Triethylamine: Acetic Acid; as mobile phases. Column C18 (4.6×250mm)5µm particle size of shimadzu(shim-pak) make. After performing various trials, we have concluded to use methanol:0.1% OPA as mobile phase for this project. The λ_{max} was 245nm. System suitability parameters that included retention time (3.34 min), area (430651), number of theoretical plates (4355), tailing factor (1.512) found to be within limits. Linearity range was from 2µg/ml to 10µg/ml and the regression value was 0.994. Accuracy and precision were within the limits. Robustness studies was performed. LOD and LOQ values were 1.6µg/ml and 4.2µg/ml respectively. Degradation studies was also performed and was found to be within the limits.A simple, precise, accurate method was developed and validated according to ICH Q2R1 guidelines.

Key words: Avanafil, Validation, RP-HPLC, C18.

Abstract No: CESCOP/PAPA/0-03

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Abstract No: CESCOP/PAPA/0-05

METHOD DEVELOPMENT, VALIDATION AND STABILITY INDICATING STUDIES OF PRULIFLOXACIN IN ITS API AND FORMULATION BY USING RP-HPLC

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ABSTRACT:

Prulifloxacin is an floroquinolone antibacterial agent activity against gram negative and gram positive bacteria.It is soluble in organic solvents such as ethanol, DMSO, dimethyl formamide, sparingly soluble in aqueous buffers. Its Pka value is 5.85. For the purpose of determining Prulifloxacin in bulk and medicinal dosage by RP-HPLC method utilising C18 column (250mm×4.6 id,5µ), a straightforward, quick, and accurate method has been established (shim-pack). The mobile phase was Acetonitrile and Isopropyl alcohol in the ratio of 90:10(v/v), flow rate was 1ml/min with injection volume 10 µg/ml and detection by UV detector at 279 nm. The retention time was 3.047 min against 5.0 min runtime at 30^0 temperature. The linearity was found 5-25 µg/ml.The %RSD of inter & intra day precision was 1.08 & 1.25.The recovery study was in 99.25-100.16,LOD & LOQ was 1.087& 3.295 µg/ml respectively. The stress studies reveals that all the degradation are with in limits.The described HPLC method as evaluated by parameters like linearity,system suitability,Accuracy,Precision,Robustness and Stability studies. ICH Q2R1 guidelines were followed for this project.

Key words: Prulifloxacin, Acetonitrile, IPA, Retention time, Accuracy, Precision, HPLC

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STABILITY INDICATING RP-HPLC METHOD DEVELOPMENT AND VALIDATION FOR ESTIMATION OF FLUCYTOSINE IN BULK AND PHARMACEUTICAL FORMULATION

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ABSTRACT

A simple, precise and robust stability indicating high performance liquid chromatographic method for determination of Flucytosine in bulk and pharmaceutical formulations was developed and validated as per ICH Q2 R1 guidelines. Chromatographic separation was carried using C18 Column (250×4.6 mm,5 µm) with a mobile phase consisting of Methanol and water (0.1% v/v OPA) in a ratio of 70:30 v/v was employed and drug was eluted at 3.34 ± 0.5 min detected at 283 nm . A flow rate of 1.0 mL/min with an injection volume of 20 µL was selected for this study and the proposed method was validated. The method is linear over the concentration range of 10-60 µg/mL with correlation co-efficient (r^2) of 0.998. The established method proved as reproducible one with a %RSD value of less than 2 and having the robustness and accuracy within the specified limits.The stressed samples were analyzed and this proposed method was found to be specific and stability indicating as no interfering peaks of degradation compounds and excipients were noticed. The method was validated according to the guidelines of ICH and was successfully employed in the estimation of commercial formulations.

Key words: Flucytosine, High Performance Liquid Chromatography, Method development, Stability, Validation.

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METHOD DEVELOPMENT, VALIDATION AND STABILITY INDICATING STUDIES OF TINIDAZOLE IN ITS API AND FORMULATION BY USING RP-HPLC

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Abstract:

Tinidazole is an antibiotic used for bacterial infections and parasitic infections which is caused by Trichomonas vaginalis, Entamoeba histolytica. It is soluble in organic solvents such as ethanol, DMSO, dimethyl formamide, sparingly soluble in aqueous buffers. Its Pka value is 4.70. The main objective of this project is to develop and validate a simple, precise and accurate method. In the literature review, the solvents used are methanol: buffer; acetonitrile: water: methanol; methanol were the mobile phases. Column C18 (4.6×250mm); 5µm. We have chosen to finalise acetonitrile: 0.1% Isopropyl alcohol-90:10 as mobile phase for this project. The λ_{max} was found at 315nm. System suitability parameters that included retention time (2.689 min), area (430651), number of theoretical plates (4355), tailing factor (1.012) found to be within limits. Linearity range was from 10µg/ml to 50µg/ml and the regression value was 0.991. Accuracy and precision were within the limits. Robustness studies was performed. LOD and LOQ values were 1.4µg/ml and 4.8µg/ml respectively. Degradation studies was also performed and was found to be within the limits.A simple, precise, accurate method was developed and validated according to ICH Q2R1 guidelines.

Key words: Tinidazole, Methanol, Acetonitrile, IPA, Retention time, Accuracy, Precision, HPLC

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METHOD DEVELOPMENT AND VALIDATION BY RP-HPLC TECHNIQUE FOR DETERMINATION OF SECNIDAZOLE IN API AND PHARMACEUTICAL DOSAGE FORM

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ABSTRACT:

Secnidazole is an antibiotic drug. It is mainly used to treat intestinal ameobiasis, firadiasis, trichomoniasis and bacterial vaginosis. It is soluble in water, organic solvents such as ethanol, DMSO and DMF. The main objective is to develop and validate a simple, precise and accurate method. Thus, an analytical method was developed and validated for estimation of secnidazole by using C18 column. Its pKa value is 15.16 (acidic strongest) and 3.08 (basic). As per the literature review, the solvents used are methanol:water; acetronil:methanol:water. The solvents that we have used are methanol:0.1% orthophosphoric acid. The λ_{max} was found at 314nm in the solvent system of methanol:0.1%orthophosphoric acid- 90:10. System suitability parameters was performed that were within the limits. Retention time was 2.95 min, area was 536336, number of theoretical plates was 3233, tailing factor was 1.494 and all were found to be with the limits. Linearity range was from 2µg/ml to 10 µg/ml and the regression value was 0.999. Both accuracy and precision was found to be within the limits. Robustness was also done with the variation of wave length, temperature, flow rate and mobile phase composition. The values for LOD and LOQ were 0.3µg/ml and 0.9µg/ml respectively. ICH guidelines Q2R1 were followed. Degradation studies were successfully done with no deviations. A simple, precise, economical and accurate method was developed as well as validated.

Keywords: Secnidazole, RP-HPLC, Degradation studies, Method development.

Abstract No: CESCOP/PAPA/0-14

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ANALYTICAL METHOD DEVELOPMENT AND VALIDATION FOR ESTIMATION OF PERPHENAZINE IN BULK AND FORMULATION USING RP-HPLC

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ABSTRACT

A simple, precise, accurate, RP-HPLC method has been developed for the estimation of Perphenazine in bulk and its pharmaceutical formulation. The chromatographic separation was achieved by using C18 Column (250*4.6mm ID, 5µm) with a mobile phase composition of Acetonitrile: Water (65:35 v/v) delivered at a flow rate of 1.0ml/min and the detection was carried out at wavelength of 256 nm. The drug was eluted at 3.90± 0.4 min. The method shown linear response in the concentration range of 5-30µg/ml with a correlation coefficient of 0.999. The developed method was validated in accordance with ICH Q2 (R1) guidelines and was found precise and robust. From the recovery studies it was observed that non-interference of excipients with the formulation and was found within the acceptance criteria. The proposed method was statistically evaluated and can be applied for the routine analysis, quality control of raw materials, dissolution studies and bioequivalence studies in bulk and its formulation.

Key words: Perphenazine, RP-HPLC, Recovery Studies.

Abstract No: CESCOP/PAPA/0-16

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EVALUATION AND QUANTIFICATION OF PIPERINE IN SHRINGYADI CHURNA-AN AYURVEDIC FORMULATION USING RP-HPLC

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ABSTRACT:

Shringyadi churna is an Ayurvedic formulation containing 3 ingredients, consisting of Shringi, Pippali, and Ativisha. It is used in the treatment of fever, cold, cough and vomiting. The aim of the present work is to prepare and evaluate the Shringyadi churna and determination of piperine content in the formulation by RP-HPLC. Formulation is prepared in the laboratory as per Ayurvedic formulary of India and evaluation is carried out. Various parameters like, loss on drying, extractive values, powder properties like angle of repose, bulk density, Hausner's ratio, compressibility index etc. are carried out. The method optimized for its regular analysis by the HPLC and the PDA detector set 344nm, the column dimensions used were shin-pack C18, 4.6x250mm, 5µ particle size, the flow rate maintained at 1.2ml/min. The mobile phase used was methanol and ortho phosphoric acid in the ratio 80:20. The retention time for the standard sample was obtained at 5.69 minutes. Linearity range was 2-10µg/ml and R^2 value was 0.999. The accuracy, precision and robustness results were obtained within limits as per ICH guidelines Q2R1. The LOD and LOQ values were obtained as 0.282µg/ml and 0.855µg/ml respectively. The % recovery in Lab formulation was found to be 99.81. The amount of piperine in three formulations was found to be 13±0.27mg.

KeyWords: Shringyadi, RP-HPLC, Hausner's ratio,PDA

Abstract No: CESCOP/PAPA/0-25

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IN SILICO MOLECULAR DOCKING OF CITRONELLAL AGAINST THE ALZHEIMER'S DISEASE AS A POTENTIAL LEAD MOLECULE FOR NEW DRUG DESIGN

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Abstract

Alzheimer's disease (AD) is a progressive neurological disorder affecting an estimated 10 million people worldwide. There is no cure for AD, and only a handful of drugs are known to provide some relief of the symptoms. Current study to identify the effect of citronellal against the Alzheimer's disease (AD) using In silico models.Citronellal (CT) is a monoterpenoid and the major constituent of the mixture of terpenoids .It is obtain from the essential oil such as citronella oil.In this study, the citronellal structure was downloaded from thePubchem database and target proteins such as Acetylcholine esterase , butyrylcholine esterase, BACE-1, NMDA, Tau, TNF-alpha were downloaded from the PDB database.Compound and proteins were subjected to docking studies using PyRx tool for determined binding affinity score, activesite interaction on AD targeted proteins and interactions were visualized using biovia visualizer. Pharmacokinetic parameters and toxicity of selected compounds measured by using SWISS ADME, pKCSM database. Study results were concluded that the citronellal had lower binding affinity against the targeted proteins. But it needs further studies to verify the predictions said via both advanced *in silico* methods and in vitro and in vivo studies.

Key words : Alzheimer's,Citronellal ,Pubchem,PyRx , SWISS ADME, pKCSM

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Abstract No: CESCOP/PAPC/0-28

IN SILICO ASSESMENT OF CITRONELLAL PROTECTION ON CARDIOVASCULAR CO-MORBIDITY

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Abstract

Myocardial Infarction (MI) is the loss of myocardial tissue caused by irreversible damage to the cardiac muscle fibres due to prolonged ischemia and hypoxia. An MI often occurs when the build up of plaque occludes a coronary artery depriving of blood supply to cardiac muscle tissue. Another cause of MI is when a portion of an unstable plaque travels through the coronary artery and lodges in one of the smaller branches. Atherosclerosis is a chronical inflammatory disease in arterial walls, which is involved in oxidative stress and endothelial dysfunction. Aromatherapy is one of the complementary therapies that use essential oils as the major therapeutic agents to treat several diseases. Citronellal (CT) is a monoterpene predominantly formed by the secondary metabolism of plants, producing antithrombotic, antiplatelet, and antihypertensive activities. The citronellal structure was downloaded from pubchem database. The objective of current study is to evaluate the protective effect of citronellal against atherosclerosis and myocardial infarction using in silico models. The Citronellal showed optimum binding affinity with a molecular target when subjected to docking studies using PyRx tool. The molecular targets include squalene synthase(3V66), HMG coA synthase(2P8U), Oxido squalene cyclase(1W6J), HMG coA reductase(1DQ8), NF-κB(4OT9), COX2(7MQZ), and MCL(3MK8) as compared to the standard. The results indicated that Citronellal could be one of the potential ligands to treat hypertension, myocardial infarction, and congestive heart failure and atherosclerosis.

KEYWORDS: Myocardial Infarction, Atherosclerosis, Citronellal, PyRx, pubchem

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Abstract No: CESCOP/PAPC/0-27

IN SILICO ASSESMENT OF QUILLAJA SAPONIN PROTECTION ON MYOCARDIAL INFARCTION

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Abstract

Myocardial infarction(MI) is the common presentation of the ischemic heart disease. It occurs when myocardial ischemia surpasses the critical threshold level for an extended time resulting in irreversible myocardial cell damage. An MI often occurs when the build up of plaque occludes a coronary artery depriving of blood supply to cardiac muscle tissue. Another cause of MI is when a portion of an unstable plaque travels through the coronary artery and lodges in one of the smaller branches. Quillaja saponin (QS), a group of natural surfactants extracted from the Quillaja Saponaria Molina tree, is a triterpene saponin with a hydrophobic quillaic acid aglycone group and two hydrophilic sugar chains. The quillaja saponin structure was downloaded from pubchem database. The objective of current study is to evaluate the protective effect of quillaja saponin against myocardial infarction using in silico models. The quillaja saponin showed optimum binding affinity with a molecular target when subjected to docking studies using PyRx tool. The molecular targets include NF-κB(4OT9), COX2(7MQZ), and MCL(3MK8), glycogen synthase kinase 3β (GSK-3β) and glucocorticoid regulated kinase-1 (SGK1) as compared to the standard. The results indicated that quillaja saponin could be one of the potential ligands to treat myocardial infarction.

KEYWORDS: Myocardial infarction, Quillaja saponin, PyRx

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Abstract No: CESCOP/PAPC/0-24

IN SILICO ASSESMENT OFβ-SITOSTEROL PROTECTION ONCARDIOVASCULAR CO-MORBIDITY

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Abstract:

Myocardial Infarction (MI) is the loss of myocardial tissue caused by irreversible damage to the cardiac muscle fibres due to prolonged ischemia and hypoxia. An MI often occurs when the build up of plaque occludes a coronary artery depriving of blood supply to cardiac muscle tissue. Another cause of MI is when a portion of an unstable plaque travels through the coronary artery and lodges in one of the smaller branches. Atherosclerosis is a chronical inflammatory disease in arterial walls, which is involved in oxidative stress and endothelial dysfunction. β-sitosterol (SIT) is a bioactive phytosterol compound that is naturally present in plant cell membranes.The sources, characterization,biosynthesis, pharmacokinetics, antioxidant and anti-diabetic activities of SIT.It possesses various biological actions such as antioxidant, anticancer, anti-diabetic, antimicrobial and immunomodulatory activities.The β-sitosterol structure was downloaded from pubchem database. The objective f current study is to evaluate the protective effect of β-sitosterol against atherosclerosis and myocardial infarction using in silico models. Theβ-sitosterol showed optimum binding affinity with a molecular target when subjected to docking studies using PyRx tool. The molecular targets include squalene synthase(3V66), HMG coA synthase(2P8U), Oxido squalene cyclase(1W6J), HMG coA reductase(1DQ8), NF-κB(4OT9), COX2(7MQZ), and MCL(3MK8) as compared to the standard. The results indicated that β-sitosterol could be one of the potential ligands to treat hypertension, myocardial infarction, and congestive heart failure and atherosclerosis.

KEYWORDS: Myocardial Infarction, Atherosclerosis, β-sitosterol, PyRx, pubchem.

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Abstract No: CESCOP/PAPC/0-22

Insilico screening and docking study of compounds from ficusglumosa delwith PPARα receptor target for renal tubular damage to kidney disease.

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Abstract:

Ethnopharmacological relevanceFicus glumosa del, belongs to the family moracea. They posses antioxidant properties rich inflavonoids. Ficus glumosa shows diuretic activity hence it is relevant to show nephroprotectiveactivity from the ethanolic extract of this plantAim of the studyTo show the nephroprotective activity from the ethanolic extract of ficusglumosa ingentamicin induced damaged nephropathy in rats. in-silico computational experiments wasperformed with bioactive compounds of the plant against PPARα .Ficus glumosa havingimportant bioactive molecule of gallic acid(ligand) with target receptor site of PPARα.Itdecreases the renal tubular damage by gentamicin treatment.For this purpose molecular dockingwas performed to evaluate molecular interaction,pharmacokinetics parameters and bindingenergy.For this structures of bioactive molecules are extracted from pubChem and docked tomutant protein from PDB.Ligand based pharmacaphore model showed the key features(HBD,HBA,aromaticring,hydrophobic,positivelyionisable surface essential for receptorbinding). AutoDock VINA programme was used to execute molecular docking, and the findingswere analysed and visualised in Discovery studio visualizer.Following results of compoundshowed effective for the treatment of nephrotoxicity.

Keywords: Ficus glumosa, PPARα ,gentamicin, Gallic acid.

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Abstract No: CESCOP/PAPA/0-32

METHOD DEVELOPMENT AND VALIDATION OF FLAVONOID-FISETIN BY RP-HPLC

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Abstract:

Fisetin is a polyphenolic phytoconstituent reported to have various pharmacological activities such as antioxidant, antiparkinsonian and antidepressant. The main objective is to develop and validate a simple, precise, and accurate method. An analytical method was developed and validated for the estimation of fisetin by using C-18 column. Fisetin is soluble in organic solvents such as ethanol, DMSO, dimethyl formamide, sparingly soluble in aqueous buffers. It's pKa value is 6.32(strongest acidic), 3.9 (strongest base). In the literature review, use of various solvents like Acetonitrile:Orthophosphoric acid, Acetonitrile: Formic acid. Upon conducting trials, we have decided to opt methanol:0.1% orthophosphoric acid as the mobile phase. The λ_{max} was found at 362nm. System suitability parameters was performed, retention time was 3.515 minutes, peak area was found to be 1176684, number of theoretical plates was 3855, tailing factor of 1.174 and all were within limits. Linearity was performed(2 µg/ml to 40 µg/ml) and the regression value was 0.999. Accuracy and precision was within limits. Robustness which included change in wave length, flow rate, temperature, mobile phase composition was successfully completed. LOD and LOQ were 1.6µg/ml and 4.9µg/ml respectively. ICH guidelines Q2R1 were followed. The method was also suitable for doing degradation studies successfully. A Simple, precise, economical, accurate method was developed and validated for quantitative estimation of Fisetin using RP-HPLC.

KEYWORDS: Flavonoid, Fisetin, RP-HPLC, Quantitave studies, Stability studies

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Abstract No: CESCOP/PAPC/0-29

DESIGN SYNTHESIS AND EVALUATION OF CHLORO THIAZIDE DERIVATIVES

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ABSTRACT:

Hydrochlorothiazide and chlorthiazide are high potent diuretics used in treatment of hypertension. In recent research trends shows that chlorthiazide derivatives are used in osteoporosis and also has antimicrobial activity against various bacterial species, In this view a series of Chlorthiazide Derivatives were designed, synthesized six compounds by condensing chloroacetyl chloride with chlorthiazide by using ethanol as a solvent refluxed at 60 c temperature formed compound is taken as intermediate further refluxed and condensed with Aromatic amines there by formation of substituted chlorthiazide derivatives, (Ctd-1, Ctd-2, Ctd-3, Ctd-4, Ctd-5, Ctd-6) and confirmed by the physical and chemical properties, IR, NMR spectra's. Screened for Antibacterial activity.

Keywords: Antibacterial, Chlorthiazide , Chloroacetylchloride

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Abstract No: CESCOP/PAPC/0-30

SYNTHESIS, CHARACTERIZATION AND BIOLOGICAL EVALUATION OF NEWER SCHIFF'S BASE DERIVATIVES

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ABSTRACT:
Eight newer 3-amino acetophenone containing schiff base derivatives(SSP, S1, S2, S3, S4, S5, S6, S7, S8) were prepared by three steps. All derivatives were characterized by TLC and physical studies like 1H NMR and MASS spectral studies was done . Among all derivatives SSP, S1, S3, S4 derivatives got good spectral result. For theoretical prediction, antibacterial screening was done by agar well diffusion method. From that S1, S2, S3, S4 derivatives showing good Anti-bacterial activity (in 0.01µg to 0.05 µg)),Synthesized derivatives were compared against the standard drug. Showing some similar results to standards.

Key words: 3-amino acetophenone, pyridine, hydrazine hydrate, ethyl chloroformate, ethanol.

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Abstract No: CESCOP/PAPC/0-31

SYNTHESIS, CHARACTERIZATION AND EVALUATION OF NOVEL ANTHRAQUINONE DERIVATIVE FOR ITS ANTIMICROBIAL ACTIVITY

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ABSTRACT:
The present work deals with the synthesis of novel Anthra quinone derivatives and biological screening for their In-vitro anti-microbial activity.The development of new anti-microbial resistance which is a growing global healthcare problems due to the loss of efficacy of first line antibiotics. Many pathogens are developing resistance to multiple drugs. The major resistance overall issues being related to the Enterococcus faecium ,Staphylococcus aureus, klebsieua pneumoniae, Acinetobacterbaumannil, Pseudomonas aeruginose pathogens etc..,More than 2.8 million antibiotic resistance infectious occurs in the US each year and more than 3500 people die as a result. In the present study various Anthraquinone derivatives were prepared by the condensation process with various acylated aromatic and aliphatic amines in the presence of ethanol as solvent. The acylated aromatic and aliphatic amines are prepared from various aromatic and aliphatic by treating with chloroacetylchloride .Ten Anthraquinone derivatives[1-10] are synthesized and characterized by NMR and IR spectral data. All the synthesized compounds were tested for in-vitro anti-microbial activity by taking Phenol as standard. Compounds 1,3,6,8,9 are showing moderate antimicrobial activity.

Key words: Anthraquinone, acylated aromatic and aliphatic amines, chloro acetylchloride, invitro anti-microbial activity.

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Abstract No: CESCOP/PAPC/0-32

SYNTHESIS, CHARACTERIZATION AND EVALUATION OF AZITIDINONE DERIVATIVES OF 5-BROMO-6-METHOXY INDANONE

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ABSTRACT:

Azitidinone is a β-lactam four member heterocyclic compound involved in research aimed to evaluate new products that possess interesting biological activities. These compounds reported for their antimicrobial and antifungal activities. Azitidinones which are part of antibiotics structure are known to exhibit interesting biological activities. The reaction is carried out with the base triethylamine. The melting point of Azitidinone is 73-740C. In the present work 5-bromo-6- methoxy indanone has been chosen as starting material. The synthesized Schiff bases are considered as intermediate compounds. This is broad class of chemical compounds with many important pharmacological properties, because of ease of reaction with electrophiles, it is widely used in various pharmaceutical preparations. The formation of final products were monitored by TLC. The completed products show significant color under UV light. The Azitidinone were synthesized in a facile procedure. All the compounds synthesized were characterized by IR and NMR spectra and best reports were obtained which are matching with derivatives. These compounds showed reserved anti-bacterial activity. Moreover these are less potentic when compared with standard drugs. These Schiff bases were also evaluated for antibacterial activity. All ten intermediate Schiff bases showed potent anti-bacterial activity. Newly synthesized ten derivatives showed negative result and less potent compared to intermediate compounds.

Key words: Azitidinone, triethylamine, electrophiles

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ANALYTICAL METHOD DEVELOPMENT AND VALIDATION OF ALLPURINOL AND LESINURAD BY RP HPLC SIMULTANEOUS ESTIMATION METHOD

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ABSTRACT

Objective:

A precise and accurate and stabilized method has been developed for the bulk & pharmaceuticals containing Allopurinol and Lesinuard by simultaneous method using RPHPLC.

Methods:

The method developed by RPHPLC column make Inertsil ODS 150*4.6*5µ using Phosphate buffer pH 3.0 and acetonitrile in 70:30 v/v as diluent and Mobile phase. The standard and sample are prepared in 225 and 150 ppm respectively. 10 µl of sample and standard are individually injected and detected at 255nm using PDA detector.

Discussion: Retention time for Allopurinol and Lesinuard at 4.931 and 5.961 having good number of theoretical plates and resolutions. The method is validated as per ICH guidelines. % Assay at 99.63 and 99.95% and System Suitability asymmetric factor at 1.29 and 1.22, range between 75 – 375 ppm and 50-250 ppm and r2 0.999 for both, Precision, intermediate precision and method precision lies in %RSD. The recovery study for 50%, 100% and 150% by spiking sample and recovered 99.60 and 100.15% Sensitivity of LOQ at 0.27 and 0.18, LOD at 0.09 and 0.06 ppm. The stability studies conducted by stressing acid, alkali, peroxide, thermal and light and all study shows <10% of degradation as per specified guidelines.

Conclusion: The analytical method developed is simple, rapid and sensitive for the simultaneous estimation of Allopurinol and Lesinuard in API and Indian marketed formulations and the method is validated as per ICH and the method is applicable to use to study of these in academic research, Pharmaceutical Industry, BA/BE study, Invitro dissolution studies.

Key Words: Allopurinol, Lesinuard, Method Development, RP – HPLC, Validation, ICH etc

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Abstract No: CESCOP/PAPC/0-34

Formulation and Evaluation of Colon Targeted Drug Delivery System of Diloxanide Furoate Tablets

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ABSTRACT:

Diloxanide Furoate is a Dichloroacetamide derivative utilized for the treatment of various protozoal infections like amoebiasis. Colon targeted tablets were designed using pH sensitive polymers like Eudragit S100, Eudragit L 100,Cellulose acetate phthallate and Microbial degradation polymers like Guar gum,karaya gum , Xanthan gum at different concentrations. A comparison was done among them to prvent the prematurre drug release in the GI tract, the matrix formulation further taken for compression to test the suitabilityfor targeted drug delivery to the colon. All the matrix , compression coated formulations showed the desired physicochemical properties as per the official limits. The drug release studies were performed according to the USP paddle method by using 0.1N HCL for 2 hours, p7.4 phosphate buffer for 3 hours and pH 6.8 phosphate buffer upto 12 hours. A better controlled drug release was shown for Eudragit L 100 and Xanthan gum formulation. Based on the comparative drug release study amog two types of polymers the result showed Eudragit L 100 showed good dissolution profile to control the drug release . The release kinetics of the formulations was calculated indicated that the formulation followed zero order kinetics and the diffusion exponent value is > 1 indicating that it follows super case II transport mechanism

Key words : Diloxanide Furoate,Amoebiasis,Diffusion Exponent,Supercase II transport mechanism.

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Abstract No: CESCOP/PAPC/0-34

Formulation and Evaluation of Pulsatile Drug Delivery System of Tolterodine Core in Cup Tablets

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ABSTRACT:

Pulsatile Drug delivery system, the drug delivery based on circadian rhythm is recently gaining much attention worldwide. Keeping an objective Tolterodine Tartarate Pulsatile core-in-cup tablet was designed to deliver a rapid or transient and quantified drug after a predetermined lag period. Tolterodine Tartarate core tablet was prepared by direct compression method and is used to prepare a set of core-in-cup tablets with Swellable and Rupturable polymers like Pectin, Locust bean gum and HPMCK15M respectively with different proportions with impermeable cup ethyl cellulose. Tablets were evaluated for Precompression, Post compression and in vitro dissolution studies. The drug polymer interaction was studied by FTIR. The Precompression data of core/core-in-cup tablet were within the acceptable limit and they can be compressed directly into tablets. The hardness, friability and uniformity in weight and disintegration time results were in accordance with the standard limit. The lag time is dependent on rupturing property of Ethyl cellulose and swelling property polymers. In the Optimized formulation the best fit model was found to be Korsmeyer peppas with exponential 'n' value is > 1 indicates the drug release follows super case II transport mechanism. The initial burst release was observed after lag time and drug release was extended up to 11hrs for the optimized formulation. The in vitro drug release studies suggest that core-in-cup tablet prepared with ethyl cellulose and HPMC K 15 M shows a lag time of 4 hrs due to more swelling and delayed rupturing properties of HPMC K15M and ethyl cellulose.

KEYWORDS: Pulsatile Drug Delivery, Core-in Cup, Tolterodine Tartarate, Swellable and Rupturable Polymers.

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Abstract No: CESCOP/PAPC/0-35

FORMULATION AND EVALUATION OF SUSTAINED RELEASE MESALAMINE TABLETS

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ABSTRACT: Sustained drug delivery (SDD) occurs when a polymer, whether natural or synthetic, is judiciously combined with a drug or other active agent in such a way that the active agent is released from the material in a predesigned manner. The release of active agent may be constant over a long period, it may be cyclic over a long period, or it may be triggered by the environment or other external events. The goal of many of the original sustained release systems was to achieve a delivery profile that would yield a high blood level of the drug over a long period of time. The development of sustained release formulation offers benefits like controlled administration of therapeutic dose at the delivery rate, constant blood levels of the drug, reduction of side effects minimizations of dosing frequency and enhancement of patient compliance. An anti-inflammatory agent, structurally related to the salicylates and non-steroidal antiinflammatory drugs like acetylsalicylic acid, which is active in inflammatory bowel disease. It is considered to be the active moiety of sulphasalazine. Mesalamine is a white to pinkish powder compound with a molecular formula of C7H7NO3 and a molecular weight of 153.137 g.mol-1 .By studying all the experimental results of the prepared tablets it was concluded that Antiinflammatory drug like Mesalamine is successfully formulated by dry granulation method using HPMC K4M and Sodium Alginate polymers.

KEY WORDS: Sustained release tablets, Mesalamine, anti inflammatory agent.

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Abstract No: CESCOP/PAPC/0-36

FORMULATION AND EVALUATION OF DICLOFENAC SODIUM DRUG LOADED MICROSPHERES

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ABSTRACT: Controlled drug delivery technology is concerned with systemic release of pharmaceutical agent to maintain a therapeutic level of drug in the body for a sustained period of time. Various approaches are used to develop controlled drug delivery systems. One such approach is using microspheres as carriers for drugs. There are many methods for preparation of microspheres among them ionotropic gelation method is one. The aim of the present work was formulation and evaluation of microspheres by using ionotropic gelation method using different polymers at different concentrations. Diclofenac sodium microspheres were prepared by dropping the drug containing the solution into sodium alginate. The droplets were formed by the ionotropic gelation technique. The microspheres were characterized by their particle size, % yield, morphology, swelling index, encapsulation efficiency, and in-vitro drug release. The release of drug from microspheres was greatly affected by drug concentration, polymer concentration, CaCl2 concentration, stirring time, and stirring speed. The ionotropic gelation technique can be carried out under very mild conditions using simple equipments.

KEYWORDS: Controlled drug delivery system, Microspheres, Ionotropic gelation technique, Diclofenac sodium, polymer.

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Abstract No: CESCOP/PAPC/0-37

FORMULATION AND EVALUATION OF CARBAMAZEPINE FAST DISSLOVING TABLETS BY USING SUPER DISINTEGRANTS

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ABSTRACT: The aim of this study was to improve the dissolution profile there by increase solubility from the results obtain from executed experiments it can be the Preformulation studies like angle of repose, carr's index, Hauser's ratio, bulk density, tapped density of carbamazepine had showed the better result compared to other formulations. The compatibility studies by FTIR showed that the drug carbamazepine with excipients like crospovidone, croscarmellose sodium and sodium starch glycolate do not interact in forming any other chemical entity. The peaks obtained in each combination of drug and super disintegrants are similar to the peaks of the drug's spectrum. Therefore, it indicated that there is no incompatibility between drug and excipients.. Among all the prepared formulations, showed the better drug release of 92% hence it can be stated that F6 is having satisfactory results. In-vitro drug release and disintegration compacts of F6 showed increase in dissolution rate and better disintegration time. From the results it was clearly understood that as the concentration of super disintegrant (croscarmellose sodium) increases to certain extent the release rate of drug was also rapid (improved solubility). On the basis of evaluating parameters, the optimized formulation may be used for effective management of Epilepsy, convulsions. This may improve the patient compliance by showing rapid action via disintegration without difficult in swallowing and side effects which will ultimately improve the therapeutic outcome.

Key words: carbamazepine, crospovidone