CODEN [USA]: IAJPBB ISSN : 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
SJIF Impact Factor: 7.187
https://doi.org/10.5281/zenodo.5527541

Available online at: http://www.iajps.com *Research Article*

FORMULATION AND DEVELOPMENT OF INDOMETHACIN POLYMERIC SUSTAIN RELEASE MICROSPONGES

Thoke S.T[1], Jadhao U.T.[1], Dhembre G.N.[1]

[1]Department of Pharmaceutics, SDMVM'S SVP College of Pharmacy, Hatta Tq. Basmath, Dist. Hingoli , Maharashtra, India.,

Article Received: July 2021 **Accepted:** August 2021 **Published:** September 2021

Abstract:

The goal of the present study was to develop and evaluate polymeric microsponges for sustained release of Indomethacin were prepared by quasi emulsion solvent diffusion method.Prepeared microsponge was studied for Effect of drug polymer ratio on active drug content, particle size and entrapment efficiency were studied. Drug polymer ratio greatly affects properties (entrapment efficiency, active drug content, particle size) of microsponges. Indomethacin microsponges showed highest actual drug content, entrapment efficiency and smaller particle size, so 3:1 ratio of drug and polymer was selected for optimization study. The microsponges were characterized by FTIR, DSC and SEM studies followed by determination of total drug content and entrapment efficiency. Optimization study was carried out by taking internal phase volume, stirring rate, emulsifier concentration as independent variables and their effects on entrapment efficiency, particle size were studied. Morphology of obtained micro sponges was revealed by scanning electron microscope and was found to be porous and spherical. Optimized formulation of microsponge was evaluated for drug content, pH, viscosity and in vitro drug release. Release of drug was found to be sustained through microsponge as compared to marketed product and pure drug. Drug deposition was found to be satisfactory. Prepared polymeric microsponges could be a potential for sustained release drug delivery system in pain & inflammatory therapy.

Keywords: *Microsponge, Optimization, Indomethacin, Quasi-emulsion solvent diffusion technique*

Corresponding author:
Thoke Sandip T.
Department of Pharmaceutics, SDMVM'S SVP College of Pharmacy,
Hatta Tq. Basmath, Dist. Hingoli, Maharashtra, India.
Email –sandipthoke377@gmail.com

Please cite this article in press Thoke Sandip T.et al, ***Formulation And Development Of Indomethacin Polymeric Sustain Release Microsponges.,*** *Indo Am. J. P. Sci, 2021; 08(9).*

ejpmr, 2021,8(3), 640-645

SJIF Impact Factor 6.222

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Research Article
ISSN 2394-3211
EJPMR

SIMULTANEOUS ESTIMATION OF AMBROXOL HYDROCHLORIDE AND LEVOFLOXACIN HEMIHYDRATE USING ABSORBANCE RATIO METHOD

*[1]Bodhankar V. R., [2]Thoke S. T., [2]Kouthekar V. R., [2]Deshmukh S. M. and [2]Jadhao U. T.

[1]Assistant Professor, Department of Quality Assurance, SVP College of Pharmacy Hatta, Dist. Hingoli.
[2]Department of Quality assurance, SVP College of Pharmacy Hatta, Dist. Hingoli.

*Corresponding Author: Bodhankar Vinayak R.
Assistant Professor, Department of Quality assurance, SVP College of Pharmacy Hatta, Dist. Hingoli.

Article Received on 21/01/2021 Article Revised on 11/02/2021 Article Accepted on 01/03/2021

ABSTRACT

A simple, specific, accurate, precise and economical spectrophotometric method has been developed for the estimation of Levofloxacin (LVF) and Ambroxol (AMB) in tablet dosage forms. Absorbance ratio method was used. From the overlay spectra of ABH and LFH in distilled water at concentration of 10 µg /mL each, two wavelengths 244.6 nm (λ max of ABH) and 218.6 nm (isoabsorptive point) were selected for estimation of both drugs. ABH and LFH solution individually follows the Beer-Lambert's law over concentration range 3 - 7 µg/mL and 5 – 25 µg/mL respectively. Different analytical parameters such as linearity, precision, accuracy, limit of detection (LOD), limit of quantification (LOQ), recovery were determined as per ICH guidelines. The recovery values between prescribed limit of 99-100% free from interference of excipients present in formulation. Hence, the developed method can be used quality control analysis for routine.

KEYWORDS: Levofloxacin hemihydrate, Ambroxol hydrochloride, UV spectrophotometric method, Absorbance ratio method, etc.

INTRODUCTION

Levofloxacin hemihydrate (LVF) (Fig.1)chemically, [(-)(s)-9-fluro-2,3-dihydro-3-methyl-10-(4 methyl-1-piperazinyl-7-oxo- 7H-pyrido[1,2,3-de]-1,4-benzoxazine-6-carboxylic acid is an optically L isomer of ofloxacin. It is a broad spectrum fluoroquinolone class of antibacterial agent and effective against many gram positive and gram negative bacteria. It is a potent inhibitor of bacterial DNA gyrase enzyme (topoisomerase II & IV), which is necessary for negative super coiling of DNA prior to replication. Ambroxol hydrochloride (AMB) chemically, 4-[(2-amino-3, 5-dibromophenyl)-methyl]-amino] cyclohexanol hydrochloride is a mucolytic expectorant and used to reduce the viscosity of mucous secretions. A fixed dose combination of Levofloxacin hemihydrate (LVF) and Ambroxol hydrochloride (AMB) is available for the treatment of upper and lower respiratory tract infections. This work is aimed to investigate the utility of UV spectrophotometric method for the simultaneous determination of LVF and AMB in pharmaceutical preparations. The method developed is accurate, precise and is simple and cost effective assay for these compounds in mixtures.

MATERIALS AND METHODS

Instrumentation

UV experimentation was performed on Shimadzu 1800 UV-visible spectrophotometer, equipped with photo diode array (PDA) detector, with 1 cm quartz cell. Chromatographic experimentations were performed using Systronics HPLC system equipped with 8600 HPLC pump and dual wavelength UV-Vis detector, data acquisition and processing was performed using Chemitochrom automation system software. The methods were conducted using an isocratic reverse phase techniques. The mobile phase was prepared freshly filtered through 0.45 µm membrane filter (Millipore, USA) and sonicated for 30 min before used in order to degas the mobile phase. A RP-Presnosphere C_{18} column (250 x 4.6mm, 5 µm) KNAVER, Germany was used for analysis.

Chemicals and Reagents

The bulk drugs of Ambroxol hydrochloride (ABH) and Levofloxacin hemihydrate (LFH) was procured from the Wintech Pharmaceutical, Nashik (Maharashtra). All solvents and reagents used were of HPLC and analytical grade, respectively. HPLC grade methanol, acetonitrile and water were obtained from Qualigens, Mumbai. Acetic acid, ammonium hydroxide and ammonium chloride were obtained from Merck Labs Ltd. Tablets of ABH (75 mg) and LFH (500 mg) in combined dosage form of brand name LIVBEST-AM, (Piramal Healthcare), were purchased from local pharmacy.

Scholars Academic Journal of Pharmacy
Abbreviated Key Title: Sch Acad J Pharm
ISSN 2347-9531 (Print) | ISSN 2320-4206 (Online)
Journal homepage: http://saspublishers.com

OPEN ACCESS
Pharmaceutics

Design and Development of Oral Reconstituable System of Dry Syrup Containing Ciprofloxacin

Doifode RA[1*], Ghogare JD[1], Pratapwar AS[2], Panchal PP[1], Jadhao UT[1]

[1]Department of Pharmaceutics SDMVM's SVP College of pharmacy Hatta, Dist. Hingoli, Maharashtra, India
[2]Department of Pharmaceutics SNIOP, Pusad Dist- Yavatmal MS, Maharashtra, India

DOI: 10.36347/sajp.2021.v10i02.001 | **Received:** 08.02.2021 | **Accepted:** 22.02.2021 | **Published:** 27.02.2021

***Corresponding author:** Rakhi Ashok Doifode

Abstract — **Original Research Article**

Ciprofloxacin is a broad spectrum antibiotic, active against both gram positive and gram negative bacteria. This drug is a highly bitter in taste. The present investigation was undertaken with an overall objective of studying the drug resin complexation (DRC) to mask the bitter taste of the drugs. Indion 234 and drug, ciprofloxacin were selected for the study of feasibility of employing drug resin complexation for masking the bitter taste of drug. FTIR studies indicated that there would be a possibility of chemical modification in the DRC without any changes in basic nucleus of the drug. Taste evolution of ion exchange in healthy human volunteers confirmed that the taste of Ciprofloxacin was successfully masked by ion exchange with (DRC) 1:3 ratios. Prepared batches of dry syrup was evaluated for drug content, taste of the dry syrup after reconstitution, pH of the syrup, sedimentation volume, specific gravity and dissolution characteristics. The dissolution of the drug from the reconstituted syrup follows first order kinetics. Among all the formulations F8 was found to be better formulation ciprofloxacin because of high dissolution rate and taste masking.

Keywords: Dry Syrup, Ciprofloxacin, and Indion 234, resinate complex, Taste masking.

INTRODUCTION

A number of patients, especially Pediatric and Geriatric patients have difficulty in swallowing solid dosage forms hence liquid dosage forms are needed. So drugs which are slightly soluble in water hence formulation of a suspension will be most suitable but product may be physically and chemically stable. In the present work, attention is paid to develop a reconstitutable suspension form as dry syrup. Dry Syrups are commercial dry mixtures that require the addition of water at the time of dispensing. The dry syrup is prepared commercially using drug colorants, flavours, sweeteners , stabilizing agents and preserving agents that may be preparations are available as dry powder mixtures or granules that are intended to be suspended in water or some other vehicle prior to oral administration. Most of the drugs prepared as a dry suspension for oral suspension are antibiotics. The dry mix of sweeteners, stabilizing agents, suspending agents and preserving agents that may be taken as a suspension in a glass containing prescribed amount of ingestible liquid, constitution in a liquid is stable for 24 hours after preparation, it is recommended that the suspension should be consumed immediately after preparation [1-3].

The most common reason for the formulation of Suspensions for reconstitution is inadequate chemical stability of the drug in an aqueous vehicle. In such cases, dissolution of even suspension of the drug results in a very short shelf life. For example, reconstituted suspensions of penicillin have a maximum shelf life of 14 days. The manufactured dry mixture, however, has a shelf life of at least 2 years. Another reason for the formulating Suspensions for Reconstitution is to avoid the physical stability problems often encountered in conventional suspensions. These problems include possible increased drug solubility due to pH changes from chemical degradation, incompatibility of ingredients, viscosity changes, conversion of polymorphic form and Crystal growth and caking. Formulation for Reconstitution reduces the weight of the final product because the aqueous vehicle is absent and consequently, transportation expenses may be reduced. The dry mixture may be shipped without regard to the seasonal temperatures because it's physical

The Pharma Innovation Journal 2021; 10(3): 89-94

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277- 7695
ISSN (P): 2349-8242
NAAS Rating: 5.03
TPI 2021; 10(3): 89-94

www.thepharmajournal.com
Received: 06-01-2021
Accepted: 13-02-2021

Jadhao Umesh T
Department of Pharmaceutics, SDMVM's SVP College of Pharmacy, Hatta, Parbhani, Maharashtra, India

Rathod Sayali P
Department of Pharmaceutics, SDMVM's SVP College of Pharmacy, Hatta, Parbhani, Maharashtra, India

Dhembre Gunesh N
Department of Pharmaceutics, SDMVM's SVP College of Pharmacy, Hatta, Parbhani, Maharashtra, India

Sable Shital D
Department of Pharmaceutics, SDMVM's SVP College of Pharmacy, Hatta, Parbhani, Maharashtra, India

Lokhande Sneha S
Department of Pharmaceutics, SDMVM's SVP College of Pharmacy, Hatta, Parbhani, Maharashtra, India

Corresponding Author:
Jadhao Umesh T
Department of Pharmaceutics, SDMVM's SVP College of Pharmacy, Hatta, Parbhani, Maharashtra, India

Formulation and critical evaluation of piroxicam gel

Jadhao Umesh T, Rathod Sayali P, Dhembre Gunesh N, Sable Shital D and Lokhande Sneha S

Abstract
The present study has been undertaken with the aim to formulate gel containing Piroxicam by using gelling agents like cabopol-940 and HPMC with different penetration enhancers. Five different formulae were prepared and characterized physically in term of color, spreadability, pH, drug content and rheological properties. The value of spredability indicated that these gels are easily spreadable by small amount of shear. Viscosity of gel was found in range of 36000-48900 cps. *In vitro* drug release was evaluated using Franz diffusion cell. The results of *in vitro* drug release and its permeation studies showed that the highest values was from F1 (86% of drug released after 8 hr.). Carrageenan induced rat paw oedema model was used for the evaluation of the anti-inflammatory activity of the gels. The rheological behaviour of the prepared formulae showed shear-thinning flow indicating structural breakdown of the existing intermolecular interactions between polymeric chains.

Keywords: Carbopol, *in-vitro,* diffusion, spreadability, rheology, skin irritation

Introduction
Piroxicam is COX inhibitor which has anti-inflammatory effect in addition to having antipyretic and analgesic effect. The cyclooxygenase enzyme exists in two forms. The constitutive (COX-1) and inducible (COX-2) Isoforms both isoforms are responsible for synthesis of cyclic endoperoxide intermediate from arachidonic from arachidonic acid which are substrate after prostaglandin and thromboxane syntheses.

Piroxicam main mechanism of action is inhibition of enzyme cyclooxygenase resulting in reduced prostaglandin synthesis. Piroxicam inhibits prostaglandin (thromboxane) synthesis in the platelet and thus inhibits secondary phase of platelet aggregation. Piroxicam stimulates immune function requiring lymph proliferation by suppressing the formation of PGE_2 which is natural inhibitor [1]. Piroxicam when given orally it produces the various side effects, so that drug is not used frequently so it is worthwhile to formulate the drug in other suitable i.e. topical drug delivery to eliminate the side effect [1-3].

The percutaneous absorption of drug involves two consecutive process; the release other drug from the topical formulation, and its absorption into the skin at the site of application, increasing the release rate of the drug from the dosage forms might therefore improve percutaneous absorption.4 The release rates of drugs from topical preparations depend directly on the physiochemical properties of the carrier and the drug employed. Topical application of anti-inflammatory agents at the site of inflammation can overcome their systemic side-effects and improve their therapeutic activity [5-6].

Material and Method
Material
Piroxicam was obtained as kind gift sample from Cipla, Vikroli (Mumbai), India. Carbomer 940 & HPMC was purchased from Oxford Laboratory, Mumbai, India. All other materials used of analytical grades.

Method
Preparation of piroxicam gel
Carbomer 940 gel
Carbomer 940 was soaked in 50 ml of water in different conc. of carbomer i.e. 0.5% and 1%. On the next day they stirred uniformly to form the mucilage. In each of the mucilage drug was added (previously dissolved in Dimethyl formamide/Dimethyl sulfoxide/Ethanol) with constant stirring. Preservative methyl paraben and propyl paraben were added.

Scholars Academic Journal of Pharmacy
Abbreviated Key Title: Sch Acad J Pharm
ISSN 2347-9531 (Print) | ISSN 2320-4206 (Online)
Journal homepage: http://saspublishers.com

OPEN ACCESS
Pharmaceutics

Design and Development of Multiparticulate Floating Drug Delivery System Containing Lisinopril

Rathod Sayali P[1*], Jadhao Umesh T[1], Lokhande Sneha S[1], Panchal Pranita P[1], Wakade RB[2]

[1]Department of Pharmaceutics SDMVM's SVP College of Pharmacy Hatta, Parbhani, M.S Maharashtra, India
[2]Department of Pharmaceutics SNIOP Pusad Dist-Yavatmal M.S Maharashtra, India

DOI: 10.36347/sajp.2021.v10i03.004 | **Received:** 13.02.2021 | **Accepted:** 24.02.2021 | **Published:** 28.03.2021

***Corresponding author:** Sayali P. Rathod

Abstract — **Original Research Article**

The aim of present work is to design multiple unit floating drug delivery system for prolong release of Lisinopril by using different amount of waxes, and to study effect of pectin on buoyancy of the system. The purpose of the study is to prepare wax-encarporated pectin-based emulsion gel beads using a modified Emulsion-gelation technique. The Model drug was incorporated in pectin wax contain olive oil, Lisinopril, were hot-melted, homogenized and then extruded into calcium chloride solution. The prepared Wax-incorporated Emulsion Gel Beads were evaluated for Micromeritics studies, entrapment efficacy, in-vitro buoyancy rate, dissolution rate, it was concluded that the increase of drug release of Lisinopril could be obtained upto 10 hrs.Various preformulation studies like bulk density, tapped density, Carr's index angle of repose were in the acceptable limits especially for batch F9. Drug and polymer are compatible with each other as they are verified through FTIR spectroscopy. Increasing the amount of wax in the formulation significantly prolonged the drug release but was insufficient for sustaining the release of highly water-soluble drug.

Keywords: Lisinopril, Multiparticulate, gastroretentive, buoyancy.

INTRODUCTION

Gastro retentive systems or dynamically controlled systems are low-density systems that have comparatively more buoyancy to float over the gastric contents and remain buoyant in the stomach without affecting the gastric emptying time for a prolonged period of rate & time . This results in an increased gastric retention time and a better control of the fluctuations in plasma drug concentration. Many buoyant systems have been developed based on granules, powders, capsules, tablets, laminated films and hallow Microspheres [1].

Gastro retentive drug delivery system (GRDDS) is one of the gastro retentive dosage forms which could prolong gastric retention time (GRT) to obtain sufficient drug bioavailability. This system floats in the gastric fluid due to its lower bulk density compared to that of the aqueous medium. FDDS is desirable for drugs with an absorption window in the stomach or in the upper small intestine. This system is also useful for drugs which act locally in the proximal part of gastrointestinal (GI) tract, such as antibiotic administration for Helicobacter pylori eradication in the treatment of peptic ulcer andor drugs which are poorly soluble or unstable in the intestinal fluid [2].

Multiparticulate systems show better reproducible pharmacokinetic behavior than conventional (monolithic) formulations. After disintegration which occurs within a few minutes often even subunits have diameters of less than 2 mm, they are able to leave the stomach continuously, even if the pylorus is closed. These results in lower intra and inter individual variability in plasma levels and bioavailability [3, 4].

It would, be advantageous to have means for providing an intimate contact of the drug delivery system with the absorbing membranes. This can be achieved by coupling gastroretentive and bioadhesion characteristics to multiparticulates and developing gastroretentive bioadhesive multiparticulates. These multiparticulates have advantages like efficient absorption and enhanced bioavailability of the drugs due to a high surface to volume ratio, a much more intimate contact with the mucus layer and specific targeting of drugs to the absorption site [5-8].

Research Article

Formulation and evaluation of nanosponge gel containing ketoconazole

Umesh T. Jadhao, Rathod P. Sayali, Dhembre N. Gunesh, Sable D. Shital, Lokhande S. Sneha

Department of Pharmaceutics, SDMVM's SVP College of Pharmacy Hatta, Basmath, Hingoli, Maharashtra, India

Correspondence:
Umesh T. Jadhao, Department of Pharmaceutics, SDMVM's SVP College of Pharmacy Hatta, Basmath, Hingoli, Maharashtra, India.
E-mail: umj81@rediffmail.com

How to cite this article:
Jadhao UT, Sayali RP, Gunesh DN, Shital SD, Sneha LS. Formulation and evaluation of nanosponge gel containing ketoconazole. Innov Pharm Pharmacother 2021;9(1):15-24.

Source of Support: Nil.
Conflicts of Interest: None declared.

ABSTRACT

Aim: The aim of present work is to successfully formulate, evaluate and optimize nanosponges of ketoconazole drug for its efficient delivery through gel base. **Methodology:** Nanosponges were prepared using hyper cross-linked β-cyclodextrin method using different concentration of cross-linker. Diphenyl carbonate was used as the cross-linking polymer. Nanosponge formulations were prepared using β-CD:cross-linker ratios of 1:15–1:3. **Results:** The prepared nanosponges were evaluated for percentage yield, incorporation efficiency, particle size, drug polymer compatibility, scanning electron microscopy (SEM), and *in vitro* drug release. SEM studies confirmed their porous structure with number of nanochannels. The Fourier transform infrared spectra showed stable character of ketoconazole in mixture of polymers. Differential Scanning Calorimetry study revealed that drug was involved in complexation with nanosponges. The average particle size of nanoparticles was found to be 78.81 ± 0.20 nm–336.02 ± 0.124 nm. The drug release from nanosponges was found to extend up to 8 h 82–92%. The nanosponges were formulated into gel using Carbopol 940 Batches G1 to G4 and were prepared by incorporating nanosponges equivalent to 6% w/w of ketoconazole in different polymer concentrations, respectively, and evaluated for percent drug content, viscosity study, spreadability study, and *in vitro* diffusion studies. Drug diffusion from the nanosponge loaded gel formulations was show sustained rate. **Conclusion:** A sustained release topical drug delivery of ketoconazole developed as a nanosponge loaded gel offers solubilizing matrix for the drug, served as a local depot for sustained drug release, and provided a rate limiting matrix barrier for modulation of drug release.

Keywords: Ketoconazole, nanosponges, drug diffusion, β-cyclodextrin

Introduction

The nanosponges are tiny mesh-like structures in which a large variety of substances can be encapsulated.[1,2] They have a proven spherical colloidal nature, reported to have a very high solubilization capacity for poorly soluble drugs by their inclusion and non-inclusion behavior.[3] Nanosponges have recently been developed and proposed for drug delivery. Nanosponges can solubilize poorly water soluble drug and provide prolonged release as well as improving bioavailability of drugs.[4] Nanosponges are able to load both hydrophilic and hydrophobic drug molecules because of their inner hydrophobic cavities and external hydrophilic branching, thereby offering unparalleled flexibility.[5] Nanosponges are more like a three dimensional network or scaffold. The backbone is a long length of polyester which is mixed in solution with small molecules called cross-linkers that act like tiny grappling hooks to fasten different parts of the polymer together.[6] Nanosponges show a remarkable advantage in comparison with the common nanoparticles. Indeed, they can be easily regenerated by different treatments, such as washing with eco-compatible solvents, stripping with moderately inert hot gases, mild heating or changing pH or ionic strength. For all these characteristics, nanosponges have been already employed in different applied fields, such as cosmetic and pharmaceutical sectors.[7,8]

Ketoconazole is antifungal drug often used in the treatment of fungal infection of skin such as athletes foot, jock itch, ringworm, candidiasis, and seborrhea. It has pH-dependent solubility and permeability. The drug has a half-life of 1–2 h. Because of its short biological half-life the drug has to be administered frequently. Furthermore, oral ketoconazole causes irritation in gastric mucosal membrane and possess a bitter taste and after taste. Therefore, present work aims at designing novel nanosponges as carriers for topical delivery of ketoconazole which

Access this article online	
Website: www.innpharmacotherapy.com	e-ISSN: 2321-323X p-ISSN: 2395-0781

Research Article

Design and Development of Gastro Retentive System Containing Cefixime Trihydrate

Jadhao UT*., Dhembre GN, Sayyed Asad Ali., Bodhankar VR, Kouthekar VR. Thoke ST
Department of Pharmaceutics, SDMVM's SVP College of Pharmacy Hatta, Parbhani, M.S., India.
***Corresponding author's E-mail:** Umj81@rediffmail.com

Received: 14-02-2021; **Revised:** 25-03-2021; **Accepted:** 02-04-2021; **Published on:** 20-04-2021.

ABSTRACT

The present study was carried out to develop the floating drug delivery with sustained release of Cefixime Trihydrate using, HPMC K100M and Carbopol P934, Ethyl cellulose polymers. FT-IR study was carried out which suggested that there was no significant drug interaction between Cefixime trihydrate with polymers and other excipients. Precompression parameter & post compression parameters are within pharmacopeial limits. *In-vitro* dissolution studies showed good percent yield, good buoyancy and release for more than 12hrs.Floating lag time of tablet found to be (15±0.87-37±0.08). And uniformity of content was found to be range (95.85±1.43to100.8±1.79). Stability studies at temperature 40°C/75% RH for 0,5,15.30,45,60 days on optimized batch showed no significant effect on physical properties, drug content, floating behavior and drug release.

Keywords: Cefixime Trihydrate, swelling index, Lag time, stability studies.

QUICK RESPONSE CODE →

DOI: 10.47583/ijpsrr.2021.v67i02.016

DOI link: http://dx.doi.org/10.47583/ijpsrr.2021.v67i02.016

INTRODUCTION

Gastro-retention of drug delivery system in the stomach prolongs the overall gastrointestinal transit time, thereby resulting improved bioavailability. The floating dosage form has been used most commonly. GRDFs extend significantly the period of time over which the drug may be released. They only prolong dosing intervals, but also increase patient compliance beyond the level of existing controlled release dosage form. Dosage forms that can be retained in the stomach are called gastro retentive drug delivery systems (GRDDS) [1-3]. Gastro retention is essential for drugs that are absorbed from the stomach, drugs that are poorly soluble or degraded by the higher pH of intestine and drugs with an absorption which can be modified by changes in gastric emptying time[4-5] Gastro retentive drug system can remain in the gastric region for several hours and hence prolonged the gastric resistance time prolong the gastric retention improve bioavailability reduce drug waste and improve solubility of the drug .that are less soluble in the high PH environment the need of gastro retentive dosages form has led to extensive effort I both academic and industry to words the development of such drug delivery system.

Cefixime trihydrate is a third-generation cephalosporin antibiotics having bactericidal activity by inhibition of cell wall synthesis and used in the treatment of uncomplicated UIT, otitis media, pharyngitis & tonsillitis. Its biological half –life 3 -4hrs. And bioavailability 40-50%. Cefixime trihydrate incompletely absorbed from the gastrointestinal tract because poor bioavailability. Improve the therapeutics effect of the drug by increasing its bioavailability.[6-7]

MATERIALS AND METHODS

Material

Cefixime trihydrate was obtained as kind gift sample from Covalent Pharma, Mumbai India. Xanthum gum purchased from Pure chem Laboratories Mumbai, India, Ethyl cellulose & Carbopol P-934was purchased from Corel Pharma Chem, Mumbai India. All other materials used of analytical grades

Methods

Effervescent floating tablets containing Cefixime Trihydrate were prepared by direct compression technique using varying concentrations of different grades of polymers with Cefixime Trihydrate, HPMC K100M, ethyl cellulose, Carbopol P 934, sodium bicarbonate and citric acid. All the ingredients were accurately weighed. Different formulations were made in order to achieve desired friability, thickness, hardness and drug release. The tablets were formulated using drug, diluents, release rate retarding polymer, gas generating agent, and binder, lubricant and gradient. The direct compression method involves sifting of drug along with the polymer through sieve 40 and uniform mixing was carried out for 5 minutes in a polybag. Afterwards one by one all the ingredients were sifted and mixed in it accept the magnesium stearate. The blend was mixed thoroughly for 15 minutes. Finally, magnesium stearate was added and mixed for further 2-3 minutes. The weights of the tablets were kept constant for all formulation.

ejpmr, 2021,8(4), 435-441

SJIF Impact Factor 6.222

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Research Article

ISSN 2394-3211

EJPMR

IMPROVEMENT OF SOLUBILITY AND DISSOLUTION RATE OF CARVEDILOL BY SOLID DISPERSION TECHNIQUE

U. T. Jadhao[1]*, S. D. Sable[1], G. N. Dhembre[1], R. D. Ingole[2], S. P. Rathod[1], S. M. Deshmukh[1], Bodhankar V. R.[1]

[1]Department of Pharmaceutics, SDMVS'S SVP College of Pharmacy, at Hatta, Tq-Basmath Dist. Hingoli, M.S.
[2]Department of Pharmaceutics, DJPS College of Pharmacy, Pathri Dist-Parbhani M.S.

***Corresponding Author: U. T. Jadhao**

Department of Pharmaceutics, SDMVS'S SVP College of Pharmacy, at Hatta, Tq-Basmath Dist. Hingoli, M.S.

Article Received on 24/01/2021 **Article Revised on 14/02/2021** **Article Accepted on 05/03/2021**

ABSTRACT

Carvedilol is a nonselective β-adrenergic blocking agent with α1-blocking activity and it is indicated for the treatment of mild-to-severe chronic heart failure and hypertension. By preparing solid dispersion of Carvedilol with poloxamer 188 and PVP K90 solubility of Carvedilol was significantly improved. Solid dispersion can be prepared in different ratios such as 1:1, 1:2, and 1:4. This prepared solid dispersion evaluated for drug content, solubility study and dissolution study. The drug content of different batches such as A1 is 78.99 %, A2 is 91.19%, A4 is 93.03%, B1 is 93.60%, B2 is 94.71% and B4 is 99.34 % respectively The solid dispersion technique with PVP K90 as a carrier provides a promising way to not only enhance the solubility but also dissolution rate of carvedilol.Tablet prepared by using sodium starch glycolate in 4% concentration shows 100% drug release in 30 min as compared to the tablets which can be prepared without superdisintegrants. After stability study of immediate release tablet there was no significant changes can be observed in Hardness, disintegration and % release of drug. It indicates that the prepared tablet is stable throughout the study.

KEYWORDS: Carvedilol, PVP K90, Poloxamer 188, Solid dispersions, Solubility, Dissolution rate, etc.

INTRODUCTION

Drug absorption from the gastrointestinal tract can be limited by a variety of factors, most significant contributors being poor aqueous solubility and poor membrane permeability of the drug molecule. When delivering an active agent orally it must first dissolve in gastric and or intestinal fluids before it can permeate the membranes of the GI tract to reach systemic circulation. Hence, two areas of pharmaceutics research that focus on improving the oral bioavailability of active agents include; enhancing solubility and dissolution rate of poorly water-soluble drugs and enhancing permeability of poorly water soluble drugs.[1-3]

Carvedilol is a novel, multiple-action cardiovascular drug that is currently approved in many countries for the treatment of hypertension. The reduction in blood pressure, produced by carvedilol, results primarily from beta-adrenoceptor blockade and vasodilation, the latter resulting from alpha 1-adrenoceptor blockade. Being categorized as class II compound as per the BCS classification system, it possesses very poor bioavailability and shows significant first pass metabolism.[1] Moreover, it is desirable to improve the solubility as well as bioavailability of carvedilol. The most promising method for promoting dissolution is the formation of solid dispersion in a proper carrier. The incorporation of drug into solid carriers has been reported to result in an increase in the dissolution of drug leading to improved bioavailability.

The term solid dispersion refers to a group of solid products consisting of a hydrophilic matrix and a hydrophobic drug. The matrix can be amorphous or crystalline in nature.[4-5] Solid dispersions have been extensively studied for improvement of dissolution rate and numerous techniques of diverse nature have been developed for preparation of the same. Because of the simplicity of manufacturing and scale up processes, the popularity of the solid dispersion systems to solve difficult bioavailability issues with respect to poorly water-soluble drugs will grow rapidly. Because the dosage form can be developed and prepared by using small amounts of drugs substances in early stages of the drug development process, the system might have an advantage over such other commonly used bioavailability enhancement techniques as micronization of drugs and soft gelatine encapsulation.[6] Single or combination of carriers may also be essential for development of solid dispersion.

MATERIALS AND METHOD

Materials

Carvedilol was provided by Alkem laboratories Ltd, Mumbai., India as a gift sample and PVP K90 and Poloxamer 188 were purchased from Alkems labs Ltd,

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 2 Mar-Apr 2021, pp: 290-301 www.ijprajournal.com ISSN: 2249-7781

Preparation of Floatingmicrospheres of Acyclovir by Emulsion Solvent Diffusion Technique:

Munde Anirudha V*, Jadhao Umesh T, Sayyed Asad Ali, Pawar Anil
Department of Pharmaceutics SDMVM's SVP College of Pharmacy Hatta, Hingoli Maharashtra India.
Corresponding author: Mr. Anirudha V. Munde Asst. Prof. SVP College of pharmacy Hatta, Hingoli

Date Of Submission: 20-03-2021 Date Of Acceptance: 05-04-2021

ABSTRACT: The aim of work was to improve the oral bioavailability of the poorly water soluble drug by incorporating in floating drug delivery system. For better absorption and enhanced bioavailability of some drug, prolongation of retention time of the dosage form in the stomach is essential. In the present study Acyclovir was selected as model drug as it is the prototype antiviral agent used to treat various types of herpes infections having short half-life (2.5-3.3 hours) and low bioavailability (15-30%) in the upper part of GIT hence, it is suitable for gastro-retentive system. Ethyl cellulose was used to achieve the controlled delivery of drug from polymer matrix and emulsion solvent diffusion techniqueis selected for formulation. The particle size of floating microspheres shows different size for different formulation; this may due to variation in the composition of formulations. The mean particle size for all formulations was in the range of 135.103 – 229.418µm.

Keywords: Gastric residence time (GRT),Hydrodynamically balanced system (HBS),Acyclovir, Ethyl cellulose,Gastric emptying time (GET),Microspheres.

I. INTRODUCTION:

Oral drug delivery has been known for decades as the most widely used route of administration among all the routes. Oral delivery of drugs is the most preferable route of drug delivery due to ease of administration, patient compliance and flexibility in formulation. Pharmaceutical product designed for oral delivery which are currently available in the market mostly immediate-release or conventional release, which maintains the drug concentration within the therapeutically effective range only, when administered several times a day.[1]

The design of an oral controlled drug delivery system (DDS) should be primarily aimed at achieving more predictable and increased bioavailability of drugs. Several difficulties are faced in designing controlled release system for better absorption and enhanced bioavailability .Various approaches have been made to prolong the retention time of dosage form in the stomach. Retention of drug delivery system with prolonged overall gastrointestinal transit time and slow but completerelease in the stomach improves bioavailability of drugs that have site specific absorption from stomach.[2]

Furthermore, the relatively brief gastric emptying time (GET) in humans, which normally averages 2-3 hours through the major absorption zone (stomach or upper part of the intestine), can result in incomplete release from the drug delivery system (DDS) leading to decreased efficacy of the administered . Thus, control of placement of a DDS in a specific region of the gastrointestinal (GI) tract offer numerous advantages, especially for drugs exhibiting an absorption window in the GI tract or drugs a stability problem. Overall, the intimate contact of the DDS with the absorbing membrane has the potential to maximize drug absorption and may also influence the rate of drug absorption. These considerations have been tried to increase residence time and prolong drug release. One such method is the preparation of a device that remains buoyant in the stomach contents due to its lower density than that of the gastric fluids.[3-6]

The gastric emptying of a multiparticulate floating system would occur in a consistent manner with small individual variation. On each subsequent gastric emptying, sink particles will spread out more uniformally over a large area of absorption sites, increasing the opportunity for drug release profile and absorption in a more or less predictable way. Moreover, since each dose consists of many subunits the risk of dose dumping is reduced.[7-8]

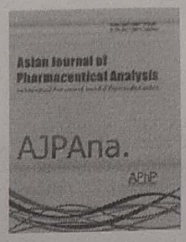
Floating microspheres are gastro-retentive drug delivery systems based on non-effervescent approach. Hollow microspheres are in strict sense, spherical empty particles without core. These microspheres are characteristically free flowing powders consisting of proteins or synthetic

Asian Journal of Pharmaceutical Analysis. 12(3): July - September, 2022

ISSN 2231–5667 (Print)
2231–5675 (Online)
DOI:
Vol. 12 | Issue-03|
July - September| 2022

Available online at
www.anvpublication.org
www.asianpharmaonline.org

Asian Journal of Pharmaceutical Analysis
Home page *www. ajpaonline.com*



RESEARCH ARTICLE

Development and Validation of UV Spectrophotometric Methods for Simultaneous Estimation of Dolutegravir Sodium and Rilpivirine Hydrochloride in Pure Bulk Form

Sandip T. Thoke, Umesh T. Jadhao, Gunesh N. Dhembre
Assistant Professor, SVP College of Pharmacy, Hatta, Hingoli (Maharashtra) - 431705.
*Corresponding Author E-mail: **sandipthoke377@gmail.com**

ABSTRACT:
A simple, specific, sensitive, rapid, precise, accurate and economical UV Spectrophotometric simultaneous equation method have been developed and validated for the routine estimation of Dolutegravir sodium and Rilpivirine Hydrochloride in bulk form. The Method A employs estimation of drugs by simultaneous equation method (SEM) using synthetic mixture of drugs. The absorption maxima of drugs were found to be at 259.20nm for Dolutegravir sodium and 305.80nm for Rilpivirine Hydrochloride. Both drugs followed the beer lamberts law in the range of 4-24µg/ml and 1-8µg/ml for DOL and RIL respectively. Methods are validated according to ICH guidelines and can be adopted for the routine analysis Dolutegravir sodium and Rilpivirine Hydrochloride in pure bulk form.

KEYWORDS: Dolutegravir, Rilpivirine, Simultaneous equation, Validation.

INTRODUCTION:
The Combination antiretroviral therapy (cART) has evolved considerably over the past two decades leading to better control of human immunodeficiency virus (HIV), preservation of the immune system and decreased incidence of opportunistic infections, malignancies and deaths[1]. The human immunodeficiency virus (HIV) is a retrovirus that infects the cells of the immune system and is characterized by a decline in CD4? cell count and immune function, which can result in life-threatening opportunistic infections (OI), HIV-related cancer and acquired immunodeficiency syndrome (AIDS). HIV represents a global pandemic affecting an estimated 34 million individuals and causing 1.7 million deaths through AIDS or HIV-related illness per year[2].

The most used antiretroviral therapy against HIV virus is based in the use and combination of two or three drugs from at least two different families. This combination is called "Highly Active Antiretroviral Therapy" (HAART)[3]. There are two drug combination for assessing the safety and efficacy of switching from stable antiretroviral regimens composed of two nucleosidenucleotide reverse transcriptase inhibitors (NtRTIs) plus a protease inhibitor (PI), INSTI or NNRTI to a combination of dolutegravir (DOL) plus rilpivirine (RIL)[4]. Dolutegravir sodium chemically, (4R,12aS)-9-{[(2,4-difluorophenyl)methyl]carbamoyl}-4-methyl-6,8-dioxo-3,4,6,8,12,12a-Hexahydro-2H-pyrido[1',2':4,5]pyrazino[2,1-b][1,3]oxazin-7-olate[5]. [Figure 1] Dolutegravir is a novel integrase stand transfer inhibitor active against Human Immunodeficiency Virus. Dolutegravir sodium is a white to light yellow powder and is slightly soluble in water[6].

CODEN [USA]: IAJPBB ISSN : 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

SJIF Impact Factor: 7.187
https://doi.org/10.5281/zenodo.7181787

Available online at: http://www.iajps.com *Research Article*

OPTIMIZATION AND CHARACTERIZATION OF MICROEMULSION FOR NASAL DRUG DELIVERY

Rathod Sayali P*., Jadhao U.T., Ghogare Jyoti . D, Panchal Pranita P.
Department of Pharmaceutics, SVP college of pharmacy (B.pharmacy) ,Hatta Tq.Basmat, Dist-Hingoli

Article Received: September 2022 **Accepted:** September 2022 **Published: September** 2022

Abstract:
The present study was aimed to develop and evaluate micro emulsion of Ibuprofen for intranasal delivery. Micro emulsion formed by Capmul PG8, tween 80, propylene glycol is clear, transparent and stable. Among various formulations formulated ME-1, ME-2, ME-3, ME-4, ME-5, ME-6 were clear, transparent and stable. Globule size of final optimized formulation ME-5 had a diameter of 155.4 nm and width of 36.65 nm; this confirms the Isotropic nature of micro emulsion In vitro diffusion study was also done on bovine nasal mucosa. the release of the drug from the formulation showed a lag time of 30 min. 42.11% of drug was released Micro emulsion showed higher drug release which may be due to solubility enhancing of surfactant and co-surfactant. The microemulsion systems are transparent and stable at ambient conditions for 1 month. Stability study was carried out at 40°C & 75% RH for one month. Formulation was stable for total period of study.

Keywords- *Microemulsion, Capmul, Nasal drug delivery, surfactant.*

Corresponding author:
Sayali P.Rathod,
E-mail: Sayalirathod7972@gmail.com

QR code

Please cite this article in Sayali P.Rathod et al, ***Optimization And Characterization Of Microemulsion For Nasal Drug Delivery.,*** *Indo Am. J. P. Sci, 2022; 09(09).*

Vol 10, Issue 6, November – December 2022 DOI: https://doi.org/10.31426/ijrpb.2022.11.6.10501

Indian Journal of Research in Pharmacy and Biotechnology (IJRPB)
www.ijrpb.com ISSN: 2321-5674 (Print), 2320-3471 (Online)

Cross Ref DOI: https://doi.org/10.31426/ijrpb Indexed in CAS and CABI, Impact Factor: 0.64

AN OVERVIEW OF INHERITED DISORDERS IN INDIA

D.N. Male[1], U.T. Jadhao, R.D. Raut, D.A. Rathod., A.P. Pawar.

Department of Pharmacology, Shri Dhaneshwari Manav Vikas Mandal's S.V.P College of Pharmacy, Hingoli, Maharashtra

Email: malednyaneshwar@gmail.com

Keywords:

Neurological And Non-Neurological Genetic Inheritance Disorder with Understanding Different Genetic Inheritances Pattern

ABSTRACT

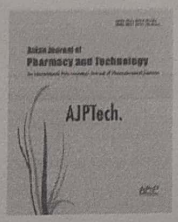
Genetics is the study of heredity and the variation of inherited characteristics. Mendel gave the concept of "factor" being transmitted from parents to progeny. These factors are known as genes. The cell is a fundamental unit of the body. The inner material, cytoplasm, consists of a nucleus in the center and many microscopic organelles such as mitochondria, Golgi bodies, centrosome, endoplasmic reticulum, ribosomes, lysosomes which perform specialized functions in the cell. The nucleus containing nucleolus, nucleoplasm and thread like structure i.e., chromatin. The chromosomes are the structural unit of inheritance and carry many genes within them which are functional unit of a character. The locus is the position of chromosome where genes can be located. In human beings, all the genetic information or genome, is distributed between 23 pairs of chromosomes i.e., 46 chromosomes. One of the 23 pairs is the sex chromosome and the other 22 pairs of chromosomes are called autosomes. In autosomes, one set of pair is derived from the mother and another one from the father. The only exemption is the sex chromosomes, which come in two forms: X or Y. The presence of homozygous XX chromosome gives birth to female and the XY composition, i.e., heterozygous chromosome results in males. The YY pair of chromosomes does not exist. Males have only one X and therefore, only one set of alleles for all genes on the X, while females have paired alleles on their sex chromosomes. The human genome is made up of deoxyribonucleic acid (DNA), which consists of a long sequence of nucleotide bases of four types: adenine (A), cytosine(C), guanine (G) and thymine (T).

ISSN 2231–5705 (Print)
2231–5713 (Online)
DOI:

Vol. 13 |Issue-01|
January – March | 2023

Available online at
www.anvpublication.org
www.asianpharmaonline.org

Asian Journal of Pharmacy and Technology
Home page *www.ajptonline.com*



REVIEW ARTICLE

Formulation and Evaluation of Nanosuspension of Ambroxol Hyrochloride

M. K. Andhale[1], Jadhao. U. T.[2], Rathod. D. A.[1], Thoke S. T.[2], Dhembre G. N.[2]
[1]Department of Pharmaceutics S.B.N.M College of Pharmacy, Hatta, Hingoli, MS.
[2]Department of Pharmaceutics SVP College of Pharmacy Hatta, Hingoli, MS.
*Corresponding Author E-mail: **Mayurandhale07@gmail.com**

ABSTRACT:
The aim of the present investigation was to Formulation and evaluation of Nanosuspension of Ambroxol hydrochloride for pediatric use. Ambroxol hydrochloride is a mucolytic agent used to treat respiratory diseases associated with viscid or excessive mucus accumulated in respiratory tract. The present research involved to find out the effect of different polymer and their ratio on the formulation of ambroxol hydrochloride oral nanosuspension. The prepared nanosuspension is evaluated by solubility, particle size, entrapment efficiency, DSC study, SEM analysis, re-dispersion study, sterility and *In-vitro* drug release studies shows that the prepared nanosuspension has increased solubility and dissolution rate compared to pure drug. The formulated F5 has shown the better results like as UV rage is 244nm, soluble in methanol, particle size and Stability.

KEYWORDS: Ambroxol hydrochloride; Oral nanosuspension; High speed homogenization.

INTRODUCTION:
Nanosuspensions are colloidal dispersions of nanosized drug particles stabilized by surfactants. It is a biphasic system compromising of pure drug particles dispersed in an aqueous vehicle in which the diameter of the suspended particle is less than 1µm in size Solubility of a drug is major challenge for development of formulation. A poorly water soluble drug exhibit inadequate and variable bioavailability and finally leads to gastro intestinal toxicity due to slow drug absorption, when administered orally. For such drugs, solubility is the most important parameter, to achieve their desired concentration in systemic circulation for therapeutic effect. The drugs belonging to BCS II have these problems. The rate limiting step for BCS class II drugs is the solubility and drug release from dosage form, So increasing the solubility of BCS class II drugs in turn increases the bioavailability.

This can be achieved by different techniques like media milling, high speed homogenization and other techniques[1].

To produce nanosuspension of small size suitable for pharmaceutical uses most commonly used techniques high pressure homogenization and wet milling. High pressure homogenization technique has been extensively used with regard to particle size reduction efficiency and also it shows more advantages like simple, time saving over other milling techniques. The drug particles should be sufficiently small to pass through the high speed homogenizer[2].

Ambroxol hydrochloride is a metabolite of Bromhexine. It used as an expectorant, mucolytic agent to treat acute and chronic diseases. It has short plasma half-life 4 hours require frequent daily dosing (2-3 times)[3].

Therefore Ambroxol hydrochloride was chosen as a model drug with the objective of formulation of nanosuspension by high pressure homogenization technique for improving bioavailability, therapeutic effect with lower dose and better patient compliance[4].

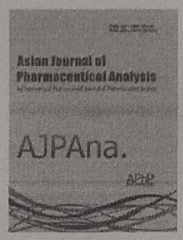
Asian Journal of Pharmaceutical Analysis. 13(1): January - March, 2023

ISSN 2231–5667 (Print)
2231–5675 (Online)
DOI: 10.52711/2231-5675.2023.00004

Vol. 13 | Issue-01|
January - March| 2023

Available online at
www.anvpublication.org
www.asianpharmaonline.org

Asian Journal of Pharmaceutical Analysis
Home page *www. ajpaonline.com*



RESEARCH ARTICLE

Stability Indicating HPTLC Method Development and Validation for Estimation of Nortriptyline and Pregabalin in Tablet Dosage Form

Ghogare Jyoti D.*, Panchal Pranita P., Rathod Sayali P., Jadhao U. T.
Department of Pharmaceutical Quality Assurance, SVP College of Pharmacy (B. Pharmacy),
Hatta Tq. Basmat, Dist - Hingoli
*Corresponding Author E-mail: **jyotighogare8275@gmail.com**

ABSTRACT:
Chromatography is non-destructive procedure for resolving a multi-component mixture of solids, gases, Liquids. HPTLC is use of validated methods for qualitative and quantitative analysis. HPTLC is playing an important role in analytical world and a complementary method for HPLC. The analytical method was evaluated by using parameters such as Linearity, Precision, Accuracy, Limit of detection and Limit of quantification, Specificity, Robustness. In this method 100ng μL^{-1} and 750ng μL^{-1} volume of standard stock solutions of Nortriptyline and Pregabalin were taken, respectively. The mobile phase contains Toluene: Ethyl acetate: Methanol (6: 2: 1, v/v/v). Standard stock solutions were applied by over spotting on HPTLC plate with the help of CAMAG 100µl sample syringe, Linomat 5 sample applicator. The development chamber was saturated for 15 min. The plate was scanned at 210nm. The retention factors of PREGA and NORT were found to be PREGA: 0.48±0.03, NORT: 0.70±0.07. The % drug content (mean±S.D.) were found to be 99.32±1.39 for NORT and 99.75±1.15 for PREGA. The results of stress degradation studies revealed that NORT was prone to hydrolysis, oxidative, thermal and photolytic degradation whereas PREGA was found susceptible to hydrolysis, oxidative, thermal degradation but stable under photolytic stress conditions.

KEYWORDS: HPTLC, Nortriptyline, Pregabalin, Method development. ICH guidelines.

INTRODUCTION:

Nortriptyline (NORT) is chemically 3-(5,6-dihydrodibenzo[2,1-b:2',1'-][7]annulen-11-ylidene)-N-methylpropan-1-amine.[2] Nortriptyline inhibits the reuptake of the neurotransmitter serotonin at the neuronal membrane or acts at beta-adrenergic receptors. Pregabalin (PREGA) is chemically (3S)-3-(amino methyl)-5-methylhexanoic acid.[1] Pregabalin binds to an auxiliary subunit of voltage-gated calcium channels in central nervous system tissue with high affinity to the alpha2-delta site. This combination is used for nerve damage pain, seizures, depression, anxiety disorder in adults and other conditions. Literature survey revealed that HPLC method had been reported for estimation of NORT and PREGA either as single drug or in combination with other drugs. To best of our knowledge, no reports were found for Development and Validation on HPTLC determination of NORT and PREGA in combined tablet dosage form.[9-17] HPTLC is widely standardized method used for validation method for qualitative and quantitative analysis.[6-8] HPTLC is sophisticated instrument, controlled by an integrated software ensure the reliability, reproducibility of generated data and highest possible degree the usefulness. HPTLC technique for simultaneous determination of NORT and PREGA as bulk and in tablet dosage form.[3-5] This

Received on 28.10.2022 Modified on 16.11.2022
Accepted on 30.11.2022
Asian J. Pharm. Ana. 2023; 13(1):21-29.
DOI: 10.52711/2231-5675.2023.00004

Journal of Pharmaceutical Advanced Research
(An International Multidisciplinary Peer Review Open Access monthly Journal)
Available online at: www.jparonline.com

RESEARCH ARTICLE

Formulation, characterization and evaluation of Floating hollow Microspheres of Pentoxifylline

Gunesh N. Dhembre[*1], Vilas N. Deshmukh[1], Rajeshwar V. Kshirsagar[2], Umesh T Jadhao[3], Sandip T. Thoke[3]

[1]Dept. of Pharmacognosy, Sudhakarrao Naik Institute of Pharmacy, Nagpur Road, SNIOP Pusad- 445204, Maharashtra, India.
[2]School of Pharmacy, SRTM University Nanded -431606, Maharashtra, India.
[3]Department of Pharmaceutics, SVP College of Pharmacy, Hatta-431705, Maharashtra, India.

Received: 23.11.2022 Revised: 10.01.2023 Accepted: 16.01.2023 Published: 31.01.2023

ABSTRACT: Background: Pentoxifylline belongs to a class of drugs known as xanthine derivatives. It works by helping the blood flow more easily through narrowed arteries. **Aim:** The present study aimed to develop floating microspheres of Pentoxifylline in order to achieve extended retention in the upper GIT, which may result in enhanced absorption and thereby improved bioavailability. **Methods:** Floating microspheres containing Pentoxifylline were prepared by using the emulsion-solvent diffusion technique using Eudragit RS 100, Eudragit L 100, HPMC, Ethyl Cellulose 100 cps, Ethyl Cellulose 22 cps, and the combination of polymers in 1:1, 1:2, and 1:3 (Drug: Polymer) of various proportions. The compatibility study of the drug polymer was carried out by FTIR and DSC techniques. Microspheres were evaluated for practical yield, particle size, shape (SEM study), buoyancy, drug content, *in vitro* drug release, and kinetic studies. **Results:** The shape of the floating microspheres was small, and spherical with good flow properties. Formulation F8 and F14 formed of Ethyl cellulose 22 cps and a combination of Eudragit S100 and Eudragit L100 respectively show better drug released in a controlled manner, drug entrapment, and all evaluation properties at both pH values. **Conclusion:** Floating microspheres of Pentoxifylline were successfully developed by emulsion-solvent diffusion technique using different polymers and their varied concentrations.

Corresponding author:
Mr. Gunesh N. Dhembre
Research Scholar,
Sudhakarrao Naik Institute of Pharmacy,
Nagpur Road, SNIOP Pusad- 445204,
Maharashtra, India.
Tel: +91-8208935194
E. Mail ID: gunesh.dhembre@gmail.com

Keywords: Hollow microspheres, microballons, Pentoxifylline, SEM, Solvent Diffusion Method, acrylic Polymers, Drug Entrapment efficiency, Gastric retention time, FTIR.

INTRODUCTION:

Hollow microspheres (microballons), loaded with drugs in their outer polymer shells were prepared by a novel emulsion solvent diffusion method. The microballons floated continuously over the surface of acidic dissolution media containing surfactant for more than 12 h *in vitro*. Microspheres are free-flowing powders consisting of proteins or synthetic polymers which are biodegradable in nature and ideally have a particle size of less than 200 µm [1-3]. The solvent Evaporation Technique is widely used by a large number of pharmaceutical

Studies on Quality Control and Standardization Parameters of roots of Passiflora foetida Linn

Umesh Jadhao[1*], Sumeet Dwivedi[2]

Abstract

For the treatment of various disorders, almost 80% of the Indian population relies on traditional medicine. As more people rely on herbal plants, it is important to properly screen out any products made from such plants that don't meet certain quality criteria. Traditional medicine has utilised Passiflora foetida, often known as stinking passion flower, to treat conditions like throat infections, giddiness, liver problems, diarrhoea, tumours, neurological disorders, anxiety, sleep disorders, skin infections, hysteria, and asthma. Additionally, it has been suggested that P. foetida may possess anti-cancer, anti-inflammatory, antiepileptic, anti-hyperglycemic, cardioprotective, anti-antioxidant, and anti-inflammatory effects. Among the identified metabolites from this plant, flavonoids, polysaccharides, -pyrones, and cyanohydrins predominate. The leaves, stems, seeds, resins, and fruits have all been used to isolate the chemicals. Passiflora foetida Linn. roots were assessed for quality criteria in the current investigation. Various standardisation parameters were investigated and reported on in this study.

Key Words: Passiflora foetida, Standardization Parameters, Quality Control

DOI Number: 10.48047/nq.2023.21.01.NQ20012 **NeuroQuantology 2023; 21(1):161-165**

Introduction

The medical system relies heavily on medicinal plants and their extracts to maintain our health. India is a medically varied nation where the traditional medical systems of Ayurveda, Homoeopathy, and Unani value the variable origins of therapeutic plant extracts. [1-2] Passiflora sp. is one of the 2000 recognised medicinal plants that are utilised throughout the system. Many Passiflora species have been used therapeutically, but only a few, including the rare Passiflora foetida, have been called "passion flowers" and used to treat conditions like anxiety, sleeplessness, convulsions, sexual dysfunction, coughing, and even cancer. [3-5] So, far no any systematic study was carried out in evaluating the standardization parameters of roots of selected plant, therefore, the present work was undertaken to revel and develop the quality control parameters for standardization of selected herb.

Material and Methods

Selection, Collection and authentication of herb

The roots of *Passiflora foetida* Linn. was collected from local area of Indore and was identified & authenticated by Botanist.

Physicochemical Evaluation of herb

The dried parts were subjected to standard procedure for the determination of various physicochemical parameters. [6-8]

Determination of foreign organic matter (FOM)

Accurately weighed 100 g of the drug sample and spread it out in a thin layer. The foreign matter should be detected by inspection with the unaided eye or by the use of a lens (6X). Separate and weigh it and the percentage present was calculate.

Determination of moisture content (LOD)

Place about 10 g of drug (without preliminary drying) after accurately weighing in a tared evaporating dish and kept in oven at 105° C for 5 hours and weigh. The percentage loss on drying with reference to the air dried drug was calculated.

Corresponding author: Umesh Jadhao
Address: Faculty of Pharmacy, Oriental University, Indore, (M.P.) – India

IJBPAS, October, Special Issue, 2023, 12(10): 535-549
ISSN: 2277–4998

International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS)
'A Bridge Between Laboratory and Reader'
www.ijbpas.com

DEVELOPMENT AND EVALUATION OF HERBAL ETHOSOMES OF *PASSIFLORA FOETIDA* LINN FOR THE TREATMENT OF PSORIASIS

UMESH JADHAO*[1] AND HARSHAL TARE[2]

1: Research Scholar, Faculty of Pharmacy, Oriental University, Indore, Madhya Pradesh, India

2: Research Guide, Faculty of Pharmacy, Oriental University, Indore, Madhya Pradesh, India

*Corresponding Author: Mr. Umesh Jadhao: EMail: umj81@rediffmail.com

Received 7th July 2023; Revised 9th Aug. 2023; Accepted 30th Sept. 2023; Available online 15th Oct. 2023

https://doi.org/10.31032/IJBPAS/2023/12.10.1054

ABSTRACT

This study investigated how glycethosomes and Ethosomes promote intracellular and extracellular drug transport using imaging and cell line studies. This study prepares *Passiflora foetida* ethosomal gel and glycethosomal dispersion and evaluates their vesicle shape, size, PDI, ZP, EE, and *in vitro* permeation. Using modified heating methods, Ethosomes (10–40%) and soy phosphatidylcholine (1-3%) were synthesized. Next, *Passiflora foetida* was described and put on ethanolosomes. *Passiflora foetida*-loaded Ethosomes were 103±13-345±11 nm in size, with PDI ranging from 0.104 to 1.53 and glycethosomes from 1.53 to 0.293. ZP ranged from 16.6 to 40.1 mV and -18 to -43 mV. Optical and transmission electron microscopy showed unilamellar structure. Glycethosomes and Ethosomes had 42.5% to 90.01 % EE. The physicochemical features of *Passiflora foetida*-loaded Ethosomes dispersion after carbapol 934P was added to create a gel were studied. A *Passiflora foetida*-loaded ethosomal gel and Herbal drugs may be delivered through Ethosomes.

Keywords: Development, Evaluation, Herbal Ethosomes, *Passiflora foetida Linn*. And Psoriasis

1 INTRODUCTION

Herbal remedies date back to before the dawn of recorded civilization. As early as 3000 B.C.E., papyrus texts from China and Egypt describe plants used for therapeutic purposes. Traditional herbal medicine systems include Ayurveda, Siddha, Unani, and Traditional Chinese Medicine. Historically, many indigenous groups,

MS.ID-IJPBS-8439
International Journal of Pharmacy and Biological Sciences-IJPBS™ (2023) 13 (4): 123-128
Online ISSN: 2230-7605, Print ISSN: 2321-3272
Research Article | Pharmaceutical Sciences | OA Journal | MCI Approved | Index Copernicus

Pharmacological Evaluation of Antidepressant and Antianxiety Activity of *Desmostachya Bipinnata*.

Syed Ajaz Alam Qadri, Umesh T. Jadhao, Sayyed Asad Ali, Pradnya. D. Muneshwar and D. N. Male

Department of Pharmacology, SVP College of Pharmacy Hatta Tq-Basmath dist-Hingoli Maharashtra-431705.

Received: 12 Jul 2023/ Accepted: 7 Aug 2023 / Published online: 1 Oct 2023
***Corresponding Author Email: ajazalam571@gmail.com**

Abstract

Anxiety and Depression are widespread psychiatric disorders affecting around 5% of the population. Furthermore, it is difficult to predict which patient will respond to any given treatment. In the traditional systems of medicine, many plants have been used to treat anxiety and depression for thousands of years. The present study was designed to evaluate the antianxiety and antidepressant activity of the alcoholic and aqueous extracts of *Desmostachya Bipinnata* leaves in rodents. Antianxiety activity was tested by exposing rats to unfamiliar aversion in different methods like elevated plus maze model and actophotometer. The results infer that reduced aversion fear elicits antianxiety activity. The antidepressant activity was tested by using forced swim test and Open Field Test. The results infer that reduced immobility time elicits antidepressant activity. It was concluded that alcoholic and aqueous extracts of *Desmostachya Bipinnata* leaves have antianxiety and antidepressant activity. Alcoholic extract of *Desmostachya Bipinnata* leaves showing more significant activity over the aqueous extract.

Keywords

Desmostachya Bipinnata, Antianxiety activity, Antidepressant activity, Elevated plus maze, Actophotometer, Open Field Test

*****

INTRODUCTION

The present investigation explores the isolation and purification of another active compound from the aqueous and alcoholic leaves extract of Desmostachya Bipinnata, which was responsible for snake venom neutralization. Antagonism of both viper and cobra venom and antiserum action potentiation, antioxidant property of the active compound was studied in experimental animals. Recently, from this laboratory reported that an active compound from the Strychnus nux vomica seed extract, inhibited viper venom induced lipid peroxidation in experimental animals. The mechanism of action of the plant derived micromolecules induced venom neutralization needs further attention, for the development of plant-derived therapeutic antagonist against snakebite for the community in need. However, the toxicity of plants has known for a long period of time, and the history of these toxic plants side by side with medicinal ones are very old and popular worldwide, they considered the major natural source of folk medication and toxication even after arising of recent chemical synthesis of the active constituents contained by these plants. Before the introduction of modern medicines, disease treatment was entirely managed by herbal remedies. It is estimated that about 80% of the world population residing in the

JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

A REVIEW ON HERBAL DRUGS USED IN COSMETICS

Dharmaraj A. Rathod, Sandip .T. Thoke, Gunesh N. Dhembre, Sandeep A. Wathore, Umesh T. Jadhao

Department of Pharmaceutics

SDMVMS SVP College of pharmacy Hatta Tq.Basmath Dist-Hingoli 431705

Corresponding Author

Mr. Dharmaraj A. Rathod

ABSTRACT:

India is a focus for development of Ayurveda, Unani, Siddha, Homoeopathy and another natural herbs based health science (AYUSH). Ayush Pharmaceutical industry having great possible and contingency for saundarya prasadka category (herbal cosmetic) development in future. Natural beauty is blessing and cosmetics help in presenting and increaning the beauty and personality aspects of human beings. Saundarya prasadak are the preparation, which represent cosmetic base correlate with known Ayurveda, Siddha and Unani (ASU) drugs active ingredient (which reference are readily available in schedule 1st book of Drug and cosmetic act 1940 and rule 1945). In traditional era people were used to various lepa, Alepa, Pralepa, Udavartan, Prakshalan *etc* for saundrya prasadan karma. Nature has offered the way to keep up that parity. Herbs! Yes herbs are one such means. An herb is a plant or plant extract, including leaves, bark, berries, roots, gums, seeds, stems and flowers which are favour with nourishing and healing elements. Cosmetics alone are not competent to take care of skin and others body parts, it requires association of active ingredients to check the casualty and ageing of the skin. Herbal cosmetics have improved much popularity among the population. Herbal cosmetics products claimed to have efficacy and intrinsic acceptability due to routine use in daily life and avoid the adverse effects which are commonly seen in synthetic products.

Keywords- Herbal extracts, herbal drug, cosmetic, Ayurveda, Hair Care

INTRODUCTION:

The word cosmetic was derived from the Greek word "kosm tikos" meaning having the power, arrange, skill in decorating . The origin of cosmetics forms a continuous narrative throughout the history of man as they developed. The man in prehistoric times 3000 BC used colours for decoration to attract the animals that he wished to hunt and also the man survived attack from the enemy by colouring his skin and adorned his body for protection to provoke