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3.3.1 Number of research papers per teachers in the Journals notified on UGC website during the year

(2021-2022)

Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number	Link to websiteof the Journal	Link to the recognition in UGC enlistment of the Journal	Is it listed in UGC Care list
EFFECT OF RATE RETARDING POLYMERS INTHE FORMULATION OF EXTENDED RELEASE TABLETS OF LOVASTATIN	Dr.K.BALAJI , D. SRISHAILAM	PHARMACEUTICS	HIGH TECHNOLOGY LETTERS	2022	1006-6748	https://gjstx-e.cn/	https://drive.google.com/file/d/1jrDf_A1MQLShduCVsx_q19Y-MuLm1Qj/view	YES
DEVELOPMENT AND EVALUATION OF GASTRORETENTIVE FLOATING TABLETS OF NIZATIDINEBASED ON EFFERVESCENT TECHNOLOGY	Dr.K .BALAJI B.MANJULA	PHARMACEUTICS	HIGH TECHNOLOGY LETTERS	2022	1006-6748	https://gjstx-e.cn/	https://drive.google.com/file/d/1oHuWLrGdxsSJOQK19bsBam07aw8E31lj/view	YES

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PREARATION AND INVITRO CHARACTERISATION OF VENLAFAXINE HCL CONTROLLED RELEASE TABLETS	Dr.M.RAMAKRISHNA ,Dr.K.BALAJI	PHARMACEUTICS	HIGH TECHNOLOGY LETTERS	2022	1006-6748	https://gjstx-e.cn/	https://drive.google.com/file/d/1bbstH5KetuvW8uuJHTxbhdpJTanpYwFC/view	YES
FORMULATION AND EVALUATION OF EFFERVESCENT FLOATING TABLETS OF ACYCLOVIR	Dr.K BALAJI, G.SATHYAVATHI	PHARMACEUTICS	HIGH TECHNOLOGY LETTERS	2022	1006-6748	https://gjstx-e.cn/	https://drive.google.com/file/d/1EHhjqsAHBO4h2PLemX4wuclcyppXjEqd/view	YES
EFFECT OF HYDROPHILIC POLYMERS ON IN VITRO RELEASE RATE OF BUPROPION FLOATING TABLETS BY EMPLOYING EFFERVESCENT METHOD	Dr. K. BALAJI, C.BALAKRISHNA	PHARMACEUTICS	HIGH TECHNOLOGY LETTERS	2022	1006-6748	https://gjstx-e.cn/	https://drive.google.com/file/d/1zuvWIUqfgTQo6UVurZBkcMpR72FW1ghx/view	YES
FORMULATION AND EVALUATION OF CONTROLLED RELEASE MATRIX TABLETS CONTAINING ALBENDAZOLE	Dr.K.BALAJI, SRILATHA	PHARMACEUTICS	HIGH TECHNOLOGY LETTERS	2022	1006-6748	https://gjstx-e.cn/	https://drive.google.com/file/d/1BgAgLX7h2ztqWE2yONMFX-N5FjvvtgAW/view	YES
DESIGN AND EVALUATION OF CONTROLLED RELEASE TABLETS OF CAPTOPRIL	Dr.K.BALAJI, Dr.M.RAMAKRISHNA	PHARMACEUTICS	HIGH TECHNOLOGY LETTERS	2022	1006-6748	https://gjstx-e.cn/	https://drive.google.com/file/d/1Pxii1RwpSZd1A9LVmU-caPBAivXntavN/view	YES

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COMPARATIVE IN VIVO EVALUATION OF SIMVASTATIN AFTER ORAL AND TRANSDERMAL ADMINISTRATION IN RABBITS	B.MANJULA	PHARMACEUTICS	CURRENT TRENDS IN BIOTECHNOLOGYANDPHARMACY	2022	2230-7303	https://www.abap.co.in/index.php/home	https://abap.co.in/index.php/home/article/download/597/178	YES
DESIGN,DEVELOPMENT AND CHARACTERIZATION OF SIMVASTATIN LIPOSOMAL LOADED GELS FOR TRANCEDERMAL DRUG DELIVERY	B.MANJULA	PHARMACEUTICS	INTERNATIONAL JOURNAL OF PHARMACEUTICAL RESEARCH AND APPLICATIONS	2021	2249-778	https://www.ijpraj ournal.com/	https://ijprajournal.com/issue_dcp/Design,%20Development%20and%20Characterization%20of%20Simvastatin%20Liposomal%20Loaded%20Gels%20for%20Transdermal%20Drug%20Delivery.pdf	YES
SOME SCAFFOLDS AS ANTI-LEISHMANIAL AGNETS	T.MAHENDER	PHARAMA CHEMSTRY	MINI REVIEWS IN MEDICINAL CHEMISTRY	2022	1389-5578	https://benthamscience.com/	https://www.eurekaselect.com/article/117902	YES(SCOPUS)
PREPARATION AND INVITRO CHARACTERIZATION OF SUSTSINED RELEASED TABLETS OF VALSARTAN	Dr.M. RAMA KRISJNA, Dr.K.BALAJI	PHARMACEUTICS	EPRA INTERNATIONAL JOURNAL OF RESEARCH AND DEVELOPMENT	2021	2455-7838	https://eprajournals.com/IJSR/	https://eprajournals.com/IJSR/article/5800	YES

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Effect Of Allicin On Pharmacokinetics And Pharmacodynamics Of Repaglinide In Normal And Streptozocin Induced Diabetic Rats	Pavani Uppu, Nagaraju KandukooRi And Narsimha reddy Yellu*	pharma ceutics	International Journal Of Biology, Pharmacy And Allied Sciences	2021	2277–4998	https://www.ijbpas.com/	https://ijbpas.com/pdf/2021/August/MS_IJBPAS_2021_5533.pdf	Yes
A novel simultaneous high performance liquid chromatography-PDA method for the determination of Tenofovir AF, Darunavir, Emtricitabine and Cobicistat in bulk and its application to marketed formulation	• Challamalla Pavani & • E. Susithra	pharma analysis	Future Journal of Pharma ceutical Sciences	2022	2314-7253	https://fjps.springeropen.com/	https://fjps.springeropen.com/articles/10.1186/s43094-021-00390-5	Yes

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EFFECT OF RATE RETARDING POLYMERS IN THE FORMULATION OF EXTENDED RELEASE TABLETS OF LOVASTATIN

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***Corresponding Author**

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ABSTRACT

The aim of the present study was to develop Lovastatin extended release tablets to maintain constant therapeutic levels of the drug for over 12 hrs. Gum Acacia, Almond gum and Grewia gum were used as polymers. All the formulations were passed various physicochemical evaluation parameters such as bulk density, tapped density, carrs index, hausners ratio, angle of repose, weight variation, hardness, thickness, friability and drug content. From the dissolution studies it was evident that the formulation F9 showed better and desired drug release pattern i.e., 98.82% in 12 hours. It contains the Grewia gum as polymer. It followed Higuchi release kinetics mechanism.

Keywords: Lovastatin, Gum Acacia, Almond gum, Grewia gum and Extended Release Tablets.

INTRODUCTION

The oral route is the most popular route used for administration of drugs, which is due in partto the ease of administration and to the fact that gastrointestinal physiology offers moreflexibility in dosage form design than most other routes. The terms Sustained release, prolonged release, modified release, extended release or depot formulations are used to identify drug delivery systems that are designed to achieve or extend therapeutic effect by continuously releasing medication over an extended period of time after administration of a single dose.[1,2]

DEVELOPMENT AND EVALUATION OF GASTRORETENTIVE FLOATING TABLETS OF NIZATIDINE BASED ON EFFERVESCENT TECHNOLOGY

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ABSTRACT

Floating tablets of Nizatidine were developed to prolong gastric residence time, leading to an increase in drug bioavailability. Tablets were prepared by the direct compression method, using polymers such as Tamarind Gum, Carnuba wax and HPMC K15 M. The Fourier transform-infrared spectra revealed that there was no interaction between polymers an drug; hence, they are compatible. The prepared tablets of all the formulations were evaluated for physical characters, hardness and friability, floating lag time, total floating time, drug content and in-vitro drug release. The *in vitro* release study of the tablets was performed in 0.1 N HCl as a dissolution media. In this research work formulation F5 fulfills all the testing parameters in terms of pre and post compression. And Optimised formulation was showed maximum drug release 99.13 % up to 12 hours. Floating lag time is less 21 sec and total floating time up 12 hours and it was fitted to kinetics of drug release for R^2 value of Zero order release mechanism model is 0.979.

Key words: Nizatidine, Tamarind Gum, Carnuba wax, HPMC K15 M, direct compression method, floating lag time and total floating time.

PREPARATION AND *INVITRO* CHARACTERISATION OF VENLAFAXINE HCL CONTROLLED RELEASE TABLETS

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ABSTRACT

The objective of the present study was to develop Controlled release tablets of Venlafaxine HCl using Natural and synthetic polymers. The tablets were prepared with different ratios of HPMC K100, HPMC K15 and Guar Gum by direct compression technique. The solubility study of the Venlafaxine HCl was conducted to select a suitable dissolution media for *in vitro* drug release studies. FTIR study revealed no considerable changes in IR peak of Venlafaxine HCl and Hence no interaction between drug and the excipients. *In vitro* release from the formulation F9 was found to be 99.47 %. From all the results of dissolution data fitted to various drug releases Kinetic equations. It was observed that highest correlation was found for Zero order release kinetics mechanism.

Keywords: Venlafaxine HCL, HPMC K100, HPMC K15, Guar Gum and Controlled release tablets.

INTRODUCTION

Oral drug delivery is the most widely utilized route of administration among all the routes that have been explored for systemic delivery of drugs via pharmaceutical products of different dosage form. Oral route is considered most natural, convenient and safe due to its

FORMULATION AND EVALUATION OF EFFERVESCENT FLOATING TABLETS OF ACYCLOVIR

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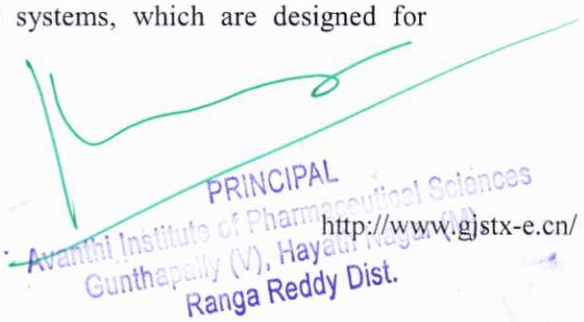
ABSTRACT

The present study was undertaken to prolong the release of orally administered drug. The objective of the study was to formulate the sustained release floating tablet of Acyclovir. The floating tablets of Acyclovir were prepared by direct compression method. For this, polymers like Guar gum, Xanthan gum and Chitosan were used in various concentrations. Sodium bicarbonate was used as a floating effervescent agent. The formulations were evaluated for various physical parameters, floating lag time and *In-vitro* drug release. From the results obtained, formulation F9 gives desirable Sustained effect for 12 hours having 99.32 % drug release at the end of the 12 hours. Formulations F9 contain Chitosan in concentration 40mg.

Key words: Acyclovir, Guar gum, Xanthan gum and Chitosan, Floating Tablets.

INTRODUCTION

Oral delivery of drugs is the most preferable route of drug delivery. Oral route is considered most natural, uncomplicated, convenient and safe due to its ease of administration, patient compliance and flexibility in formulation and cost effective manufacturing process [1]. Many of the drug delivery systems, available in the market are oral drug delivery type systems Pharmaceutical products designed for oral delivery are mainly immediate release type or conventional drug delivery systems, which are designed for



EFFECT OF HYDROPHILIC POLYMERS ON *INVITRO* RELEASE RATE OF BUPROPION FLOATING TABLETS BY EMPLOYING EFFERVESCENT METHOD

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ABSTRACT

Formulation and evaluation of floating tablets of Bupropion. In the present study the formulations were prepared by direct compression method using different proportions of Chitosan, Carbopol, Ethyl Cellulose as Swellable polymers. Sodium bicarbonate is used as buoyancy-imparting agent. The prepared formulations were evaluated for different parameters during its pre-compression and Post-compression stages. The release characteristics of the formulations were studied in *in-vitro* conditions. The *in-vitro* dissolution study of formulation F5 was 98.31 % within 12 h for good release and was fitted to kinetics of drug release for R^2 value of Zero order release mechanism model is 0.982. As an extension of this work for formulation F5, bioavailability, pharmacokinetic, and *in-vivo* studies can be done in future to develop as suitable candidate for a novel drug delivery system.

Key words: Bupropion, Chitosan, Carbopol, Ethyl Cellulose and Floating Tablets.

INTRODUCTION

Oral delivery of drugs is the most preferable route of drug delivery. Oral route is considered most natural, uncomplicated, convenient and safe due to its ease of administration, patient compliance and flexibility in formulation and cost effective

FORMULATION AND EVALUATION OF CONTROLED RELEASE MATRIX TABLETS CONTAINING ALBENDAZOLE

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ABSTRACT

The aim of the present study was to develop and evaluate the controlled release tablets by using direct compression method of Albendazole tablet. Controlled release tablets were prepared by employing Cashew nut tree gum, Gum Acacia and Eudragit RL at different concentration. Flow properties – Angle of repose, loose bulk density, tapped density and also % Carr's compressibility was determined for all the formulations which showed good flow property. The thickness found uniform, hardness and friability values of all the formulation tablets prepared by direct compression method were within the limits and found to be mechanically stable. *In vitro* dissolution results showed that % of drug release was prolonged in formulation A4 that is up to 12 hours when compared to other formulations. This indicates that the drug released from the formulation A4 was effective up to 12 hours.

Keywords: Albendazole, Cashew nut tree gum, Gum Acacia, Eudragit RL, direct compression method and Controlled release tablets.

INTRODUCTION

Controlled release tablets are commonly taken only once or twice daily, compared with counterpart conventional forms that may have to take three or four times daily to achieve the same therapeutic effect. The advantage of administering a single dose of a drug that is released over an extended period of time to maintain a near-constant or uniform blood level

DESIGN AND EVALUATION OF CONTROLLED RELEASE TABLETS OF CAPTOPRIL

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ABSTRACT

In the present work, an attempt has been made to develop Controlled release tablets of Captopril by selecting different Types of polymers Karaya Gum, Badham Gum and Eudragit L- 100. All the formulations were prepared by direct compression method. The blend of all the formulations showed good flow properties such as angle of repose, bulk density, tapped density. The prepared tablets were shown good post compression parameters and they passed all the quality control evaluation parameters as per I.P limits. Among all the formulations F9 formulation showed maximum % drug release i.e., 98.3% in 12 hours hence it is considered as optimized formulation F9 which contains Eudragit L- 100 (60mg).

Keywords: Captopril, Karaya Gum, Badham Gum, Eudragit L- 100 and Controlled release tablets.

INTRODUCTION

Controlled release tablets are commonly taken only once or twice daily, compared with counterpart conventional forms that may have to take three or four times daily to achieve the same therapeutic effect. The advantage of administering a single dose of a drug that is released over an extended period of time to maintain a near-constant or uniform blood levelof a drug often translates into better patient compliance, as well as enhanced clinical efficacyof the drug for its intended use.

Current Trends in Biotechnology and Pharmacy
Vol. 16 (Supplementry Issue 2) 1 - 8, April 2022, ISSN 0973-8916 (Print), 2230-7303 (Online)
10.5530/ctbp.2022.3s.56

Comparative *in vivo* evaluation of simvastatin after oral and transdermal administration in rabbits

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[1]Research Scholor, JNTU Ananthapuram, Ananthapuram
[2]Department of Pharmaceutics, G. Pulla Reddy College of Pharmacy, Hyderabad
[3]Vice Chancellor, Krishna University, Machilipatnam, Andhra Pradesh
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Abstract

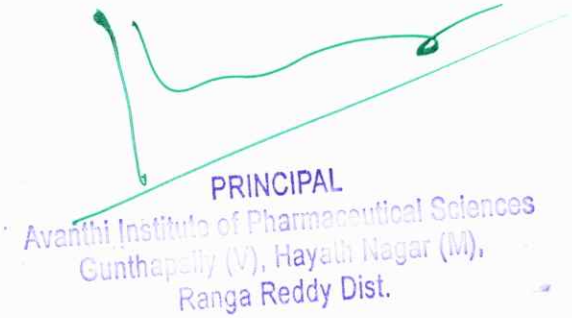
Membrane-moderated transdermal systems of Simvastatin liposomes were prepared by incorporating the drug reservoir within a shallow compartment moulded from a drug-impermeable backing membrane and 2% w/v cellulose acetate rate-controlling membrane. The pharmacodynamic and pharmacokinetic performance of Simvastatin following transdermal administration was compared with that of oral administration. This study was carried out in a randomized cross-over design in male New Zealand albino rabbits. The estimation of Simvastatinin plasma was carried out by LC-MS/MS method. The parameters such as maximum plasma concentration (C max), time for peak plasma concentration (t max), mean residence time (MRT) and area under curve (AUC 0 - ∞) were significantly (P< 0.001) differed following transdermal administration compared to oral administration. The relative bioavailability of Simvastatin was increased about nine fold after transdermal administration as compared to oral delivery. This may be due to the avoidance of first pass effect of Simvastatin. The concentration of Simvastatin in plasma was found to be stabilized and maintained in a narrow range over the study period up to 24 hrs for transdermal formulation where as the concentration was decreased rapidly up on oral administration. It was concluded that the relative rate of extensive first pass metabolism was significantly reduced in transdermal administration, resulted in increased relative bioavailability and reduced frequency of administration.

Keywords: Simvastatin, Liposomes, Transdermal Systems, LC-MS/MS, *In vivo* Studies.

Introduction

The transdermal route of drug delivery has gained great interest of pharmaceutical research, as it circumvents number of problems associated with oral route of drug administration. The barrier nature of skin inhibits the penetration of most drugs. The use of lipid vesicles as delivery system for skin treatment has gained attention in recent years(1). Liposomes are microscopic or submicroscopic particles and are concentric bilayered vesicles in which an aqueous volume is entirely enclosed by a membranous lipid bilayer mainly composed of natural or synthetic phospholipids.Liposomes are microscopic vesicles that contain amphipathic phospholipids arranged in one or more concentric bilayers enclosing an equal number of aqueous compartments. The thermo-dynamically stable, lamellar structures form spontaneously when a lipid is brought into contact with an aqueous phase(2).

The aim of the present study was to develop and evaluate the potential use of liposome vesicles in the transdermal drug delivery for delivery of Simvastatin .Simvastatin is an effective drug in the treatment of hyperlipidemic patients, simvastatin is a methylated derivative of lovastatin that acts by competitively inhibiting 3-hydroxy-3-methylglutaryl-coenzyme A (HMG-COA) reductase, the enzyme that catalyzes the rate limiting step in cholesterol biosynthesis. Administration of conventional tablets of simvastatin has been reported to exhibit



International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 3 May - June 2021, pp: 1328-1338 www.ijprajournal.com ISSN: 2249-778

Design, Development and Characterization of Simvastatin Liposomal Loaded Gels for Transdermal Drug Delivery

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Date of Submission: 10-06-2021 Date of Acceptance: 25-06-2021

ABSTRACT: The objective of the present study was to develop the controlled release transdermal drug delivery systems of Simvastatin using Liposomes incorporated in a gels, which will control the release of drug, increasing the bioavailability of the drug and thus decreasing the dosing frequency of the drug. It was investigated by encapsulating the drug in various Liposomal formulations composed of various ratios of Soya Lecithin: Span 80 or Tween 80 or sodium deoxycholate prepared by rotary evaporation sonication method.Lipid:surfactant ratio of 90:10 is more effective when compared to other ratios .

The Liposomes were incorporated into reservoir gels and evaluated for the Drug content, P^H , viscosityextrudability, and spreadability. The evaluation parameter values of gels shown good characteristic features of gel. Prepared Liposomes gels were subjected to In-vitro diffusion studies Experimental results of the present study showed that deformable lipid vesicles improve the transdermal delivery, prolong the release, and improve the site specificity of the lipophilic model drug, simvastatin. The drug diffusion studies showed that a Liposomal vesicles followed zero order kinetics and mechanism of release followed peppas model.

KEY-WORDS: Thin film hydration method, Anti-hyperlipidemic, Controlled release, Lipid, Surfactant.

I. INTRODUCTION:

Liposomes have recently been introduced, which are capable of transdermal delivery of low as well as high molecular weight drugs[1]. Liposomes are enclosed vesicles containing a lipid bi layer composed of unimers that usually have a hydrophilic head and a hydrophobic tail and are oriented so that the hydrophobic head groups are inside the bi layer. Liposomes are highly biocompatible with low toxicity that helps in conniving drug delivery system with improvedbioavailabilty[2].

Hydrogels are 3-dimensional networks consisting of hydrophilic polymers that swell in aqueous solution retaining large amount of water without dissolving. Hydrogels have biodegradable properties, high permeation of active materials with high degree of swelling and no associated toxicity or irritation makes them as ideal polymers for delivery of drugs through transdermal route as delivery vehicles[3] .

Simvastatinis a cholesterol-lowering agent and is structurally similar to the HMG, a substituent of the endogenous substrate of HMG-CoA reductase. Simvastatinlowers hepatic cholesterol synthesis by competitively inhibiting HMG-CoA reductase, the enzyme that catalyzes the rate-limiting step in the cholesterol biosynthesis pathway via the mevalonic acid pathway[4].Due to its short biological halflife (5.3 hours) and low bioavailability(5%), it requires frequent administration[5]. The maintenance of a constant plasma drug concentration of a anti lipidemic drug is important in ensuring the desired therapeutic response and to improve patient compliance, hence the objective of the study was made to develop controlled release transdermal drug delivery system of Simvastatin using Liposomes incorporated in a carbopol gel, which will control the release of drug, increasing the bioavailability of the drug and thus decreasing the dosing frequency of the drug.

II. MATERIALS AND METHODS:

Simvastatin was received as gift sample from Dr.Reddy's Laboratories, Hyderabad. Soya lecithin, sodium deoxycholate, triton X-100 was

Mini-Reviews in Medicinal Chemistry

Editor-in-Chief

ISSN (Print): 1389-5575
ISSN (Online): 1875-5607

Mini-Review Article

Some Scaffolds as Anti-leishmanial Agents: A Review

Author(s): Thatikayala Mahender, Wadhwa Pankaj, Singh Pankaj Kumar, Vaidya Ankur and Sahu Sanjeev Kumar*

Volume 22, Issue 5, 2022

Published on: 12 January, 2022

Page: [743 - 757] **Pages:** 15

DOI: 10.2174/1389557521666210913115116

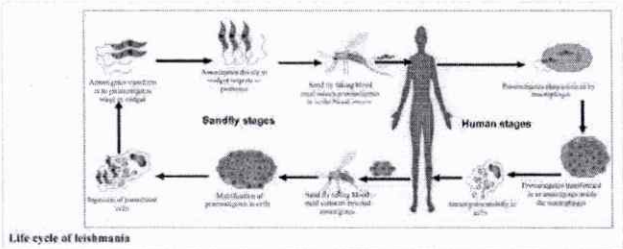
Price: $65

Abstract

Leishmaniasis is a parasitic infectious neglected tropical disease transmitted to humans by the parasites of Leishmania species. Mainly, three types of leishmaniases are usually observed: visceral (VL), cutaneous (CL), and mucocutaneous leishmaniasis. In many western countries, almost 700,000 to 1 million people suffer from leishmaniasis, and it is estimated that around 26000 to 65000 deaths occur from leishmaniasis. Few drugs are available for its treatment; however, none of them are ideal for leishmaniasis due to long treatment, discomfort mode of administration, risk of high-level toxicity, high resistance, etc. Hence, so many patients are unable to take complete treatment due to the high drug resistance. The present review will focus on antileishmanial activity of reported derivatives of betacarboline, chalcone, azole, quinoline, quinazoline, benzimidazole, benzadiazapine, thiaazoles, semicarbazone, and hydontoin analogues. We believe that this present study will be helpful for researchers to design new antileishmanial agents.

Keywords: Leishmaniasis, antileishmanial compounds, visceral, cutaneous, mucocutaneous, scaffolds.

Graphical Abstract



Life cycle of leishmania

References

SJIF Impact Factor 2021: 8.013| ISI I.F.Value:1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 6 | Issue: 8 | August 2021 - Peer Reviewed Journal

PREPARATION AND IN VITRO CHARACTERIZATION OF SUSTAINED RELEASETABLETS OF VALSARTAN

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***Principal and Professor, Avanthi Institute of Pharmaceutical Sciences, Hyderabad.*

ABSTRACT

The aim of present is to develop & evaluate extended release matrix tablet of Valsartan. Valsartan is an Hypotensive agents. But owing to its shorter half life it needs frequent administration. In present study, an attempt has been made to develop extended release matrix tablet of Valsartan there by reducing its frequency of administration & other dose related side effects. Different typesof Eudragit S 100, Sodium CMC and HPMC K4M were used as polymers. Total 12 formulations were prepared in trial batches. The formulation was evaluated for various pre compression & post compression parameters. All the formulations showed compliance with the pharmacopoeial standards. On the basis of evaluated parameters formulation V8 was considered to be the best one. Formulation V8 containing polymer Sodium CMC showed 98.53 % invitro drug release profile. The release data for formulation V8 was fitted to various mathematical models like zero order, first order, Krosmeyer Peppas & Higuchi model. It was observed that drug follows Peppas releasemechanism.

KEYWORDS: *Valsartan, Extended release system.*

INTRODUCTION

Valsartan is an angiotensin II receptor antagonist that is used for the treatment of hypertension. It treat the hypertension by blocking the vasoconstrictor and aldosterone secreting effect of angiotensin II selectively by blocking the binding of angiotensin II and angiotensin I receptor in many tissues. The most preferred route for this drug is oral delivery in form of tablets. Valsartan have poor water solubility, low bioavaibility (approximately 20-25%), and shorter half-life (nearly6 h) (Abdelbary et al 2004). Oral drug delivery has been known for decades as the most widely utilized route of administration among all the routes that have been explored for the systemic delivery of drugs via various pharmaceutical products of different dosage forms. The reason that the oral route achieved such popularity may be in part attributed to its ease of administration as well as the traditional belief that by oral administration the drug is as well absorbed as the food stuffs that are ingested daily (Bandelin, 2008). The low bioavailability and short half-life of valsartan make the development of sustained-release forms desirable.

Sustained release system is a type of modified drug delivery system that can be used as an alternative to conventional drug delivery system (Armstrong and James, 1996). These systems sustain the release of drug and maintain the plasma drug concentration in therapeutic window except any fluctuation and increase the therapeutic efficacy of drug. They show their action by avoiding peak and trough in dosing and show constant plasma drug concentration in therapeutic window. Sustained release system have benefits like patient compliance and avoidance of multiple dosing, increased plasma drug concentration, avoidance of side effects and overcoming the problems associated with conventional system (Hingmire et al 2008). Among various approachesused for novel drug delivery

IJBPAS, August, 2021, 10(8): 2571-2577

ISSN: 2277–4998

International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS)

'A Bridge Between Laboratory and Reader'

www.ijbpas.com

EFFECT OF ALLICIN ON PHARMACOKINETICS AND PHARMACODYNAMICS OF REPAGLINIDE IN NORMAL AND STREPTOZOCIN INDUCED DIABETIC RATS

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Received 26th Aug. 2020; Revised 15th Sept. 2020; Accepted 15th Nov. 2020; Available online 1st Aug. 2021

https://doi.org/10.31032/IJBPAS/2021/10.8.5533

ABSTRACT

Along with prescribed drugs, diabetic patients are using different phytochemicals/herbs having antidiabetic properties. In these cases there is chance of alterations in pharmacokinetics and pharmacodynamics of drug due to interactions. Repaglinide is a meglitinide class of oral antidiabetic drug and it was metabolized by CYP2C8, CYP2C9 and CYP3A4 enzymes. The present study investigates that interaction of repaglinide with allicin. The rats were divided into normal and diabetic groups, studied for different pharmacokinetic parameters like C_{max}, AUC_{0-n}, AUC_{total}, $t_{½}$, MRT and the clearance, V_d and pharmacodynamics like body weight, blood glucose level. The result indicates that combination of repaglinide with allicin, improves Cmax, AUC and MRT where as Volume of distribution and clearance decreases. Repaglinide metabolism was decreased with inhibitory action of allicin on CYP3A4. Finally repaglinide in combination with allicin, shows more control on blood glucose levels of diabetic rats.

Keywords: Allicin, CYP enzymes, Repaglinide, Pharmacokinetics and pharmacodynamics

INTRODUCTION

Diabetes mellitus (DM) is the most common metabolic disorder and it leads to increased sugar levels in blood and this is mainly due to insufficient production of insulin from pancreas [1]. There are many oral antidiabetic drugs which are used by diabetic patients; along with these some herbal drugs/phytochemicals were also used.

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Future Journal of Pharmaceutical Sciences (2022) 8:2
https://doi.org/10.1186/s43094-021-00390-5

Future Journal of Pharmaceutical Sciences

RESEARCH Open Access

A novel simultaneous high performance liquid chromatography-PDA method for the determination of Tenofovir AF, Darunavir, Emtricitabine and Cobicistat in bulk and its application to marketed formulation

Challamalla Pavani and E. Susithra*

Abstract

Background: The present research article involves the simultaneous determination of Tenofovir alafenamide, Darunavir, Emtricitabine and Cobicistat in bulk as well as in tablet dosage form using high performance liquid chromatography.

Result: The separation was performed using DIKMA Spursil, C_{18}, ODS, (4.6 × 150 mm × 5 µm) analytical column using the mobile phase acetonitrile and 0.1% Orthophosphoric acid in the volume ratio of 70:30 at pH 3. The eluents were detected using PDA detector at 254.0 nm. After optimization subsequent validation study of different parameters was performed by utilizing the optimised condition as per the ICH guidelines. Under this optimised conditions Tenofovir alafenamide, Darunavir, Emtricitabine and Cobicistat were eluted at 2.287 min, 2.507 min, 4.062 min, 6.011 min respectively. Percentage assay was found 99.21% for Tenofovir alafenamide, 99.80% for Darunavir, 99.80% for Emtricitabine and 99.84% for Cobicistat. Tenofovir alafenamide was found linear in the range of 2.0–10.0 µg/mL, Darunavir (160.0–800.0 µg/mL), Emtricitabine (40.0–200.0 µg/mL) and for cobicistat (30.0–150.0 µg/mL). The corelation coefficient was found 0.999 for all the APIs. The detection limit was found 0.14 µg/mL for Tenofovir alafenamide, 2.14 µg/mL for Darunavir, 0.6 µg/mL for Emtricitabine and 7.32 µg/mL for cobicistat. In the LOQ study the quantitation limit was found 0.47 µg/mL for Tenofovir alafenamide, 7.12 µg/mL for Darunavir, 2.10 µg/mL, for Emtricitabine and 24.42 µg/mL for cobicistat.

Conclusion: All the studied API's has been highly resolute utilizing the optimised condition and found extremely suitable for the determination of all of them simultaneously in marketed dosage form as well as in the bulk form.

Keywords: Tenofovir alafenamide, Darunavir, Emtricitabine, Cobicistat, HPLC

Background

Antiretroviral therapy (ART) for HIV-1 infection has vastly improved over time [1], and HIV-1 is currently regarded as a chronic but manageable condition [2, 3]. The first protease inhibitor (PI)-based single-tablet regimen for treatment-naive or some treatment-experienced persons living with HIV is the fixed-dose combination tablet darunavir-cobicistat-tenofovir alafenamide-emtricitabine [4]. Symtuza is a prescription medicine approved by the United States Food and Drug Administration (FDA) for the treatment of HIV infection in adults and children weighing at least 88 pounds (40 kg) who

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