Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 9, Issue, 01, pp.45064-45067, January, 2017

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

ISSN: 0975-833X

RESEARCH ARTICLE

EVALUATION OF HEPATOPROTECTIVE ACTIVITY OF METHANOLIC EXTRACT OF *DENDROBIUM NORMALE* FLOWERS AGAINST CCL_4 INDUCED LIVER DAMAGE IN RATS

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ARTICLE INFO

Article History:
Received 19th October, 2016
Received in revised form
14th November, 2016
Accepted 20th December, 2016
Published online 31st January, 2017

Key words:

Hepatoprotective activity, *Dendrobium normale* flowers, Silymarin, CCL_4.

ABSTRACT

Objective: Objective: In the present work, hepatoprotective activity of methanolic extract of *Dendrobium normale* were tested against carbon tetrachloride (CCl_4) induced hepatotoxic in rats.
Methods: CCL_4 has been used as the screening model for hepatoprotective activity
Results: The results indicated an increase in serum biochemical parameters like serum glutamate oxaloacetate transminase (SGOT), serum glutamate pyruvate transaminase (SGPT), alkaline phosphate (ALP) and total bilirubin (TB) levels are sensitive indices for hepatic damage. The ability of the above mentioned extracts to maintain the biochemical parameters level near to normal values are indication of their hepatoprotective potential.
Conclusion: The present investigation showed hepatoprotective activity against CCL_4 induced liver damage in rats

Citation: Narsimha Rao, Y., Naveen Babu K., Basaveswara Rao, M. V. and Prasada Rao, M. 2017. "Evaluation of Hepatoprotective activity of Methanolic extract of *Dendrobium normale* flowers against CCL_4 induced liver damage in rats", *International Journal of Current Research*, 9, (01), 45064-45067.

INTRODUCTION

Plants drugs are known to play a vital role in the management of liver diseases. There are numerous plants and polyhedral formulations claimed to have hepatoprotective action. However, numerous medicinal prepartions have been advocated a traditional system of medicine, speciallyin ayurvedic, for treating liver disorders. Only a small proportion of hepatoprotective plants as well as formulations used in traditional medicine are pharmacologically evaluated for their efficiency. India is sitting on a gold mine of well recorded and traditionally well-practised knowledge of herbal medicine. This country is perhaps the largest producer of medicinal herbs and is rightly called the botanical garden of the world. India officially recognizes over 3000 plants for their medicinal value. It is generally estimated that over 6000 plants in India are in use in traditional, folk and herbal medicine, representing about 75% of the medicinal needs of the third world countries (Kokate et al., 1996; Vogel, 1991; Dubey et al., 2004).

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Medicinal plants had been in use since 5000 BC oldest known herbal is Pent'sao written by emperor Shen-Nung around 3000 BC. It contains 365 drugs one for each day of the year. Indians worked meticulously to examine and classify the herbs. Charaka made 50 groups of 10 herbs, each of which would suffice an ordinary physician's need. Similarly Sushruta arranged 760 herbs in 7 distinct sets based on to some of their common properties. Charaka says ''There is no substance in the world that has no medicinal value, provided you know how to use it (Rajshekharan, 2002; Handa, 1991).

MATERIALS AND METHODS

Plant material

The plant collected from the Sri Venkateswara University, Tirupathi and indentified, Authenticated by taxonomist.

Preparation of plant extracts

The shade dried powder of the plant was collected and it was treated with methanol then extracted by percolation process.

ISSN: 0975-8585

Research Journal of Pharmaceutical, Biological and Chemical Sciences

Phytochemical Analysis and Acute Toxicity Studies Of Methanolic Extract Of Stem Of *Dalbergia lanceolaria,* Flowers Of *Dendrobium normale* And Bark Of *Measa indica.*

Narsimha Rao Y[1,2]*, and Naveen Babu K[3].

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ABSTRACTS

The present work involves to check the presence or absence of the Phytochemical constituents in methanolic extracts of stems of *Dalbergia lanceolaria,* flowers of *Dendrobium normale,* and bark of *Measa indica* and Acute toxicity studies clearly indicated non-toxicity of the Ethanolic extracts at a dose of 2000 mg/kg.Hence there is no LD_{50} and the all extract tested are considered safe and nontoxic.

Keywords: *Dalbergia lanceolaria, Dendrobium normale, Measa indica,* Phytochemicals analysis, acute toxicity studies

Corresponding author

CODEN (USA): IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

http://doi.org/10.5281/zenodo.546396

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

ENHANCEMENT OF SOLUBILITY AND DISSOLUTION RATE OF CEFDINIR USING SOLID DISPERSIONS

Lakshmanarao. P *, Prasada Rao. M , Krishnaveni T , Sukanya. B , Lakshmi Priya. P , Sai Krishna. A

Department of Pharmaceutics, M.A.M College of Pharmacy, Narasaraopet, Guntur (Dt), Andhra Pradesh, India.

Received: 20 March 2017 **Accepted:** 26 March 2017 **Published:** 28 March 2017

Absrtact:

The purpose of this study is to enhance solubility and dissolution rate of poorly water soluble drug. Several techniques such as micronisation, cyclodextrin-complexation, use of surfactants, solubilizers and super disintegrants, solid dispersion in water soluble and water dispersible carriers, microemulsions and self emulsifying micro and nano disperse systems have been used to enhance the solubility and dissolution rate of poorly water soluble drugs. Among the various approaches solid dispersion technique is most widely used. Cefdinir is a drug of choice for solubility and dissolution enhancement. Solid dispersions were prepared by solvent evaporation method and melt fusion method using polyethylene glycol 3350 and PVP-K30 as hydrophilic carriers. The prepared solid dispersions were evaluated in terms of drug content, % yield and in-vitro dissolution study. In-vitro release profiles of all dispersions were comparitively evaluated and also studied against pure cefdinir. The results obtained showed that the rate of dissolution of cefdinir was considerably improved when formulated in solid dispersions as compare to pure drug.

Key Words: *Poorly water drug, Solvent evaporation, In-vitro dissolution study, Cefdinir.*

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QR code

Please cite this article in press as Lakshmana Rao P et al, ***Enhancement of Solubility and Dissolution Rate of Cefdinir using Solid Dispersions,*** *Indo Am. J. Pharm. Sci, 2017; 4(03).*

PRINCIPAL
M.A.M. College of Pharmacy
KESANUPALLI (Po.), Narasaraopet (Mdl.),
Guntur (Dt.), Pin : 522 601.

CODEN (USA): IAJPBB ISSN: 2349-7750

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KESANUPALLI (Po.), Narasaraopet (Md.),
Guntur (Dt.), Pin : 522 601.

IJPSR (2017), Vol. 8, Issue 3 **(Research Article)**

INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES AND RESEARCH

Received on 25 August, 2016; received in revised form, 31 October, 2016; accepted, 30 January, 2017; published 01 March, 2017

OPTIMIZATION OF TELMISARTAN TABLET FORMULATION BY 2^3 FACTORIAL DESIGN EMPLOYING βCD, PRIMOJEL AND TWEEN 80

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Keywords:

Telmisartan tablets, Optimization, β-cyclodextrin, Primojel, Tween 80, Factorial Design

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ABSTRACT: The objective of the present study is optimization of telmisartan tablet formulation employing βCD, Primojel, and Tween 80 by 2^3 factorial design to achieve NLT 85% dissolution in 10 min. Eight telmisartan tablet formulations were prepared using selected combinations of the three factors as per 2^3 factorial design. Telmisartan tablets were prepared by direct compression method and were evaluated. Telmisartan tablet formulations F_b and F_{bc} disintegrated rapidly in 20 and 40 seconds and gave very rapid dissolution of telmisartan, 96.1% and 95.8% in 10 min respectively. The increasing order of dissolution rate (K_1) observed with various formulations was $F_c < F_l < F_{ac} < F_a < F_{abc} < F_{ab} < F_{bc} < F_b$. The polynomial equation describing the relationship between the response, percent drug dissolved in 10min (Y) and the levels of βCD (X_1), Primojel (X_2) and Tween 80 (X_3) based on the observed results is $Y = 55.327 + 3.613(X_1) + 35.072(X_2) - 9.182(X_1 X_2) - 3.757(X_3) - 3.317(X_1 X_3) + 2.06(X_2 X_3) + 1.765(X_1 X_2 X_3)$. Based on the above equation, the formulation of optimized telmisartan tablets with NLT 75% dissolution in 10 min require βCD at 1:3.5 ratio of drug: βCD, Primojel at 27.84% of drug content, and Tween 80 at 1% of drug content. The optimized telmisartan tablet formulation gave 85.85% dissolution in 10min fulfilling the target dissolution requirement.

INTRODUCTION: About 95% of all new potential therapeutic drugs (APIs) exhibit low and variable oral bioavailability due to their poor aqueous solubility at physiological pH and consequent low dissolution rate. These drugs are classified as class II drugs under BCS with low solubility and high permeability characters. These BCS class II drugs pose challenging problems in their pharmaceutical product development process.

QUICK RESPONSE CODE

DOI: 10.13040/IJPSR.0975-8232.8(3).1178-83

Article can be accessed online on: www.ijpsr.com

DOI link: http://dx.doi.org/10.13040/IJPSR.0975-8232.8 (3).1178-83

Telmisartan, a widely prescribed anti hypertensive drug belongs to class II under BCS classification and exhibit low and variable oral bioavailability due to its poor aqueous solubility. Because of poor aqueous solubility and dissolution rate it poses challenging problems in its tablet formulation development. It needs enhancement in the dissolution rate in its formulation development.

Several techniques [1] such as micronisation, cyclodextrin-complexation, use of surfactants, solubilizers and super disintegrants, solid dispersion in water soluble and water dispersible carriers, microemulsions and self emulsifying micro and nano disperse systems have been used to enhance the solubility, dissolution rate and

ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 10, Issue, 04, pp.67537-67540, April, 2018

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

REVIEW ARTICLE

A REVIEW ON UDDANAM KIDNEY DISEASE IN ANDHRA PRADESH

***Narasimha Rao, Y., Prasada Rao, M., Nagalakshmi, K., Sailajaamani, T., Akhila, C.H. and Triveni, A.K.**

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ARTICLE INFO

Article History:
Received 30th January, 2018
Received in revised form
22nd February, 2018
Accepted 28th March, 2018
Published online 30th April, 2018

Key words:
Uddanam kidney disease,
North-coastal Andhra,
Chronic kidney failure.

ABSTRACT

The Uddanam region that lies in north-coastal Andhra consists of the mandals of Kaviti, Sompeta, Kanchili, Itchapuram, Palasa and Vajrapukotturu, accounting for more than 100 villages in total. As of 2015, It was estimated that more than 4500 people had died in the last ten years, and around 34,000 people were suffering from kidney diseases in this area alone. Mainly uddanam people are effected with chronic kidney failure. It was reported that each family in the area had at least one person suffering from a kidney ailment. The cases had first mysteriously surfaced in the early 90s.Symptoms included hypertension and diabetes, followed by a long asymptomatic period, and later diagnosed with excess proteins in the urine, decreased red blood cell count and high levels of uric acid in the blood.

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INTRODUCTION

Kidney disease, also known as nephropathy or renal disease, is damage to or disease of a kidney. Nephritis is inflammatory kidney disease.

Causes

Causes of kidney disease include deposition of the IgA antibodies in the glomerulus, administration of analgesics, xanthine oxidase deficiency, toxicity of chemotherapy agents, and long-term exposure to lead or its salts. Chronic conditions that can produce nephropathy include systemic lupus erythematosus, diabetes mellitus and high blood pressure (hypertension), which lead to diabetic nephropathy and hypertensive nephropathy, respectively. Kidney disease is broadly classified into acute kidney injury and chronic kidney disease.

Symptoms

Initially, kidney failure may be not produce any symptoms (asymptomatic). As kidney function decreases, the symptoms are related to the inability to regulate water and electrolyte balances, clear waste products from the body, and promote red blood cell production.

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If unrecognized or untreated, the following symptoms of kidney failure may develop into life-threatening circumstances.

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Diagnosis

- **Blood tests.** Kidney function tests look for the level of waste products, such as creatinine and urea, in your blood.
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ISSN: 0975-833X

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ChemTech

International Journal of ChemTech Research
CODEN (USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555
Vol.11 No.05, pp 201-208, 2018

Antioxidant Activity of Extract of *Rizophora mucronata* leaf

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Abstract : Objective: To evaluate antioxidant activity of *Rhizophora mucronata* **Methods:** antioxidant activity was evaluated by using Ferric reducing activity (FRAP assay), Reducing power activity, Metal chelating activity, Inhibition of peroxides in linoleic acid system, DPPH radical-scavenging activity, Superoxide radical-scavenging activity, Hydrogen peroxide scavenging activity, Nitric oxide radical scavenging activity **Results:** In this present study, different models of antioxidant assays were employed, which could provide a more consistent approach to assess antioxidant and radical scavenging potential of leaves of *R. mucronata*. **Conclusion:** The result obtained in the study led to the conclusion that leaves of the mangrove plant, high level of polyphenolics and show significant antioxidant activity and radical scavenging activity.

Keywords : Antioxidant activity, *Rhizophora mucronata,* Free radical scavenging activity.

1. Introduction

India has a rich culture of medicinal herbs and spices, which includes about more than 2000 species and has a vast geographical area with high potential abilities for Ayurvedic, Unani, Siddha traditional medicines but only very few have been studied chemically and pharmacologically for their potential medicinal value[1, 2] Human beings have used plants for the treatment of diverse ailments for thousands of years [3, 4]. According to the World Health Organization, most populations still rely on traditional medicines for their psychological and physical health requirements [5], since they cannot afford the products of Western pharmaceutical industries [6], together with their side effects and lack of healthcare facilities [7]. Rural areas of many developing countries still rely on traditional medicine for their primary health care needs and have found a place in day-to-day life. These medicines are relatively safer and cheaper than synthetic or modern medicine[8]. People living in rural areas from their personal experience know that these traditional remedies are valuable source of natural products to maintain human health, but they may not understand the science behind these medicines, but knew that some medicinal plants are highly effective only when used at therapeutic doses [9, 10]

DOI= http://dx.doi.org/10.20902/IJCTR.2018.110523

International Journal of ChemTech Research
CODEN (USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555
Vol.11 No.05, pp 201-208, 2018

Antioxidant Activity of Extract of *Rizophora mucronata* leaf

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World Inventia Publishers

Journal of Pharma Research

http://www.jprinfo.com/

JPR INFO .com Journal of Pharma Research

Vol. 7, Issue 11, 2018 ISSN: 2319-5622 USA CODEN: JPROK3

Research Article

DEVELOPMENT AND VALIDATION OF REVERSED-PHASE HPLC ISOCRATIC METHOD FOR THE SIMULTANEOUS ESTIMATION OF LESINURAD AND ALLOPURINOL

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Received on: 09-10-2018; Revised and Accepted on: 29-11-2018

ABSTRACT

An isocratic reversed-phase liquid chromatograpic assay method was developed for the quantitative determination of Lesinurad and Allopurinol. A Inetsil C-18, 5 µm column with a mobile phase containing Acetonitrile: Methanol: 0.1% Triethylamine buffer (pH-adjusted to 3 using o-phosphoric acid) 25:35:40 (v/v/v). The flow rate was 1.0 mL/min and effluents were monitored at 250 nm. The retention times of oxycodone and naltrexone were 5.57 min and 2.60min, respectively. The proposed method was validated with respect to linearity, accuracy, precision, and robustness.

KEYWORDS: *RP-HPLC, Lesinurad, Allopurinol, Method validation.*

INTRODUCTION

Lesinurad (Fig. 1), a newer drug to treat hyperuricemia associated with refractory gout that functions by targeting the urate-anion exchanger transporter (URAT1), was approved by the US Food and Drug Administration (USFDA) in December 2015, for combination therapy with a xanthine oxidase inhibitor [1-5].

It was also approved by the European Medicines Agency's Committee for Medicinal Products for Human Use for this clinical indication throughout the European Union in February 2016. URAT1, a transmembrane protein that serves as a highly urate-specific and organic anion exchanger, is localized to the luminal membrane of the proximal tubular epithelial cells. All or nearly all uric acid is freely filtered at the glomerulus and most of the filtered urate is reabsorbed in the proximal tubule through URAT1. Lesinurad functions as a selective uric acid reabsorption inhibitor by inhibiting URAT1 and organic anion transporter 4 (OAT4), and so increases the urinary excretion of uric acid [6, 7].

Allopurinol (ALP), is 1,5-Dihydro-4H-Pyrazolo[3,4-d] pyrimidin-4-one (Fig. 1). It is an official drug in British (BP) and United States (USP) Pharmacopoeias which is used for treatment of gout and hyperuricaemia. It is a xanthine oxidase inhibitor, which prevents the oxidation of hypoxanthine to xanthine and xanthine to uric acid. Thus results in the reduction of urate and uric acid concentrations in plasma and urine [8-11].

Very few spectrophotometric and chromatographic assays were reported for Lesinurad (LES) and allopurinol (ALO) and detection so far. Therefore, the developed RP-HPLC method has the advantage of being more selective and sensitive than the published one [12-17].

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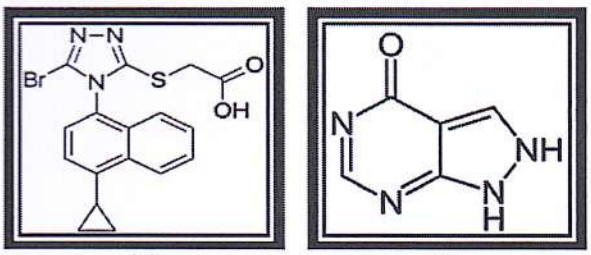
DOI:

The proposed methods have been optimized and validated as per the International Conference on Harmonization (ICH) guidelines ICH, and were found to comply with the acceptance criteria [18-27].



(A) (B)

Fig. 1: Chemical Structures of A) Lesinurad (LES) B) Allopurinol (ALO)

MATERIALS AND METHODS

The Liquid chromatographic system consisted of Shimadzu-Model LC20AT, Spin chrome software HPLC with variable wavelength programmable UV/VIS detector and Rheodyne injector with 20 µL fixed loop. The analytes were monitored at 250nm. Chromatographic analysis was performed on Inertsil C-18 column having 250 × 4.6 mm i.d. and 5 µm particle size. All drugs and chemicals were weighed on Shimadzu electronic balance (AX 200, Shimadzu Corp., Japan).

1. Chemicals and Reagents:

Analytically pure samples of Lesinurad (LES) and allopurinol (ALO) were obtained as a gift samples from Alembic Pharmaceuticals Ltd (Baroda, India) HPLC grade methanol obtained from E. Merck Ltd., Mumbai, India, while analytical reagent grade acetonitirle, methanol, triethyl amine (pH-adjusted to 3 using o-phosphoric acid) obtained from Astron Chemicals, India.

2. Chromatographic conditions:

A Inertsil C-18 (250×4.6 mm i.d) chromatographic column equilibrated with mobile phase Acetonitrile: Methanol: 0.1%

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Research Article Open Access

Development and Evaluation of Losartan Potassium Sustained Release Tablet Formulations

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[2]Professor cum Principal, Department of Pharmaceutical Analysis, M.A.M College of Pharmacy, Kesanupalli (V), Narasaraopet, Guntur (Dt), Andhra Pradesh, India-522601.

Abstract

Objective: The purpose of the present research study was to develop sustained release (SR) tablet formulations for Losartan Potassium using HPMCK100M as a release retardant.

Methods: Losartan Potassium is an antihypertensive agent angiotensin-II receptor blocker belongs to BCS class-II agent. SR tablets for Losartan Potassium were formulated using variable quantities of HPMCK100M and Xanthan Gum by direct compression method. quantities of polymers was chosen as independent variables, X_1 and X_2 respectively whereas, time required for dissolution 10% ($t_{10\%}$), 50% ($t_{50\%}$), 75% ($t_{75\%}$) and 90% ($t_{90\%}$) of drug from formulation were chosen as dependent variables. 9 formulations were prepared and evaluated for various pharmacopoeial tests.

Results: The results reveals that all formulations were found to be within the acceptable limits and release rate profiles of all formulations were fitted to kinetic models. The statistical parameters were determined. Polynomial equations were developed for dependent variables. Validity of them was checked by countercheck formulations (C_1, C_2). According to SUPAC guidelines, formulation (F_4) containing mixture of 10% HPMCK100M and 14% Xanthan gum, was found to be identical formulation (dissimilarity factor f_1= 1.765, similarity factor f_2= 86.735) to marketed product (COZAAR).

Conclusion: Formulation F_4 follows First order kinetics, Non-Fickian Diffusion Anomalous Transport. (n= 0.825).

Key Words: Losartan Potassium, 3^2 Factorial Design, Sustained delivery, HPMCK100M, Xanthan gum, First order kinetics, Anomalous transport.

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Article History *Received: 15.12.2018, Accepted: 07.01.2019, Published:28.02.2019*

INTRODUCTION

Oral route is the extensively used mode of administration for both conventional delivery systems and novel drug delivery systems. Tablets are the most famous solid dosage forms sold in the market. For chronic Therapy, immediate release formulations are required to be administered in repetitive mode results patient non-compliance[1]. However, oral administration of majority of drugs facilitates hepatic first pass metabolism, results low systemic availability of active ingredient, shorter action and development of non-active or toxic metabolites[2].

The aim of developing SR formulations is to maintain sink conditions (C_{ss} levels for prolonged period). Systems such as modified release / timed release also similar to sustained drug delivery [3-5].

SR formulations shows reduction in frequency of administration in comparison with prompt release dosage forms [6]. SR formulations offers advantage over immediate release formulations by optimising characteristics of active ingredients.

Polymers plays a key role in the release of drug from formulations. Polymers from natural sources are widely used in product development due to numerous advantages. Gums such as guar, xanthan, tragacanth, alginates, pectin etc. celluloss such as HPMC,HPC, CMC, SCMC extensively used for retarding property [7].

Formulations processed by Direct Compression (DC) technique, a simple approach because of Easer, rapid production, No degradative effects occurred during manufacturing, compliance.[6] The suitability of drug candidates for sustained release system based on biopharmaceutical, pharmacokinetic and pharmacodynamic properties of it [8].

Drug Profile and Rationality for Experimental Design

The aim of present research work, to develop SR tablet formulation for Losartan Potassium to decrease the dosing frequency and patient compliance by improving the bioavailability. Losartan Potassium, antihypertensive agent, angiotensin-II receptor blocker, belongs to BCS Class-II agent.

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Int J Pharma Res Health Sci. 2019; 7 (1): 2874-78
DOI:10.21276/ijprhs.2019.01.02
Sudhakararao *et al.*
CODEN (USA)-IJPRUR, e-ISSN: 2348-6465

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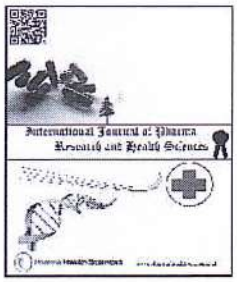
International Journal of Pharma Research and Health Sciences

Available online at www.pharmahealthsciences.net



Review Article

Physiological Role of Proteins and their Functions in Human Body

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ARTICLE INFO

Received:04 Feb 2019
Accepted:23 Feb 2019

ABSTRACT

Proteins are large, complex molecules that play many critical roles in the body. They responsible for various functions in cells and are required for the structure, function, and regulation of the body's tissues and organs. Proteins are made up of thousands of smaller units called amino acids, which are attached to one another in long chains. There are 20 types of amino acids that can be combined to make a protein. The sequence of amino acids determines each protein's unique 3-dimensional structure and its specific function. Proteins are macromolecules, composed of amino acid subunits called monomers. These amino acids are covalently attached to one another to form long linear chains called polypeptides, which then fold into a specific three-dimensional shape. The folded polypeptide chains are functional by themselves. Sometimes they are combining with additional polypeptide chains to form the final protein structure. Occasionally the non-polypeptide groups are also required in the final protein. For example, the blood protein hemoglobin is made up of four polypeptide chains, each of which contains a heme molecule, which is ring structure with an iron atom in its center.

Keywords: Protein, Amino acid, Monomers, Polypeptide chain and Enzyme.

1. INTRODUCTION

Proteins are macronutrients that support the growth and maintenance of body tissues. Amino acids are the basic building blocks of proteins and are classified as essential or non-essential. Essential amino acids are obtained from protein-rich foods such as meat, legumes and poultry, while non-essential ones are synthesized naturally in your body. According to the Centers for disease control and prevention,

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IN VITRO ANTIOXIDANT ACTIVITY OF AQUEOUS EXTRACTS OF *EMBLICA OFFICINALIS, CITRUS LIMON & SOLANUM LYCOPERSICON*

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***Abstract*: *Emblica Officinalis*, *Citrus Limon* & *Solanum Lycopersicon* all these fruits are used in our daily life. All of these plants are used in ayurvedic and herbal medications for many diseases. These plants are content of high rich amount of Vitamin C, Flavanoids, Tannins, Poly Phenolic compounds and Lycopene which are possess antioxidant activity. The aim of the present study was to evaluate the in vitro antioxidant activity of aqueous extracts of *Emblica Officinalis*, *Citrus Limon* & *Solanum Lycopersicon* by using DPPH radical scavenging activity and Hydrogen Peroxide radical scavenging activity. The antioxidant activity is compared with ascorbic acid as standard. The results are showed that all these extracts are possess antioxidant activity. When used the combination of these *Emblica Officinalis* plus *Citrus Limon* & *Solanum Lycopersicon* plus *Citrus Limon* are showed potent activity when compare to the individual extracts. If daily intake of these plant extracts reduces free radical generation.**

***Keywords*: Antioxidant, DPPH, Vitamin C, Lycopene and Plant extracts**

Introduction

Free radicals are found to be a product of normal metabolism. Although oxygen is essential for aerobic forms of life, oxygen metabolites are highly toxic. As a consequence, reactive oxygen species (ROS) are known to be implicated in many cell disorders and in the development of many diseases including cardiovascular diseases, atherosclerosis, chronic inflammation etc. Although organisms have endogenous antioxidant defenses produced during normal cell aerobic respiration against ROS, other antioxidants are taken both from natural and synthetic origin. Synthetic antioxidants are widely used but their use is being restricted nowadays because of their toxic and carcinogenic effects. Thus, interest in finding natural antioxidants, though any Undesirable effect has increased greatly [1].

There are various normal reactions within our bodies that produced free radicals as by products. Some of these reactions are generation of calories, the degradation of lipids, the catecholamine response under stress, and inflammatory processes. An antioxidant can be defined as any substance which significantly delays or prevents oxidation of oxidizable substrate when present at low concentration compared to that of an oxidizable substrate. There are two groups named as natural enzymatic antioxidants and non-enzymatic ones. Superoxide dismutase and catalase are natural enzymatic antioxidants that are located mostly in peroxisomes. Vitamin E, Vitamin C, BHA (butylated hydroxyanisole) and BHT (butylated hydroxytoluene), carotenoids, glutathione and derivatives, phenolic compounds, flavonoids and alkaloids are natural and synthetic antioxidants. Through our diet, we can open ourselves to more antioxidants that it is extremely easiest and best way. Consuming fruits and vegetables, we can reduce the risk of oxidative damages to cells. Fruits and vegetables are very good source of natural antioxidants which consist of many different antioxidant components. Hence those are alluded to as "super foods" or "functional foods". These antioxidants are carotenoids, vitamins, phenolic compounds, flavonoids, dietary glutathione and endogenous metabolites. These function as free radical scavengers, singlet and triplet oxygen quenchers, enzyme inhibitors, peroxide decomposers and synergists. Eg: Carotenoids demonstrate photo protection that originates from their ability to quench and inactivate reactive oxygen species [2].

Plants have been a valuable source of natural products for maintaining human health, especially in the last decade, with more intensive studies for natural therapies [3]. This plant-based, traditional medicine system playing an essential role in health care, and about 80% of the world's population relying mainly on traditional medicines for their primary health care [4]. The use of plant extracts and phytochemicals with known antioxidant properties can be of great significance in therapeutic treatments.

Antioxidant refers to a compound that can delay or inhibit the oxidation of lipids or other molecules by inhibiting the initiation or propagation of oxidative chain reactions and which can thus prevent or repair damage done to the body's cells by oxygen [5]. It act by several mechanisms such as, inhibition of scavenging activity against reactive oxygen species (ROS), reducing power, metal chelation , activity as antioxidative enzymes, inhibition of oxidative enzymes[6]. In recent years, there has been a considerable interest in finding natural antioxidants from plant materials. The antioxidant phytochemicals from plants, particularly flavonoids and other polyphenols, have been reported to inhibit the propagation of free radical reactions, to protect the human body from disease [7]. In addition, the use of synthetic antioxidants has been questioned because of their toxicity [8]. Based upon previous study we selected some home remedies which are act as antioxidant activity. They are *Emblica Officinalis*, *Citrus Limon* & *Solanum Lycopersicon* fruit extracts

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May 2019 | Vol. 1 Issue. 12

A REVIEW ON ETIOPATHOGENESIS AND DRUGS USED FOR THE TREATMENT OF LEUKEMIA

Kartheek Chegu[1], Gayathri Guntupalli[2], Prasadarao Manchineni[3]

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Abstract

Leukemia encompasses a clinically and pathologically diverse set of conditions whose incidence and prevalence are rising. In the past, leukemia was classified on the basis of the morphological characteristics of abnormally proliferating leucocytes in the blood and bone marrow. The etiology of leukemia mainly observed as Abnormalities of chromosomes have been found in various types of leukemia& other factors are like environmental factors, irradiation, and certain chemicals. This is a two part review with the first part focusing on the etiopathogenesis. The second part focused on management of Leukemia with drugs. For the management of leukemia the available treatments are chemotherapy, radiation therapy, targeted drug therapy, biological therapy and stem cell transplantation.

Keyword: Leukemia, Chemotherapy, Leucocytes, Stem cell Transplantation

1.INTRODUCTION

1.1. Leukemia

Leukemia is malignancy of the body's blood-framing tissues, including the bone marrow and the lymphatic framework. There are numerous sorts of leukemia exist. A few types of leukemia are most normal in kids. Different types of leukemia happen primarily in grown-ups. Leukemia more often than not includes the white platelets. Your white platelets are powerful contamination contenders — they typically develop and partition in a methodical manner, as your body needs them. In any case, in the general population with leukemia, the bone marrow produces unusual white platelets, which don't work appropriately. Treatment for leukemia can be mind boggling — relying upon the kind of leukemia and different elements. Yet, there are techniques and assets that can make your treatment fruitful.

1.2. Symptoms of Leukemia

Leukemia side effects change, contingent upon the kind of leukemia. Normal leukemia signs and side effects include:

- Fever or chills
- Persistent weariness, shortcoming
- Frequent or extreme diseases
- Losing weight easily
- Swollen lymph hubs, expanded liver or spleen
- Easy draining or wounding
- Recurrent nosebleeds
- Tiny red spots in your skin (petechiae)
- Excessive perspiring, particularly during the evening
- Bone agony or delicacy

2.ETIOLOGY

Researchers don't comprehend the careful reasons for leukemia. It appears to create from a mix of hereditary and ecological components. How leukemia shapes as a rule, leukemia is thought to happen when some platelets get transformations in their DNA — the guidelines inside every cell that manage its activity. There might be different changes in the cells that presently can't seem to be completely comprehended could add to leukemia. Certain anomalies cause the cell to develop and isolate all the more quickly and to keep

© IJCIRAS | ISSN (O) - 2581-5334
May 2019 | Vol. 1 Issue. 12

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Original Article

Formulation Development and Evaluation of Gastro Retentive Bio Adhesive Drug Delivery System for Moxifloxacin. HCl

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ABSTRACT

Objective: The purpose of present research work is to develop gastro retentive formulation for Moxifloxacin using various drug release modifiers. Moxifloxacin, novel synthetic fluoro quinolone, antibacterial agent. **Methods:** SR granules were prepared by gastro retentive tablets of Moxifloxacin. HCl were prepared using variable amounts of HPMCK100M, *Lannea coromandelica* gum (LCG) by moist granulation technique. Totally 10 SR granule formulations were prepared and subjected to precompression analysis and drug release profiles. Based on the results screening of concentrations for polymers and are used for Tablet formulations. Six tablet formulations were designed and are evaluated for various pharmacopoeial tests. Drug release profiles of formulation trails subjected to kinetic modeling. a,b,r were determined. **Results:** The results reveals that retention time decreases with decreased viscosity of polymer. F16 prepared with LCG was found to have highest swelling property. High bioadhesive strength of the formulation is likely to increase its GI residence time. *Lannea coromandelica* gum powder needs to explored as a sustain release material at commercial scale.

Key words: Moxifloxacin. HCl, Gastroretentive, Bio adhesion, HPMCK100M, Lannea coromandelica gum, Swelling Study.

INTRODUCTION

Numerous factors shows impact on effectiveness of oral delivery practice such as gastric emptying process, GI transit time, Drug release pattern from Formulation and Absorption site for drug.[1-3] The design of oral controlled Drug delivery systems (DDS) is targeted to obtain predictable and improved *in-vivo* availability. Gastric transit time in humans, influences absorption of drugs, can result inappropriate drug release from formulation leading to diminished clinical response. Gastric transit time is a dynamic process and ability to sustain the release of drug at predictive rate, which retain in the acidic environment for a longer period of time than prompt release formulations.

Several difficulties were present in front of researchers for developing controlled release systems for better absorption, improved bioavailability.[4] The controlled gastric retention of solid dosage forms may be achieved by the mechanisms of muco adhesion, flotation, sedimentation (High density), expansion, modified shape systems, or by the simultaneous administration of pharmacological agents that delay gastric emptying.[4-6]

Bioadhesive delivery systems produce many more benefits over other oral modified release systems by virtue of gastro retentivity, localization by targeting drug product at a specific site. It also proven that bioadhesive systems, they provide intimate contact between absorptive

Submission Date: 16-11-2018;
Revision Date: 02-01-2019;
Accepted Date: 20-03-2019

DOI: 10.5530/ijper.53.4.137

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www.ijper.org

The Pharma Innovation Journal 2019; 8(3): 483-485

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277- 7695
ISSN (P): 2349-8242
NAAS Rating: 5.03
TPI 2019; 8(3): 483-485

www.thepharmajournal.com
Received: 01-01-2019
Accepted: 05-02-2019

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A study of epidemiology and therapy of peptic ulcer disease in children

M Dhanusha, M Hima Bindu, J Nagaraja and M Prasad Rao

Abstract
Peptic ulcer disease is acid related disease which differs from gastritis & erosions in those ulcers typically extend deeper into the muscularis mucosa. There are 3common forms of peptic ulcers H. Pylori, NSAIDS, Corticosteroids &other causes have helped to further expand our understanding of PUD in children. The main aim or objective is to find out the epidemiology & treatment of PUD in children. By this we have came to know that prevalence of PUD in children is reducing day by day in many countries. The drugs used in this disease are Antibiotics, H_2blockers, proton pump inhibitors, mucosal protective agents. Omeprazole & triple therapy is for *H. Pylori*. medications are adjunctive treatment in the treatment of Perforated peptic ulcer which reduce recurrent rate significantly. healing shown at 8week follow up with endoscopy was significantly higher in triple therapy eradication group. The surgery is preferred in patients who are not improved with medications. Now a days a new treatment was provoked to resolve the disease without complications i.e, self expandable metal stent treated with primary setting & drainage whose training &expertise is available.

Keywords: peptic ulcer disease, *H. Pylori*, omeprazole, self expandable metal stent

Introduction
Peptic Ulcer Disease is acid related disease which differs from gastritis and erosions in those ulcers typically extend deeper into the muscularismucosa. There are 3 common forms of peptic ulcers. Helicobacterpylori (*H. pylori*)-positive, NSAIDS, Corticosteroids and other causes have helped to further expand our understanding of PUD in children. Although these conditions are more common in adults their incidence in the pediatric population is clinically significant. These ulcers develop most often in stomach and duodenal of ambulatory patients. Occasionally ulcers develop in jejunum, ileum, and orcolon. Early diagnosis early resuscitation, including administration of antibiotics. Direct visualization and the ability to biopsy with endoscopy have revolutionized the diagnosis and treatment of this disease. Antihelicobacter therapy not only heals duodenal ulcer, but it alters the natural history by reducing the frequency of ulcer recurrences. Not all primary duodenal ulcers in the pediatric population, however, are related to H. Pylori their cause remains unknown.

Epidemiology

Country or place	Prevalence	Percentage	Year
India	Uncommon before the age of 10 yrs	73.3% (serological testing) 71.7% (endoscopy)	
Cameroon	68.3%	33.1%	Jan 2006 & dec2014
USA		17.4% 56.5%	2002-1012 2005
Europe		8.1%	2002-2012
Western Indies	54.2%	46.9%(males) 53.1%(females)	October 2012
Taiwan		54%(67 children) 47.4%(32 children)	
Western population	Decreased in prevalence		In recent years

Symptoms
Burning pain in the abdomen between the breast bone and the belly button (common symptom),

The Pharma Innovation Journal 2019; 8(3): 483-485

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277- 7695
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NAAS Rating: 5.03
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Received: 01-01-2019
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Keywords: peptic ulcer disease, *H. Pylori*, omeprazole, self expandable metal stent

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CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

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

A REVIEW ON SOME HOME REMEDIES ACT AS GASRTOPROTECTIVE ACTIVITY

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Abstract:
Ulcer is a common gastrointestinal disorder which is seen among many people. It is basically an inflamed break in the skin or the mucus membrane lining the alimentary tract. Peptic ulcers include Gastric ulcers that occur on the inside of the stomach and duodenal ulcers that occur on the inside of the upper portion of your small intestine (duodenum). The most common causes of peptic ulcers are infection with the bacterium Helicobacter pylori (H. pylori) and long-term use of aspirin and certain other painkillers, such as ibuprofen and naproxen sodium. The most common peptic ulcer symptom is burning and stomach pain. Peptic ulcer disease (PUD) is a main source of morbidity and mortality in worldwide. Non-steroidal anti-inflammatory drugs (NSAIDs) and Helicobacter pylori are mainly responsible for peptic ulcer disease. Histamine receptor blockers and proton pump inhibitors are most prominent therapies in the treatment of peptic ulcer. However, severe adverse effects of NSAIDs have been reported. Therefore, focus is now diverted towards herbal formulations of medicinal plants for the treatment of ulcer. Plants contain different phytoconstituents which are responsible for increasing defensive mechanisms of body against peptic ulcer. The current review focuses on the commonly used gastroprotective plants as antiulcer agents.

Keywords: *Ulcer, Gastroprotective , NSAIDs*

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QR code

Please cite this article in press Kartheek Chegu et al., ***A Review On Some Home Remedies Act As Gasrtoprotective Activity.,****Indo Am. J. P. Sci, 2019; 06(02).*

PRINCIPAL
M.A.M. College of Pharmacy
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Guntur (Dt.), Pin : 522 601.

Original Article

Thai Journal of Pharmaceutical Sciences

Statistical design, formulation, and evaluation of gastroretentive floating tablets for moxifloxacin using natural and semisynthetic polymers

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Received: Apr 27, 2019
Accepted: Jul 21, 2019
Published: Sep 30, 2019

ABSTRACT

Purpose: The objective of the current study is to develop gastroretentive formulation for moxifloxacin using various drug release modifiers, moxifloxacin, novel synthetic fluoroquinolone, and antibacterial agent. **Materials and Methods:** Floating tablets of moxifloxacin.HCl were prepared using variable amounts of hydroxypropyl methylcellulose (HPMC) K100M and *lannea coromandelica* gum (LCG) with effervescent mixtures as per 3^2 factorial designs by direct compression technique. Amount of release modifiers required to obtain the prolonged release of drug was chosen as independent variables, X_1 and X_2, respectively, whereas time taken for 10%, 50%, 75%, and 90% of drug release were chosen as dependent variables. **Results and Discussion:** Nine formulations were developed and are checked for pharmacopeial tests. Results show that all the factorial batches were lie within the standard limits. Dissolution parameters of all formulations were subjected to kinetic fitting; various statistical parameters were determined. Polynomial equations were developed and verified for dependent variables. **Conclusion:** Formulation (F_5) containing 50 mg of HPMCK100M and 50 mg of LCG is the best formulation showing similarity f_2 = 71.733 and f_1 = 4.272 with the marketed product (AVELOX). Formulation F_5 follows Higuchi's kinetics, Non-Fickian Diffusion, and first-order kinetics (n = 1.098).

Keywords: 3^2 factorial design, first-order kinetics, gastroretentive, hydroxypropyl methylcellulose K100M, lannea coromandelica gum, moxifloxacin, non-Fickian diffusion mechanism

INTRODUCTION

The effective oral drug delivery practice depends on numerous factors such as gastric emptying process, gastrointestinal (GI) transit time, release of drug from dosage form, and absorption site for the drug.[1-3] The design of oral controlled drug delivery systems (DDS) is aimed to obtain desirable and enhanced bioavailability. Gastric emptying is a dynamic process and gastroretentivity of dosage form results improved clinical response.

Numerous factors show the impact on the effectiveness of oral delivery practice such as gastric emptying process, GI transit time, drug release pattern from the formulation and absorption site for the drug. The design of oral controlled DDS is targeted to obtain predictable and improved *in vivo* availability. Gastric transit time in humans, influences absorption of drugs, can result inappropriate drug release from formulation leading to diminished clinical response. Gastric transit time is a dynamic process and ability to sustain the release of drug at a predictive rate, which retains in the acidic environment for a longer period of time than prompt release formulations.

Several difficulties were present in front of researchers for designing controlled release systems for better absorption, improved bioavailability.[4] The controlled gastric retention of solid dosage forms was obtained by numerous mechanisms such as flotation, bioadhesion, high density (sedimentation), modified shape systems, expansion, or by simultaneous administration of pharmacological agents that delay gastric emptying.[5,6]

http://jmscr.igmpublication.org/home/
ISSN (e)-2347-176x ISSN (p) 2455-0450
crossref DOI: https://dx.doi.org/10.18535/jmscr/v8i2.132

IGM Publication
Journal Of Medical Science And Clinical Research
An Official Publication Of IGM Publication

Estimation of Cardiovascular Risk in an Individual Patient without a Known Cardiac Disease in General Medicine Department of Aditya Multi Speciality Hospital, Guntur

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Abstract
Cardiovascular system consists of three interrelated components such as blood, heart and blood vessels. Cardiovascular diseases are those which affect the structure or functioning of heart and blood vessels involved. Cardiovascular diseases are the most common cause of death globally and leading cause of death in India meanwhile. The objective of this is to determine the patient's individual risk of getting cardiovascular disease. The risk of an individual person is determined by using QRISK3-2018 risk score. This study is performed to assess the cardiovascular risk for the next 10 years in an individual patient without known cardiac disease. A prospective study is conducted in general medicine department of Aditya Multi Speciality hospital, Guntur. This study uses the updated QRISK3-2018 risk score method to analyze the person risk of getting cardiovascular risk. This study included patients of above 25years and below 65 years. By observing the results obtained, it is found that increased cardiovascular risk is observed in patients with increased age and having diabetes mellitus along with hypertension.
Keywords: *Cardiovascular disease, risk factors, QRISK3-2018 risk score.*

Introduction

Cardiovascular system consists of three major components involving blood, the heart and blood vessels.[1] Heart diseases mainly affect the structure of functioning of heart and blood vessels including blood vessel diseases, arrhythmias, heart defects, heart muscle disease, and heart valve disease.[2] CVDs are the number one cause of death globally and also the leading cause of death in India. Many surveys showed that rising prevalence of major risk factors for CVD in Asian Indian population is increasing. Due lack of surveillance system and proper diagnosis in India, the risk of developing cardiovascular diseases is getting increased. Here, this study helps us to point out the need of research for developing the proper diagnosis system of CVDs.[3]

When modifiable risk factors are treated and corrected, the chances of getting CVD will also reduce.[4]

The three main functions of cardiovascular system are transportation of materials, protection from

WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 9, Issue 5, 213-222. Review Article ISSN 2277– 7105

A MODIFIED UV-SPECTROPHOTOMETRIC METHOD DEVELOPMENT AND VALIDATION FOR THE QUANTITATIVE ESTIMATION OF SILDENAFIL AND FLUOXETINE IN PURE AND MARKETED FORMULATIONS

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Article Received on
23 Feb. 2020,
Revised on 15 March 2020,
Accepted on 05 April 2020
DOI: 10.20959/wjpr20205-17159

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ABSTRACT

A simple, accurate, precise, economical and reproducible UV Spectrophotometric method has been developed for the simultaneous estimation of Sildenafil and Fluoxetine in bulk and in combined tablet dosage form. The stock solutions were prepared in distilled water. This method involves the formation and solving of simultaneous equations at 228 nm and 216 nm, as absorbance maxima of Sildenafil and Fluoxetine, respectively. Beer's law obeyed the concentration range of 2-10mcg/mL for Sildenafil and Fluoxetine. The results of analysis were validated statistically and by recovery studies. The % RSD for the recovery study was less than 2. The proposed method can be effectively applied for the simultaneous estimation of these three drugs in bulk and in combined tablet dosage form.

KEYWORDS: Sildenafil and Fluoxetine, Method development and validation.

Preparation of Standard Stock Solution

25 mg each of standard Sildenafil Citrate and Fluoxetine Hydrochloride were weighed accurately and transferred in to two separate 25ml volumetric flasks, dissolved in 5ml of solvent and made up to the mark with methanol to obtain a final concentration of 1000 µg/ml of each Sildenafil Citrate and Fluoxetine Hydrochloride (standard stock solutions A1 and A2 respectively). From the above stock solution 'A1' and 'A2' 1 ml aliquots were pipetted in to

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Journal of Advanced Scientific Research

Available online through http://www.sciensage.info

ISSN 0976-9595

Research Article

A NEW VALIDATED STABILITY INDICATING RP-HPLC METHOD FOR THE QUANTIFICATION OF ALLOPURINOL AND LESINURAD IN BULK AND PHARMACEUTICAL FORMULATIONS

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ABSTRACT

The objective of this study was to develop and validate a method for simultaneous quantitative analysis of Allopurinol and Lesinurad in bulk drug and pharmaceutical formulations. An isocratic HPLC analysis method using a reverse phase Waters spherisorb ODS1 C18 column (250 mm x 4.6 mm, 5µ) and a simple mobile phase without buffer was developed, optimized, and fully validated. Analyses were carried out at a flow rate of 0.9 mL/min at 50°C and monitored at 246 nm. This HPLC method exhibited good linearity, accuracy, and selectivity. The recovery (accuracy) of both Allopurinol and Lesinurad from all matrices was greater than 98%. The Allopurinol and Lesinuradpeak detected in the samples of a forced degradation study and no interference of excepients or the degradation products formed during stress study. The method was rugged with good intra- and interday precision and sensitive. This stability indicating HPLC method was selective, accurate, and precise for the simultaneous analysis of Allopurinol and Lesinurad in pharmaceutical formulations.

Keywords: Allopurinol, Lesinurad, HPLC analysis, Method development, Stress degradation

1. INTRODUCTION

Allopurinol is a xanthine oxidase inhibitor specially used for the treatment of gout caused by high levels of uric acid in the body [1]. It is also used to prevent specific types of kidney stones and for high uric acid levels that can occur with chemotherapy [2].Allopurinol inhibits xanthine oxidase which is the enzyme that responsible for converting hypoxanthine to xanthine and xanthine to uric acid [3]. Stomach upset, nausea, diarrhea, or drowsiness are the possible side effects with the use of allopurinol.

Lesinurad is a non-nucleoside reverse transcriptase inhibitor and a novel uric acid transporter 1 inhibitor prescribed for the treatment of hyperuricemia associated with gout [4, 5]. It is prescribed for the patients that are not achieved target serum uric acid levels with xanthine oxidase inhibitor like allopurinol, oxypurinol and tisopurine [6]. Lesinurad works by inhibiting urate anion transporter (URAT1) which is responsible for uric acid reabsorption in proximal tubule which leads to the increase of urate excretion in urine and reduce the concentration in plasma [7].

Kidney problems such as lower back pain, painful or difficult urination, nausea, vomiting, change in the amount of urine are the possible side effects associated with the use of Lesinurad.

Allopurinol and Lesinurad are the combined medication used for the treatment of gout. In literature only two HPLC assay methods were reported for the simultaneous analysis of Allopurinol and Lesinurad [8, 9]. One Ultra-performance hydrophilic interaction liquid chromatography coupled with tandem mass spectrometry method was reported for the analysis of Allopurinol and Lesinurad in combination with oxypurinol in rat plasma [10]. Very few methods reported for the analysis of Lesinurad in single dosage formusing UV spectrophotometry [11] or in combination with alphalipoicacid [12] and oxipurinol [13] using HPLC. One HPLC method for the analysis of Lesinurad in formulations [14] and one UHPLC-MS/MS method for the analysis of Lesinurad in rat plasma [15] were reported. As the literature survey confirms that there is no stability indicating HPLC method reported for the

ScienSage

Journal of Advanced Scientific Research

Available online through http://www.sciensage.info

ISSN 0976-9595

Research Article

A NEW VALIDATED STABILITY INDICATING RP-HPLC METHOD FOR THE QUANTIFICATION OF ALLOPURINOL AND LESINURAD IN BULK AND PHARMACEUTICAL FORMULATIONS

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ABSTRACT

The objective of this study was to develop and validate a method for simultaneous quantitative analysis of Allopurinol and Lesinurad in bulk drug and pharmaceutical formulations. An isocratic HPLC analysis method using a reverse phase Waters spherisorb ODS1 C18 column (250 mm x 4.6 mm, 5µ) and a simple mobile phase without buffer was developed, optimized, and fully validated. Analyses were carried out at a flow rate of 0.9 mL/min at 50°C and monitored at 246 nm. This HPLC method exhibited good linearity, accuracy, and selectivity. The recovery (accuracy) of both Allopurinol and Lesinurad from all matrices was greater than 98%. The Allopurinol and Lesinuradpeak detected in the samples of a forced degradation study and no interference of excepients or the degradation products formed during stress study. The method was rugged with good intra- and interday precision and sensitive. This stability indicating HPLC method was selective, accurate, and precise for the simultaneous analysis of Allopurinol and Lesinurad in pharmaceutical formulations.

Keywords: Allopurinol, Lesinurad, HPLC analysis, Method development, Stress degradation

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Iranian Journal of Pharmaceutical Sciences
2020: 16 (1): 49-60
www.ijps.ir

Original Article

Formulation Development and Evaluation of Gastro Retentive Floating Drug Delivery System for Novel Fluoroquinolone using Natural and Semisynthetic Polymers

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Abstract

The purpose of present research work is to develop gastro retentive formulation for Moxifloxacin using various release retardants. Moxifloxacin, that is a novel synthetic fluoro quinolone, is an iantibacterial agent. Floating tablets of Moxifloxacin. HCl were prepared using variable amounts of HPMCK4M, HPMCK15M and HPMCK100M with effervescent mixtures by direct compression technique. Totally 9 formulations were designed, prepared and are evaluated for various pharmacopoeial tests like uniformity of weight, thickness, Hardness, friability, floating lag time, Total floating time. Drug release profiles of formulation trails subjected to kinetic modeling. Parameters like correlation coefficient(r), slope (b), intercept (a) were determined. The results reveal that floating lag time decreases with decreased viscosity of polymer composites. According to SUPAC guidelines formulation (F_4) containing 12.5% HPMCK15M was found to be most identical formulation (similarity factor f_2= 70.997, dissimilarity factor f_1= 6.007 to marketed product (AVELOX). Trail F_4 drug release found to be first order kinetics, Non-Fickian Diffusion Anomalous Transport. (n= 1.065).

Keywords: Moxifloxacin. HCl, Gastroretentive, Floating Lag Time, HPMCK15M, Anomalous transport, First order kinetics.

1. Introduction

The effective oral drug delivery practice depends on numerous factors like gastric emptying process, GI transit time, release of drug from dosage form and absorption site for drug [1-3]. The design of oral controlled drug delivery systems (DDS) is aimed to obtain desirable and enhanced bioavailability. Gastric emptying is a dynamic process and gastro retentivity of dosage form results improved clinical response.

Several difficulties were present in front of researchers (Formulation Scientist) for designing controlled release systems for better

IOSR Journal Of Pharmacy And Biological Sciences (IOSR-JPBS)
e-ISSN:2278-3008, p-ISSN:2319-7676. Volume 16, Issue 6 Ser. II (Nov. –Dec. 2021), PP 53-63
www.Iosrjournals.Org

Antiulcer Activity of Ethanolic Extract of Psydrax Decoccos

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ABSTRACT:
The leaves of Psydrax dicoccos, was made free from the adherent foreign material and air dried. percolated with ethanol, petroleum ether and water in a suxlate extract until the suxlet tube shown transparent liquid. obtained extracts were kept in a desiccator to remove moisture and stored properly until used. The result of the present investigation that the Psydrax decoccos which possesses antiulcer activity in aspirin induced, histamine induced. Depression reduces gastric mucosal blood flow and gastric motility which leads to mucosal damage.
***KEY WORDS**: Extract, Moisture, Gastric Motility, Histamine, Anti-Ulcer, Ethanol, Transparent*

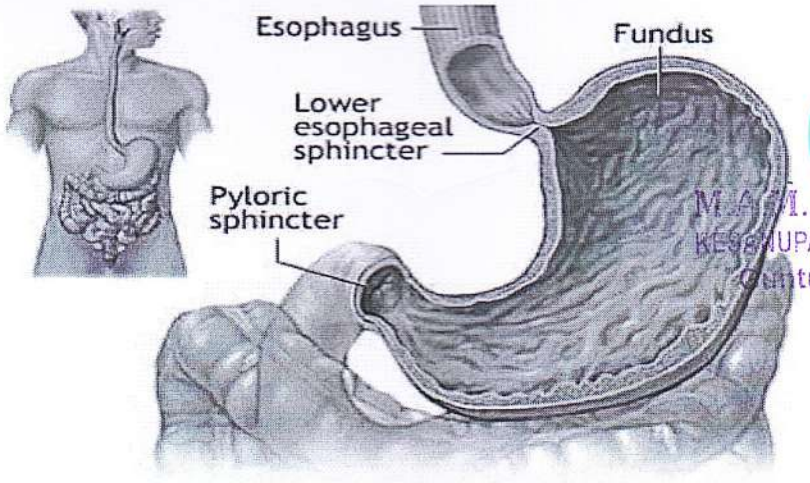
Date of Submission: 13-12-2021 Date of Acceptance: 28-12-2021

I. Introduction:

The pathophysiology of peptic ulcer has been centralized on an imbalance between aggressive and protective factors in the stomach such as acid-pepsin secretion, mucosal barrier, mucus secretion, blood flow, cellular regeneration, prostaglandins and epidermal growth factors. Although hospital admissions for uncomplicated peptic ulcers in developed countries had begun decrease, there was a striking rise in admissions for ulcer hemorrhage and perforation among elderly people. This increase has been attributed to the increased use of non-steroidal anti-inflammatory drugs (NSAIDs), alcoholic beverages, cigarettes and Helicobacter pylori infections.

The stomach is a portion of the digestive system responsible for breaking down food the lower esophageal sphincter at the top of the stomach regulates food passing from the esophagus into the stomach, and prevents the contents of the stomach from reentering the esophagus.

Hydrochloric Acid: A common misperception is that excess hydrochloric acid, which is secreted in the stomach, is solely responsible for producing ulcers. Patients with duodenal ulcers do tend to have higher-



than-normal levels of hydrochloric acid, but most patients with gastric ulcers have normal or lower-than-normal acid levels. Some stomach acid is important for protecting against H. pylori, the bacteria that causes most peptic ulcers. [Note: An exception is ulcers that occur in Zollinger-Ellison syndrome. This is a rare genetic condition in which very high levels of gastrin, a hormone that stimulates the release of hydrochloric acid, are secreted by tumors in the pancreas or duodenum].

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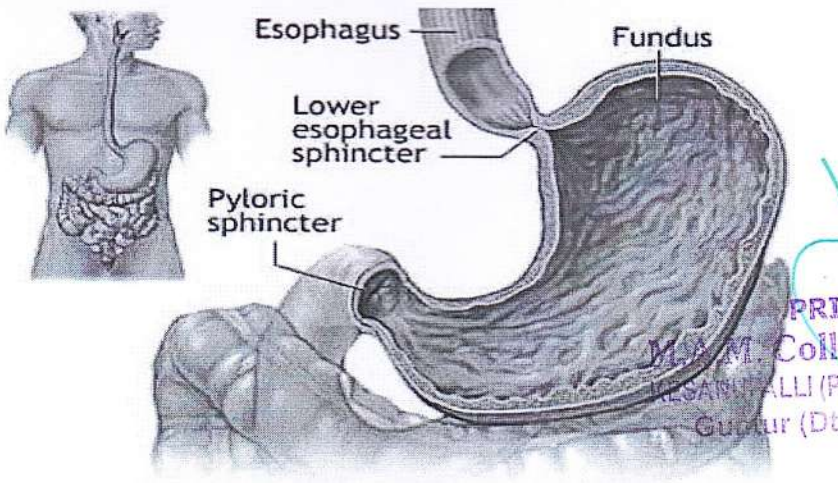

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DRUG DISCOVERY

15(35), 2021

Assessment of Antidepressant Profile of Methanolic extract of *Areca catechu* using Mice as an experimental Model

Alhasan Sabah Mansour[1], Prasada Rao Manchineni[2], Raghavendra Kumar Gunda[3]✉

To Cite:
Mansour AS, Manchineni PR, Gunda RK. Assessment of Antidepressant Profile of Methanolic extract of *Areca catechu* using Mice as an experimental Model. *Drug Discovery*, 2021, 15(35), 84-90

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Peer-Review History
Received: 02 February 2021
Reviewed & Revised: 05/February/2021 to 13/March/2021
Accepted: 15 March 2021
Published: March 2021

Peer-review
External peer-review was done through double-blind method.

ABSTRACT

Purpose: The purpose of present investigation to assess the anti-depressant activity of methanolic extract of *Areca catechu* using Mice model. *Methods:* The methanolic extract was prepared using cold extraction process with the help of continuous hot percolator apparatus. The final extract was evaluated for preliminary phytochemical analysis, acute toxicological studies (Mice Model). Anti-depressant assessment was carried out as per the standard methods i.e forced swimming test, tail suspension test, 5-HT induced head twitches in mice, clonidine induced aggression, L-dopa induced hyper activity and aggressive behavior test. *Results:* Results reveals that extract possess good antidepressant potential. By observing significant change in the immobility (reduced immobility) for both forced swimming test as well tail suspension test it confirms the antidepressant effect for *Areca catechu* methanolic extract. *Conclusion:* Methanolic extract of Areca catechu having potential antidepressant profile. Further continuing research is needed to determine constituents, those having antidepressant activity for the safe and effective use in human welfare.

Keywords: Methanolic extract, *areca catechu*, mice, immobility, tail suspension test, forced swimming.

1. INTRODUCTION

Among all neurological disorders Depression is considered to be more affective one compared to other disorders of the same class. A wide range of categories were seen from a mild to severe kinds of depression, sometimes transformed to hallucinations; cases were reported earlier (Porter et al., 2009). Depression shows typical characteristics by observing loss of appetite (anorexia), disturbance in sleep and behavior as well energy (fatigue) (Frasure et al., 2006). It was globally recognized as life threatening ailment. There is no restriction to age , it was experienced by all ages of patients from pediatrics to geriatrics (Anderson et al., 1998) Form the literature; it came to know the major categories of depression referred as unipolar and bipolar

 ISSN 2278–540X EISSN 2278–5396 I OPEN ACCESS

DRUG DISCOVERY

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 ISSN 2278-540X, EISSN 2278-5396 | OPEN ACCESS

Research Article

A study on pain assessment and management in post-operative patients

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How to cite this article:
Rajini S, Venkateswarlu BS, Chandira RM, Muruganantham V. A study on pain assessment and management in post-operative patients. Innov Pharm Pharmacother 2021;9(4):66-68.

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

ABSTRACT

Introduction: Pain is subjective in nature. It can express different manners by the patient (or) Individuals. The role of diagnostic pain procedures is considered very important. It can be classified into acute pain (i.e.; short-lived pain)and chronic pain (i.e.; pain that lasts for months). It shows the effect on the socio-economic status of the patients. Poor pain management is likely to persist until pain management practices became consistent with guidelines developed from the best available scientific evidence. **Aim:** The main aim of the present study was to find out the pain assessment importance during pain management. **Materials and Methods:** This study was a prospective observational multi-center study. **Results:** The study was conducted from July 2021 to December 2021 in various hospitals in and around the Guntur district. A total of 563 patients participated in the current study out of 290 were males and the remaining were females. At the 4-h visual analog scale (VAS) evaluated that, moderate pain was found to be 39.25% of the total population and severe pain as 19.89%. The study results were monitored and continued for 24 h. Only 5.5% of patients were consumed strong opioids during the first 24 h as postoperative analgesics. **Conclusion:** Pain assessment plays a major role in the management of chronic and acute pain. If the assessment was done we can improve the pharmaceutical care and improved socio-economic status of the patients.

Keywords: Pain assessment, pain, rational, scientific evidence, subjective

Introduction

Pain is the fifth vital sign. Pain that is assessed at regular intervals and treated with the same zeal as abnormalities in other vital signs has a much better chance of being treated effectively. The care of patients with pain is challenging and requires a systematic approach to assessment and treatment. In the past two decades, it has been seen that there is a gradual shift in focus toward pain control and pain management, independent of the cause of the pain. Pain increases morbidity and mortality.[1,2]

The different type's scales are as follows[3,4]

a. Facial scale
b. Numerical rating scale
c. FLACC scale
d. CRISE scale
e. COMFORT scale
f. Mc Gill Pain scale
g. Color Anlog scale
h. Mankoski pain scale
i. Brief pain inventory
j. Visual analogue scale (VAS).

The characteristics and factors to consider a complete pain assessment are the intensity, timing, location, quality, personal meaning aggravating and alleviating factors, and pain behavior. Physiologic processes of pain including the activity of neurotransmitters are operative at multiple sites along the structural pathway to aid in conveying the signal. This process is referred to as nociception. Nociceptive process begins at the peripheral level. When damage occurs, biochemical agents that initiate or sensitize the nociceptive response are released. These agents include potassium, substance (P), bradykinin, and prostaglandin. The initial injury provokes a series of physiologic events. The sensory experience of pain depends on the interaction between the nervous system and the

Access this article online

Website: www.innpharmacotherapy.com

e-ISSN: 2321-323X
p-ISSN: 2395-0781

International Pharmacy Acta. 2021;4(1):e1
ISSN: 2645-3266
Original Research Article
OPEN ACCESS

Effect of combination polymers of natural and semi synthetic origin on the drug release of Flavoxate. HCl

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Article Info:
Received: February 2021
Accepted: March 2021
Published online: April 2021

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Abstract:

The objective of current work is to study the effects of combination of macromolecules (polymers) of natural (*Lannea coromandelica* gum) and semi synthetic (HPMCK100M) origin on the drug release of Flavoxate.HCl from the Gastro retentive floating formulation.Flavoxate.HCl, an antispasmodic agent,Mainly used for treating urinary incontinence andurgency of urination.Floating tablets of Flavoxate.HClwere prepared using variable composition of HPMCK100M, *Lannea coromandelica* gum (LCG) with effervescent mixturesby direct compression technique.9 formulations weremade and evaluated for quality control parameters. the obtained results showthat all formulations pass the compendial limits. Data obtained from the dissolution study fitted well to kinetic modeling andkinetic parameters were determined.$GRFX_5$composed of 40mgof HPMCK100M &40mg of LCG, is the best formulation showing similarity f_2=84.66, f_1=4.29with the marketed product (**URISPAS**). Formulation $GRFX_5$follow first order, whereas release mechanism found to be nonfickian type (n= 0.77).

Keywords: Flavoxate.HCl; gastro retentive; HPMCK100M; *Lannea coromandelica* gum; Non-Fickian Diffusion.

Please Cite this article as: Kumar Gunda R., Rao Manchineni P., Sudireddy R. Effect of combination polymers of natural and semi synthetic origin on the drug release of Flavoxate. HCl. Int. Pharm. Acta. 2021;4(1):e1

DOI: https://doi.org/10.22037/ipa.v4i1.34178

1. Introduction

Gastric emptying is a dynamic process and gastro retentivity of dosage forms results in improved clinical response [1].

Effectiveness of oral delivery practice was influenced by certain factors such as gastric emptying process, GI transit time, Drug release pattern from theformulation and Absorption site of drug.Gastric transit time in humans influences absorption of drugs, thatcan result in inappropriate drug release from formulation leading to diminished clinical response. Gastric transit time is a dynamic process and ability to sustain the release of drug at predictive rate, which retain in the acidic environment for a longer period of time than prompt release formulations.

The controlled gastric retention of solid dosage forms was obtained by numerous mechanisms such as flotation, bioadhesion, High density (sedimentation), modified shape systems, expansion, or by simultaneous administration of pharmacological agents that delay gastric emptying [2-6].

Floating Drug Delivery Systems (FDDS) have a bulk density that is less than gastric fluids and thus remain buoyant in gastric environment for prolonged period of time, without affecting the gastric emptying rate. Dosage form stayed in stomach due to flotation mechanism,

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DOI: https://doi.org/10.22037/ipa.v4i1.34178

1. Introduction

Gastric emptying is a dynamic process and gastro retentivity of dosage forms results in improved clinical response [1].

Effectiveness of oral delivery practice was influenced by certain factors such as gastric emptying process, GI transit time, Drug release pattern from theformulation and Absorption site of drug.Gastric transit time in humans influences absorption of drugs, thatcan result in inappropriate drug release from formulation leading to diminished clinical response. Gastric transit time is a dynamic process and ability to sustain the release of drug at predictive rate, which retain in the acidic environment for a longer period of time than prompt release formulations.

The controlled gastric retention of solid dosage forms was obtained by numerous mechanisms such as flotation, bioadhesion, High density (sedimentation), modified shape systems, expansion, or by simultaneous administration of pharmacological agents that delay gastric emptying [2-6].

Floating Drug Delivery Systems (FDDS) have a bulk density that is less than gastric fluids and thus remain buoyant in gastric environment for prolonged period of time, without affecting the gastric emptying rate. Dosage form stayed in stomach due to flotation mechanism,

International Pharmacy Acta. 2021;4(1):e1
ISSN: 2645-3266
Original Research Article
OPEN ACCESS

Effect of combination polymers of natural and semi synthetic origin on the drug release of Flavoxate. HCl

Raghavendra Kumar Gunda[a*], Prasada Rao Manchineni[b], Rajini Sudireddy[c]

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Article Info:
Received: February 2021
Accepted: March 2021
Published online: April 2021

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Abstract:

The objective of current work is to study the effects of combination of macromolecules (polymers) of natural (*Lannea coromandelica* gum) and semi synthetic (HPMCK100M) origin on the drug release of Flavoxate.HCl from the Gastro retentive floating formulation.Flavoxate.HCl, an antispasmodic agent,Mainly used for treating urinary incontinence andurgency of urination.Floating tablets of Flavoxate.HClwere prepared using variable composition of HPMCK100M, *Lannea coromandelica* gum (LCG) with effervescent mixturesby direct compression technique.9 formulations weremade and evaluated for quality control parameters. the obtained results showthat all formulations pass the compendial limits. Data obtained from the dissolution study fitted well to kinetic modeling andkinetic parameters were determined.$GRFX_5$composed of 40mgof HPMCK100M &40mg of LCG, is the best formulation showing similarity f_2=84.66, f_1=4.29with the marketed product (**URISPAS**). Formulation $GRFX_5$follow first order, whereas release mechanism found to be nonfickian type (n= 0.77).

Keywords: Flavoxate.HCl; gastro retentive; HPMCK100M; *Lannea coromandelica* gum; Non-Fickian Diffusion.

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Research Article

A study on pain assessment and management in post-operative patients

Sudireddy Rajini*, B. S. Venkateswarlu, R. Marget Chandira, V. Muruganantham

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How to cite this article:
Rajini S, Venkateswarlu BS, Chandira RM, Muruganantham V. A study on pain assessment and management in post-operative patients. Innov Pharm Pharmacother 2021;9(4):66-68.

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

ABSTRACT

Introduction: Pain is subjective in nature. It can express different manners by the patient (or) Individuals. The role of diagnostic pain procedures is considered very important. It can be classified into acute pain (i.e.; short-lived pain)and chronic pain (i.e.; pain that lasts for months). It shows the effect on the socio-economic status of the patients. Poor pain management is likely to persist until pain management practices became consistent with guidelines developed from the best available scientific evidence. **Aim:** The main aim of the present study was to find out the pain assessment importance during pain management. **Materials and Methods:** This study was a prospective observational multi-center study. **Results:** The study was conducted from July 2021 to December 2021 in various hospitals in and around the Guntur district. A total of 563 patients participated in the current study out of 290 were males and the remaining were females. At the 4-h visual analog scale (VAS) evaluated that, moderate pain was found to be 39.25% of the total population and severe pain as 19.89%. The study results were monitored and continued for 24 h. Only 5.5% of patients were consumed strong opioids during the first 24 h as postoperative analgesics. **Conclusion:** Pain assessment plays a major role in the management of chronic and acute pain. If the assessment was done we can improve the pharmaceutical care and improved socio-economic status of the patients.

Keywords: Pain assessment, pain, rational, scientific evidence, subjective

Introduction

Pain is the fifth vital sign. Pain that is assessed at regular intervals and treated with the same zeal as abnormalities in other vital signs has a much better chance of being treated effectively. The care of patients with pain is challenging and requires a systematic approach to assessment and treatment. In the past two decades, it has been seen that there is a gradual shift in focus toward pain control and pain management, independent of the cause of the pain. Pain increases morbidity and mortality.[1,2]

The different type's scales are as follows[3,4]

a. Facial scale
b. Numerical rating scale
c. FLACC scale
d. CRISE scale
e. COMFORT scale
f. Mc Gill Pain scale
g. Color Anlog scale
h. Mankoski pain scale
i. Brief pain inventory
j. Visual analogue scale (VAS).

The characteristics and factors to consider a complete pain assessment are the intensity, timing, location, quality, personal meaning aggravating and alleviating factors, and pain behavior. Physiologic processes of pain including the activity of neurotransmitters are operative at multiple sites along the structural pathway to aid in conveying the signal. This process is referred to as nociception. Nociceptive process begins at the peripheral level. When damage occurs, biochemical agents that initiate or sensitize the nociceptive response are released. These agents include potassium, substance (P), bradykinin, and prostaglandin. The initial injury provokes a series of physiologic events. The sensory experience of pain depends on the interaction between the nervous system and the

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Research Article

DEVELOPMENT AND VALIDATION OF A STABILITY INDICATING RP-HPLC METHOD FOR THE SIMULTANEOUS ESTIMATION OF HALOBETASOL AND TAZAROTENE IN BULK AND PHARMACEUTICAL FORMULATIONS

Ramanjaneyulu K.V*[1], Venkata Ramana K [1,2], M. Prasada Rao[3]

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ABSTRACT

The objective of the present study is to develop simple RP-HPLC method for the simultaneous determination of Halobetasol and Tazarotene without prior separation. In this method, Luna C_{18} (250 mm×4.6 mm, 5µm) column was used. The mobile phase used was methanol and 0.1 M sodium perchlorate in the ratio of 87:13 (v/v) at pH 5.8, at flow rate of 1 ml/min. UV detection was monitored at 231 nm. Calibration graphs were established in the range of 4.5 to 27µg/mL for Tazarotene and 1 to 6µg/mL for Halobetasol. The retention time for Halobetasol and Tazarotene was found to be 3.4 min and 2.6 min, respectively. The intraday and interday precision expressed as percent relative standard deviation, were below 2%. The mean recovery of paracetamol and lornoxicam was found to be in the acceptable range. Hence it can be concluded that the validated HPLC method was found to be rapid, precise and accurate and can be readily utilized for analysis of Halobetasol and Tazarotene in bulk and in pharmaceutical formulations.

Keywords: Halobetasol, Tazarotene, HPLC method, Forced Degradation, lotion formulation.

1. INTRODUCTION

Halobetasol is an ultra potent corticosteroid having anti-inflammatory and antiproliferative effects. It is prescribed for the treatment of eczema, dermatitis, rash and psoriasis [1]. It reduces the itching, redness and swelling that occur in these types of conditions. Burning, stinging, itching, dryness or redness are the possible side effects associated with the use of Halobetasol. Halobetasol diffuses across cell membranes and interact with cytoplasmic corticosteroid receptors located in both the dermal and intradermal cells, thereby activating gene expression of anti-inflammatory proteins mediated via the corticosteroid receptor response element [2-3]. Stretch marks, skin discoloration, excessive hair growth and hair bumps are the possible side effects associated with the use of Halobetasol.

Tazarotene is a third-generation retinoid drug belongs to acetylenic class and is prescribed for the treatment of psoriasis, acne, and photodamaged skin (photodamage) [4]. In animals and humans, Tazarotene rapidly de-esterified in to its active carboxylic acid derivate which binds to retinoic acid receptors and modify gene expression [5]. Sensitivity to sunlight, dry skin, itchiness and redness are the major side effects associated with the use for Tazarotene.

Halobetasol and Tazarotene are the combined medication available in lotion formulation and is used for the treatment of plaque psoriasis in adults [6]. The literature survey for the analysis of Halobetasol and Tazarotene confirms that there is only one HPLC method reported for the simultaneous estimation of Halobetasol and Tazarotene [7]. One HPLC [8] and One UV spectrophotometric [9] method reported for the estimation of Halobetasol in combination with other drugs. One HPLC method [10] is reported for the estimation of Tazarotene and its related impurities. Hence, the present work aimed to develop a simple, precise accurate HPLC method for the simultaneous estimation of Halobetasol and Tazarotene in pharmaceutical formulations. The molecular structure of Halobetasol and Tazarotene was given in fig. 1.

2. MATERIAL AND METHODS

2.1. Instrumentation

The separation and quantification of Tazarotene and Halobetasol was carried in waters spherisorb ODS1 C18

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Ramanjaneyulu K.V*[1], Venkata Ramana K [1,2], M. Prasada Rao[3]

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CERTIFICATE OF PARTICIPATION

This is to certify that Dr./Mr./Mrs./Ms. Killa Nagajyothi

has participated as a delegate in the Two day National Conference on "Recent Advances in Evidence Based Pharmacotherapy" organized by Chebrolu Hanumaiah Institute of Pharmaceutical Sciences, Guntur in association with Indian Pharmacopeia Commission, Indian Pharmaceutical Association – Education Division & AP State Branch, held on 22nd & 23rd April, 2022.

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Dr. R. Hari Babu
Conference Convener
Professor, CHIPS

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