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3.4.3 Research Publications

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Review article

A Brief Review on *Tylophora Indica*-An Antiasthmatic Plant

[*]G Reshma Reddy[1], CH Sai Charitha[2], Rama Rao Nadendla[3]

Corresponding address:

[1, 2, 3] Department of Pharmaceutics, Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur, 522034, India.

Email.id:- g.reshmareddy999@gmail.com , charithapharmacy1992@gmail.com , nadendla2000@yahoo.co.in

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Design, Characterization and *In-vitro* Evaluation of Favipiravir Orodispersible Films

Kalyan Chakravarthy Yamali[1*], Madhu Gudipati[1] and Rama Rao Nadendla[1]

[1]Department of Pharmaceutics, Chalapathi Institute of Pharmaceutical Sciences (Autonomous), Lam, Guntur-522 034, Andhra Pradesh, India.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Introduction: Orodispersible films (ODF) is a thin strip that is mostly transparent, biodegradable and it has hydrophilic polymers that disintegrate and dissolves immediately when getting in contact with saliva. Different disintegrants play a crucial role in film properties such as organoleptic properties, film thickness, and in particular disintegration time of the film. The main reason for the development of oral films is for their prominent role in increased patient compliance among pediatrics and geriatrics by disintegrating faster, releasing the drug rapidly, without the need for water, and mostly decreasing the risk of choking.
Aim: To formulate orodispersible films of favipiravir and to study the effect of different superdisintegrants on various film properties.
Methods: The method used to prepare the film is the solvent casting method. In this method, the solution is prepared using polymer, drug, and superdisintegrants. This solution is casted on a film-forming apparatus using a spreader an instrument to obtain a thin film.
Results: The prepared oral films weights ranging from 148mg to 237mg based on the superdisintegrant concentration. The pH of the prepared films didn't vary significantly and percent

E-mail: madhugudipati7@gmail.com;

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Mouth Dissolving Tablets of Favipiravir using Superdisintegrants: Preparation, Optimization and *In-vitro* Evaluation

D. Avinash[1*], Madhu Gudipati[1], M. V. Ramana[1], Pallavi Vadlamudi[1] and Rama Rao Nadendla[1]

[1]Department of Pharmaceutics, Chalapathi Institute of Pharmaceutical Sciences (Autonomous), Lam, Guntur-522034, Andhra Pradesh, India.

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This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Original Research Article

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ABSTRACT

To formulate and evaluate the mouth dissolving tablet dosage forms of favipiravir using various superdisintegrants by using wet granulation technique.

Batches of favipiravir Mouth dissolving tablets were formulated by using the wet granulation technique. The formulated granules were evaluated for their flow properties as a pre-compression parameter and the friability, hardness, disintegration, wetting ratio, wetting time, dissolution, and drug release parameters were evaluated as post-compression parameters. The effect of the varying concentrations of superdisintegrants on the formulation for disintegration time was ascertained and the results were compared.

The tablet had friability and hardness values ranging from 0.60 ± 0.04 to $0.68 \pm 0.04\%$ and 3.9 ± 0.057 to 4.3 ± 0.21 (kg/cm^2). Tablet weights did not vary significantly but the disintegration time varied from

**Corresponding author: E-mail: madhugudipati7@gmail.com;*

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Review Article

An Overview on Mucoadhesive Polymers for Buccal Drug Delivery

T.V. Hari Hara Nadh*, M. Venkata Ramana, N. Ramarao
Department of Pharmaceutics, Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, Lam, Guntur, Andhra Pradesh, India.
***Corresponding author's E-mail: hariharanadh3@gmail.com**

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ABSTRACT

The oral route is the most appropriate, convenient and generally accepted among the different routes of administration. It provides ease of administration and avoids possible drug degradation in the gastrointestinal tract as well as the first passing of hepatic metabolism. By the use of mucoadhesive drug delivery systems drug actions can be enhanced. These systems are generally in close contact with the absorption tissue, the mucous membrane, the release of the drug at the site of action leading to an increase in bioavailability and local and systemic effects. Mucoadhesive polymers are classified as the first-generation and second generation. The current review provides a good overview of theories and mechanisms of mucoadhesion, factors affecting mucoadhesion, properties of mucoadhesive polymers, and recent investigations carried by using mucoadhesion polymers.

Keywords: Mucoadhesive, Buccal Drug Delivery Systems, Mucoadhesive Polymers, Bioadhesive.

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INTRODUCTION

The oral route is the most convincing route for both patient and the clinician among various drug administrations. An oral cavity is an attractive place for the delivery of drugs because it is easy to administer and prevent drug degradation in the gastrointestinal tract and first-pass metabolism [1]. The oral cavity has an area of approximately 50cm^2 but convenient access to the site makes it a preferred place for active agents to be transported [2].

Buccal drug delivery refers specifically to the provision of medications within or through the oral mucosa, which affect pharmacological local or systemic actions. Pharmaceutical products delivered through the buccal route can be used for the treatment of oral or systemic diseases in the cavity. Due to its ability to optimize the delivery of localized drugs by maintaining the dosage type in its area of action or systemic delivery by maintaining the formulation in close contact with the absorption site, mucoadhesion/bioadhesion has become an important research topic in the last two decades.

Drugs are administered in the oral mucosal cavity via three categories [3]

1. Sublingual route: delivery of drugs through the mucosal membranes that are bordering the floor of the mouth.
2. Buccal delivery: administration of drugs through the mucosal membrane that are bordering the cheeks.
3. Local delivery: Drugs delivered through the intraoral cavity.

In 1986, longer and Robinson defined bioadhesion/mucoadhesion to attached to the mucus and or epithelial surfaces by either a synthetic or natural macromolecule [4]. The well-defined mucoadhesive is the ability of a substance to bind to a biological tissue for a long time. Mucoadhesion/bioadhesion can be characterized as a phenomenon of interfacial molecular forces between the biological surface and natural or synthetic polymers that allow the polymer to attach for a longer period to the biological surface[5]

To generate mucoadhesion, a sequence of phenomena is required. The stage requires an intimate interaction, either through good mucoadhesive wetting or from mucoadhesive swelling between the mucoadhesive polymer and the membrane. In the second stage, after contact is formed the penetration of the mucoadhesive into the crevice of the tissue surface or interpenetration of the mucoadhesive chains with those of the mucus occurs. After that low chemical bonds will stabilize.

Mucoadhesive polymers are water-insoluble and water-soluble polymers connected by cross-linking agents, which are swellable networks. These polymers have optimal polarity to ensure that they allow adequate mucus wetting and optimal fluidity to allow the polymer and the mucus to be mutually adsorbed and interpenetrated [6] It is possible to conveniently divide mucoadhesive polymers adhering to the mucin epithelial surface into three classes[6]

1. Polymers that are sticky when put in water and owe their mucoadhesion to stickiness.

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Review Article

A Complete Review on *Psidium guajava* Linn (Medicinal Plant)

S Sravani*[1], CH Sai Charitha[2], Rama Rao Nadendla[3]
Department of Pharmaceutics, Chalapathi Institute of Pharmaceutical Sciences (Autonomous), Lam, Guntur, Andhra Pradesh- 522034, India.
***Corresponding author's E-mail:** sravani.sette@gmail.com

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ABSTRACT

Psidium guajava is an essential food crop and medicinal plant that is commonly used in foods and folk medicines around the world and is available in tropical and subtropical countries. It contains important phytoconstituents such as tannins, triterpenes, flavonoid: quercetin, pentacyclic triterpenoid: guajanoic acid, saponins, carotenoids, lectins, leucocyanidin, ellagic acid, amritoside, beta-sitosterol, uvaol, oleanolic acid and ursolic acid. This analysis is an attempt to compile all the information published on its ethanobotanical, phytochemical and pharmacological activities, considering the immense medicinal significance of the plant. In view of the immense medicinal importance of the plant, this study is an effort to compile all the knowledge reported on its ethanobotanical, phytochemical and pharmacological activities. Many pharmacological studies have demonstrated the ability of this plant to exhibit antioxidant, hepatoprotective, anti-allergy, antimicrobial, antigenotoxic, antiplasmodial, cytotoxic, antispasmodic, cardioactive, anticough, antidiabetic, antiinflamatory and antinociceptive activities, supporting its traditional uses. Suggesting a wide range of clinical applications for the treatment of infantile rotaviral enteritis, diarrhoea and diabetes.

Keywords: Ethanobotany, myrtaceae, pharmacology, physicochemical, phytochemical, *Psidium guajava*.

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INTRODUCTION

Psidium guajava L is a fruit-bearing tree commonly known as guava, which belongs to the family Myrtaceae. The French call it *goyave*or *goyavier*; the Dutch, *guyaba*, *goeajaaba*; the Surinamese, *guave* or*goejaba*; and the Portuguese, *goiaba*or *goaibeira*. Hawaiianscall it guava or *kuawa*. In Guam, it is *abas*. In Malaya, it is generally known either as guava or *jambu batu*. Guava grows up to 1500 m in height in almost all of India and is grown commercially in almost all states, with an approximate total area of 50,000 hectares. Uttar Pradesh, Bihar, Maharashtra, Assam, West Bengal and Andhra Pradesh are important guava-growing states in India. The cultivated varieties grow at a height of about 10 m and produce fruit within four years. [1]

Wild trees are well branched, rising up to 20 m long. By its distinctive thin, smooth, copper-colored bark, which reveals a greenish layer underneath, the tree can be easily recognized. Guava trees have spread widely in the tropics because they grow, multiply easily and bear fruits rapidly in a variety of soils. Birds and monkeys love the fruits, dispersing seeds of guava and causing spontaneous dumps of guava saplings to grow in the rainforest. [1]

The guava tree's leaves and bark have a long history of medicinal use. In India, guava leaf and bark decoction is used to treat diarrhea, dysentery, vomiting and sore throats, and to monitor menstrual cycles. Leaf decoction is used by the Amazon tribes for mouth sores, bleeding gums, as a vaginal discharge shower and to tighten and tone up vaginal walls during labor. Guava is grown all over the tropics. The fruit is eaten commercially, raw or used in the manufacture of jams, jellies, pastes and juice. The Dutch Pharmacopoeia's Guava leaves are official. Guavas are fat and cholesterol-free. They are also an excellent source of alcohol, potassium and vitamin A. [1]

Chemical composition contains Flavonoids, Triterpinoids, Steroids, Carbohydrates, Oils, Lipids, Glycosides, Alkaloids, Tannins and Saponins. Used as Antioxidant, Antibacterial activity, Anti-inflammatory activity, Anticancer activity. Herbal medicine has both medical and economic value. While herbal medicines have advantages, industrialized and developing countries have increased their protection, effectiveness, quality and importance. Herbal medicines enhance patient compliance by preventing the common side effects of allopathic medicines. It is no wonder that one-fourth of the world's population, i.e. 1.42 billion, relies on conventional medicines for the treatment of different diseases. Since time immemorial, medicinal plants have been a significant source of treatment for human diseases.[2]

About three-quarters of the world's population relies primarily on herbal medicines obtained from fruits and plants. For medicinal purposes, 30 percent of the plant species are used. The worldwide demand for plant-derived drugs can be valued at Rs. 200,000 crores. India's

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Review Article

Wheatgrass – Nature's Wonder Medicine and Food Supplement

D. Sai Krishna Priya*, Pallavi Vadlamudi, Rama Rao Nadendla

Department of Pharmaceutics, Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, Lam, Guntur-522034, AP, India.

***Corresponding author's E-mail:** dasarisaikrishnap79@gmail.com

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ABSTRACT

Triticum aestivum has high amount of chlorophyll, amino acids, minerals, nutrients, and chemicals. Fresh juice is a predominant option to disease action, against ulcer movement, soothing, cancer prevention, joint movement, and blood building action in Thalassemia. It has been contended that wheat grass helps blood flow, absorption, and general detoxification of the body because of the presence of organically dynamic mixtures and minerals in it and because of its cell reinforcement potential which is obtained from bioflavonoids like apigenin, quercitin, luteoline. The presence of 70% chlorophyll in this nature's herb is identical to hemoglobin. The solitary distinction is that the principal component in chlorophyll is magnesium and in hemoglobin it is iron. Wheat grass is more valuable in different clinical conditions including hemoglobin inadequacy and other ongoing issues and is clinically considered as green bloo

Keywords: *Triticum aestivum*, Thalassemia, green blood.

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INTRODUCTION

Triticum aestivum Linn. usually called wheat grass, belongs to the family Graminae. Triticum is a variety of yearly and biennial grasses. In early development places the wheat plant comprises of a much packed stem or crown and various barely direct or linear lanceolate leaves, yielding different kinds of wheat, local to southwest Asia and the Mediterranean area and generally developed practically everywhere in the world where 15-20 species are recognised. Wheat grass is a decent wellspring of mineral supplements. It contains critical measures of iron, phosphorous, magnesium, manganese, copper and zinc. Wheatgrass is a rich wellspring of tocopherols with high vitamin E strength.

The presence of 70% chlorophyll in the wonder herb is identical to hemoglobin. Both chlorophyll and hemoglobin share a comparative particle design to make their separate atoms[1]. The only distinction is that the principal component in chlorophyll is magnesium and in hemoglobin it is iron. Wheat grass stimulates digestion, reestablishes alkalinity to the blood, its plentifulness of antacid minerals diminishes over sharpness in the blood. Wheatgrass is additionally a detoxificant and reestablishes healthy cells[2].

Wheat grass, young grass of the basic wheat plant, is freshly squeezed or dried into powder for human utilization. Both juice and powder give chlorophyll, 17 amino acids, eight of which are fundamental minerals, nutrients and catalysts. Wheat Grass Juice (WGJ) is an extract crushed from the developing sprouts of wheat seeds. Wheatgrass has been generally utilized to treat different infections and disorders.

It was additionally announced that youthful grasses and other chlorophyll-rich plants are protected and viable therapy for ailments like hypertension, a few tumors, obesity, diabetes, gastritis, ulcers, pancreas and liver issues, weakness, iron deficiency, asthma, dermatitis, hemorrhoids, skin issues, halitosis, personal stench and blockage. Logical reports on dietary examination of wheatgrass have been distributed oftentimes[3]. Wheatgrass is plentiful in chlorophyll, minerals like magnesium, selenium, zinc, chromium, cancer prevention agents like beta-carotene (supportive of nutrient A), vitamin E, nutrient C, against weak elements like nutrient B12, iron, folic acid, pyridoxine and numerous different minerals, amino acids and chemicals, which have critical nutritious and therapeutic worth. Clinically it was demonstrated that various varieties of wheatgrass extracts are utilized in therapy of iron deficiency, thalassemia (major), malignancy and bacterial infections[4].

CHEMICAL CONSTITUENTS OF WHEATGRASS

Vitamin A: It upgrades the skin shine and gives glow to the external skin and makes it illness free. It makes a difference to remove the dark spots and imperfections underneath the eyes and improves the visual perception. It is likewise useful in checking the eyes, nose, and throat problems. It nourishes hair and is useful in battling the issues of contamination. Vitamin A is fundamental for typical development and advancement, great vision, and proliferation.

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Review Article

Self-Nanoemulsifying Drug Delivery System - An Overview

T. Gayathri*[1], M. Venkata Ramana[2], N. Rama Rao[3]
Department of Pharmaceutics, Chalapathi institute of Pharmaceutical Sciences (Autonomous), Lam, Guntur, Andhra Pradesh, India.
***Corresponding author's E-mail:**

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ABSTRACT

In order to boost the better and desired bio-availability of in vitro drugs and to increase their clinical efficacy when administered orally, the main objective of this present thesis is to develop the current Self Nano-emulsifying drug delivery method. Context: SNEDDS is intended for lipophilic drug intensification [or] poorly aqueous dissolvable products. NE has blends of tar, SURFACTANT, Co-SURFACTANT, and includes cosolvent, as well. The mixture has to be isotropic in nature. It contains a micro (or) nano-emulsion of the drug-containing oil that is spontaneously aqueous to mild agitation media. SNEDDS is the most important application for increasing the solubility of lipophilic drugs in the Biopharmaceutical Classification System [BCS class] II and IV drugs. Using the Continuous-emulsification process, NE fats improvised and enhanced the orally bioavailable quality of a poorly-aqueous dissolvable drug material. SNEDDS is a new approach to drug-delivery-system which are substantially intravenous [parental], optic [or] preparation (optic or ocular) intra-nasal, suppository, oral (sustained release results, pellets forms) and finally cosmetics. Result: SNEDDS greatly demonstrates the increased rate of dissolution and prevents interfacial stress. In aqueous media such as gastrointestinal fluid, SNEDDS under dilution and emulsion types [stable]. The emulsion is water-type oil[o/w] and has a globule of less than 150 Nano-meters in size.

Keywords: Nano-emulsion, Bi-continuous SNEDDS, Pseudo-ternary phase diagram.

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INTRODUCTION

The Self nano emulsifying Drug Delivery System (SNEDDS) is an isotropic blend of natural or synthetic oil, surfactants and co-surfactants with an unusual ability to form fine oil-in-water (O/W) nano-emulsions accompanied by aqueous media under moderate agitation. Under water dispersion, the self-Nano emulsifying drug delivery device with a size range of globules is less than 100 nm. The Self-Nano Emulsifying Drug Delivery System (SNEDDS), the Self-Micro Emulsifying Drug Delivery System (SMEDDS) and the Self-Emulsifying Drug Delivery System (SEDDS) have been used in recent years to increase the aqueous solubility of drugs that are poorly water soluble. For oral ingestion, the formulation of the self-nano-emulsifying Drug Delivery Method was formulated using medium chain tri glyceride oils and non-ionic surfactant. The drug was subjected to the dissolution rate limiting absorption, the drug was substantial under SNEDDS for enhancing rate as well as drug absorption and reproducibility of drug concentration plasma profile. It is critical that the SNEDDS is one of the Stable Nano emulsions to provide a wide interfacial area for drug partitioning between the oil and the aqueous phase. Getting a higher drug dissolution rate and increasing the bioavailability of the formulation of drugs. The thermodynamically stable and transparent or translucent non-ionized dispersion of (o/w) and (w/o) nano emulsion was stabilized by the addition of surfactant and co-surfactant molecules to the Self Nanoemulsifying drug delivery method. Nanoemulsion, mini emulsion, ultrafine emulsion, submicron emulsion are often referred to as the Self Nanoemulsifying Drug Delivery System. Self Nanoemulsifying Drug Delivery System (SNEDDS) o/w nanoemulsion under moderate agitation accompanied by aqueous media to form stable o/w nanoemulsion under aqueous media [1].

Appropriate drug candidate for SNEDDS

Self-nano emulsification formula selection criteria increase oral bioavailability of drugs belonging to biopharmaceutical classifications II and IV, log p value should be greater than 4 and melting point should be minimum, oil droplet size should be less than 100nm, optically transparent when dispersed, HLB value should be greater than 12[2].

Factors affecting SNEDDS

Drugs administered at extremely high doses are not appropriate for SNEDDS unless they are highly soluble in at least one of the SNEDDS components, ideally in the lipophilic step. The drugs show minimal water solubility and SNEDDS is the most difficult to deliver lipids.

SNEDDS' ability to retain the drug in a solubilized state is significantly affected by the solubility of the drug in the oily phase. If the surfactant or co-surfactant contributes to

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Review Article

A Comprehensive Review on Liquisolid Tablets

G Deepika*, Madhu Gudipati, Rama Rao Nadendla
Department of Pharmaceutics, Chalapathi Institute of Pharmaceutical Sciences (Autonomous) Lam, Guntur, Andhra Pradesh, India.
***Corresponding author's E-mail:** Deepika.deepu541@gamil.com

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ABSTRACT

The Liquisolid process is a novel and effective approach to improving solubility. Bioavailability relies on drug solubility. With the evolution of modern pharmaceutical products, solubility is a big problem for the pharmaceutical industry. One of the most daunting aspects of drug production remains the enhancement of oral bioavailability of poorly water-soluble drugs. A newer methodology "powdered solution technology" or "Liquisolid technology", has been applied to prepare water-insoluble drugs into rapid-release solid dosage forms. This method is efficient, economic, viable for industrial production, also useful in control drug delivery system. Hence due to above reasons Liquisolid technique is most efficient and novel approach for solubility enhancement. To prepare water-insoluble drugs into rapid-release solid dosage forms, 'powdered solution technology' or 'Liquisolid technology' has been applied. This approach is reliable, cost-effective, viable for industrial production, and also useful in the drug delivery control system. Therefore, Liquisolid technique is the most effective and novel method for enhancing solubility due to the above factors.

Keywords: Liquid solid, solubility, dissolution rate, bio availability.

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INTRODUCTION

The essential determinant of a drug's remedial viability is bioavailability, and therefore relies on the solvency of the drug in the gastrointestinal fluid. Dissolvability is one of the essential limits for achieving the ideal centralization of medicine for pharmacological reaction in basic dissemination. Inadequately water-dissolvable medications will be characteristically delivered at a moderate rate inferable from their restricted dissolvability inside the GI substance. The disintegration rate is regularly the rate deciding advance in the medication dissimilation. The test for inadequately water-solvent medications is to improve the pace of disintegration. This thusly along these lines improves assimilation and bioavailability.[1]

Different methods are employed to improve the dissolution characteristics of poorly water-soluble drugs, which include,

(a) solubilization in surfactants

(b) pH adjustment

(c) co-solvents

(d) micro emulsion

(e) self-emulsification

(f) polymeric modification

(g) drug complexation

(h) particle size reduction

(I) the pro-drug approach and

(j) solid solutions.

LIQUISOLID TECHNIQUE

A Liquisolid structure refers to information shaped by the conversion of fluid medicines, drug suspensions or medication arrangements into unpredictable solvents into dry, non-following, free streaming and compressible powder combinations by mixing the suspension or arrangement with selected transporters and materials covering.[2] The Liquisolid framework is the most encouraging strategy for advancing disintegration Rapid delivery rates are obtained in Liquisolid definitions and can be used effectively for strong water-insoluble drugs or lipophilic fluid drugs or strong water-insoluble drugs broke up in unstable dissolvable and this fluid drug can be converted into free streaming, non-free streaming. On, dry looking, and promptly compressible powders with utilization of transporter and covering materials. As the medication is as fluid medicine, it is either in solubilized or in microscopically scattered state. Because of expanded wetting and expanded surface territory for disintegration, Liquisolid tablets of water insoluble medications show improved disintegration profile and expansion in bioavailability.[3]

A Liquisolid framework alludes to details shaped by transformation of fluid medications, drug suspensions or medication arrangement in non-unpredictable solvents, into dry, non-follower, free streaming and compressible

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Research Article

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ENHANCEMENT OF DISSOLUTION RATE OF TELMISARTAN BY INCLUSION COMPLEXES WITH β-CYCLODEXTRINS

P. Sivaram Kumar*, TV. Hari Hara Nadh,

M. Venkata Ramana and Nadendla Ramarao

Department of Pharmaceutics, Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, Lam, Guntur- 522 034, Andhra Pradesh, India.

ABSTRACT

The objective of the study is to increase the dissolution rate of telmisartan, a poorly water-soluble drug, an angiotensin-II receptor antagonist used in the treatment of hypertension. To improve the dissolution rate of telmisartan, prepared inclusion complexes with β-cyclodextrin (β-CD), hydroxypropyl-β-cyclodextrin (HP-β-CD). The phase solubility studies indicated that the solubility of telmisartan was significantly increased in the presence of β-CD and the presence of HP-β-CD and A_L type curve was obtained. The apparent stability constant (Ks) was found to be 1230 M^{-1} for β-CD and 1300 M^{-1} for HP-β-CD. The inclusion complexes in the 1:1 molar ratio of telmisartan and carriers were prepared by the spray-drying method. The prepared complexes were characterized using differential scanning calorimetry (DSC), and Powder X-ray diffractometry. The DSC and X-RD showed conversion of telmisartan from crystalline to amorphous form in the prepared complexes. The prepared complexes are made into different dispersible tablet formulations F1 to F8 by varying the percentage of super disintegrants. All the prepared formulations showed an improved dissolution rate of telmisartan. The inclusion complex prepared with HP-β-CD formulation F8 shows the enhancement of dissolution rate by three folds. The accelerated stability studies for 1 month indicate there is no significant difference in quality control tests the results indicate that the prepared formulation is stable.

Keywords: Telmisartan, β-cyclodextrin, Hydroxypropyl-β-cyclodextrin, inclusion complex.

INTRODUCTION

Telmisartan is an angiotensin-II receptor antagonist used in the treatment of hypertension. It binds to the angiotensin-II type 1 (AT1) receptors with high affinity, inhibiting the action of angiotensin-IIon vascular smooth muscle, thus causing a reduction in arterial blood pressure.1 Telmisartan belongs to the Biopharmaceutics Classification system (BCS), a class 2 drug, having low solubility and high permeability the improvement of solubility increase the dissolution rate and bioavailability. Several techniques to improve the dissolution rate like solid dispersions, inclusion complexes[2]. The development of improving the solubility of poorly water drugs by using the hydrophilic carriers, The term complexation refers to a group of solid products consisting of at least two different components, generally a hydrophilic matrix and a hydrophobic drug[3]. in this study inclusion complexes of telmisartan with the β-cyclodextrins are prepared by solvent evaporation with the help of spray drying technique[4]. The central cavity of the cyclodextrin molecule is lined with skeletal carbons and ethereal oxygens of the glucose residues. It is therefore lipophilic. The polarity of the cavity has been estimated to be similar to that of an aqueous ethanolic solution. It provides a lipophilic microenvironment into which suitably sized drug molecules may enter and be included.

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Research Article

Formulation and preclinical evaluation of Anti-inflammatory activity of *Triticum aestivum*

Sai Krishna Priya Dasari*, Pallavi Vadlamudi , Rama Rao Nadendla

Department of Pharmaceutics, Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, Lam, Andhra Pradesh, Guntur-522034, India

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Abstract

A wide scope of medical advantages has been credited to wheatgrass, the young grass of the wheat plant *Tritium aestivum*. Wheat grass is a decent wellspring of mineral supplements. It contains critical measures of iron, phosphorous, magnesium, manganese, copper and zinc. Wheatgrass is a rich supplement of tocopherols with high vitamin E content. Wheatgrass is beneficial in restoring more infections due to its significant function that, it can arrest the development of antagonistic microbes which are responsible for spreading certain diseases. constituents of wheatgrass may be obtained from fresh juice, frozen juice, powder, tablets with compositions differing as per their production methods which otherwise depends on growing conditions of wheatgrass. Anti-inflammatory activity of wheatgrass tablets was assessed by using formalin induced rat paw edema model. The results obtained were compared with aceclofenac, standard drug.

Keywords: *Triticum aestivum*, Flaxseed gel, Anti-inflammatory, Aceclofenac, Formalin.

*Address for Correspondence:

Sai Krishna Priya Dasari, Department of Pharmaceutics, Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, Lam, Andhra Pradesh, Guntur-522034, India

INTRODUCTION:

The wheatgrass juice (WGJ) contains a high concentration of vitamin C. WGJ contains a lot of highly functional nutritive ingredients potent to unify the liver with the kidneys for detoxification of the organs and filtration of the blood to build a strong immune system. Wheatgrass extract has antimicrobial activities[1]. Wheatgrass is known to help wellbeing and insistence both in humans and animals. Triticum aestivum has been utilized as natural medication in present and past and is highly esteemed for its therapeutic and nutritional properties[2]. Wheatgrass is a food that is prepared from cotyledons of Triticum aestivum. It contains amino acids, chlorophyll, vitamins, minerals and enzymes. It is gluten free. Wheatgrass is a good source of potassium, likewise a generally excellent source of dietary fiber, vit A, vit E (alpha tocopherol), vit K etc. Wheatgrass is likewise very nutritious. Wheatgrass juice supports weight reduction since it is rich in fiber content. Leaves of wheatgrass rises the activities of liver elements, as well as lipid peroxidation[3].Wheatgrass is effective in serious cases of stomach ache, gas, paralysis, contamination of stomach, heart attack, diabetes, asthma, constipation, leukemia and other malignancy[4]. Wheatgrass extract is also utilized as effective haemostatic agent, anti-inflammatory agent, stimulant of fibroblasts, with a wide scope of healing properties. Its significant levels of proteins and amino acids work like natural cleanser to detoxify the liver, eliminate poisonous heavy metals from the circulatory system, free the group of squander matter, and hinder the pre maturing cycle[5]. The anti inflammatory properties of wheatgrass applies a constructive effect on diminishing pain and swelling[6]. The fermented wheatgrass extract improves high threat of survival of skin melanoma patients[7].

MATERIALS AND METHODS

Extraction of wheatgrass powder

For extraction of wheatgrass powder for manufacturing of wheatgrass tablets, wheat grains should be washed thoroughly and then soaked in water for 6 hrs or over night. Later the water must be removed from grains and it should be kept in cotton cloth for 12 hrs until it gives sprouts, these sprouts should be spread in the tray containing soil. Use the spray bottle filled with water to lightly sprinkle on the soil before going to bed, so the seedlings will be moist over night. Grass is usually ready to harvest after 9 to 10 days of growth. It must be cut at the edges so that it can give the second crop. Rinse the grass lightly as it doesn't need heavy washing as it is grown from organic seeds from organic soil or compost. Juice it in a blender and strain it to remove the solids. This juice is filtered in a vacuum filtration to remove the particles. The wheat grass juice thus obtained is transferred to a spray drier to get powdered wheat grass.

Preparation of wheatgrass tablets

Flaxseed gel is added to the spray dried powder which acts as a binder in the preparation of tablets by wet granulation method. The tablets were compressed after addition of other excipients.

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Research Article

Pharma

Physico-Chemical Characterization of Rivaroxaban and Compatibility Studies with Its Pharmaceutical Excipients

Rama rao nadendla*[1] Satyanarayana Juluri [2] Sai shanmukh srinivas doppalapudi[3] Venkata harshavardhan pyda[4] Avinash tadiboina[5] Vishnuvarddhaan addanki [6] Sai krishna katari[7] and Sriharshavardhan kalluri[8]

Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur-522034, Andhra Pradesh, India

Abstract: Physico-chemical compatibility studies were performed to check the effect of different excipients on API and it is the prerequisite in the preformulation studies. The main aim of this research is to study the behavior of the API individually and with the selected pharmaceutical excipients which mainly contribute in the selection of suitable excipients for developing an ideal dosage form. Rivaroxaban is an oral anticoagulant that mainly acts by blocking coagulant factor Xa. Incompatibility studies were performed for rivaroxaban with selected pharmaceutical excipients like HPMC, lactose, magnesium stearate, sodium lauryl sulfate, microcrystalline cellulose, croscarmellose sodium, HPC using the Scanning electron microscopy, X-ray powder diffraction and differential scanning calorimeter. A 1:1 physical mixture of rivaroxaban and selected excipient was analysed using differential scanning calorimeter. Rivaroxaban showed the transition at 231.79 ^{0}C with 114.2J/g specific heat of fusion. The transition temperature of rivaroxaban has not changed much when compared with the combination of rivaroxaban with excipients. The 2θ values of the standard drug were compared with the spectrum obtained from the XRD study. This comparison showed that there was no evidence regarding the incompatibility of the drug with excipients. The photomicrographs obtained by SEM did not showed any interaction between rivaroxaban and the excipients, providing visual support for the results.

Keywords: Rivaroxaban, Incompatibility, Preformulation, DSC, XRD and SEM

***Corresponding Author**

Ramarao Nadendla , Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur-522034, Andhra Pradesh, India

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Research Article

Formulation and Evaluation of Self Nano Emulsifying Drug Delivery System of Raloxifene Hydrochloride

T. Gayathri*[1], M. Venkata Ramana[2], N. Rama Rao[3]

Department of pharmaceutics, Chalapathi Institute of Pharmaceutical Sciences (Autonomous), Lam, Guntur, Andhra Pradesh-522034, India

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*Address for Correspondence:

T. Gayathri, Department of pharmaceutics, Chalapathi Institute of Pharmaceutical Sciences (Autonomous), Lam, Guntur, Andhra Pradesh-522034, India.

Abstract

Raloxifene hydrochloride (RLX) is a selective Estrogen-receptor modulator used to treat osteoporosis as well as breast and endometrial cancer prevention. The bioavailability of RLX is only 2% due to substantial pre-systemic clearance. The goal of this research was to customise and characterise RLX-loaded self-nanoemulsifying drug-delivery systems (SNEDDS) by using bioactive excipients that impact drug metabolism. The droplet size, zeta potential and drug content determination of optimized formulation (F-06) was found to be 147.5 nm, -28.8, 99.67% respectively. The drug release study from the nano formulation was studied in Phosphate buffer 6.8 for all the formulations F1,F2,F3,F4,F5,F6 and F7. The optimized formulation was found to be F6

Keywords: Raloxifene hydrochloride, nanoemulsion, SNEDDS etc.,

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INTRODUCTION:

The quick identification of numerous highly potent novel chemical entities has resulted from the advent of combinatorial chemistry and high throughput screening. However, there has been a growing trend toward the identification of lead compounds with good therapeutic importance that fail to elicit their maximum therapeutic effects due to poor aqueous solubility. While these qualities work together to offer optimal drug-receptor binding properties, they also lead to poor drug solubility and membrane permeability. Many of these medications have poor and variable bioavailability since solubility and permeability are regarded criteria for oral absorption. The high dose-to-solubility ratio of such medications can be identified, and food coadministration typically increases bioavailability.[1]

Raloxifene hydrochloride (RLX) is a selective Estrogen-receptor modulator used to treat osteoporosis as well as breast and endometrial cancer prevention. The bioavailability of RLX is only 2% due to substantial pre-systemic clearance. The goal of this research was to customise and characterise RLX-loaded self-nanoemulsifying drug-delivery systems (SNEDDS) by using bioactive excipients that impact drug metabolism. [2]

MATERIALS AND METHODS:

Materials:

Raloxifene Hydrochloride was a generous gift from Delexcel Pharma Pvt. Ltd., Olive oil from Loba chemie Pvt. Ltd., Mumbai, India. Isopropyl myristate (IPM), Oleic acid Himedia Laboratories Pvt. Ltd., Tween 20, Tween 40, Tween 60, Tween 80 from Himedia Laboratories Pvt. Ltd., Mumbai, India. Propylene glycol Qualigen Fine Chemical, Mumbai. PEG 400 from SD Fine Chemicals Pvt. Ltd., Mumbai

Method:

Formulation of SNEDDS

Selection of SNEDDS Components Oil (solubility studies)

The shake flask method was used to determine the solubility of Raloxifene Hydrochloride in various buffers, oils, surfactants, and co-surfactants. The combination was maintained in sealed vials with an excess amount of medication added to 2 mL of each excipient. A vortex mixer (Remi, Mumbai, India) was used to facilitate the solubilization. Sealed vials were stirred in a water bath Figure 1: at 40°C for 24 h and allowed to reach equilibrium at 30°C for 72 h. Each vial was centrifuged at 15,000 rpm for 10 min using a centrifuge (Remi) followed by removal of the undissolved drug by filtering with a membrane filter (0.45 µm). Samples were suitably diluted with methanol and drug concentration was obtained via a validated UV method at 244 nm using methanol as a blank, using a double-beam UV visible spectrophotometer (Shimadzu 1700, Shimadzu, Tokyo, Japan). The experiment was repeated in triplicate and the results represent the mean value (mg/ mL± SD).[3]

Preparation of SNEDDS formulations

On the basis of the "Solubility studies" section, the oil (Olive oil), surfactants (Tween 20, Tween 40, Tween 60, Tween 80), and cosurfactants (PEG 400) were selected due to their

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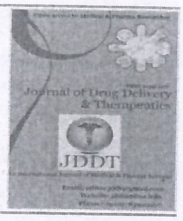

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Research Article

Formulation and Evaluation of Fermented Rice Water Herbal Shampoo

Meduri Teja Sri*, Munnangi Lakshmi Divya, Potharaju Sreevani, Suravarapu Sri Tejaswi, Swami Vasavi Rama Deepthi, Uppala Vandana, Yepuri Divya, Vadlamudi Pallavi, Nadendla Rama Rao

Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, Lam, Guntur, 522034, India

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*Address for Correspondence:

Meduri Teja Sri, Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, Lam, Guntur, 522034, India

ORCID ID: https://orcid.org/0000-0001-8674-7866

Abstract

Now-a-days, the most occurring problem is hair fall, so the main aim of the study is to reduce hair fall and promote hair growth. The main ingredient in this study is fermented rice water (*Oryza sativa*) which contains many antioxidants when compared to the plain rice water. Inositol is the major constituent which helps in decreasing hair fall. The herbal shampoo was formulated using some of the traditional herbs like *Hibiscus-rosa-sinensis, Phyllanthus emblica, Aloe vera, Trigonella foenum graceum* along with fermented rice water in different concentrations and evaluated for various parameters. The prepared herbal shampoo was evaluated with physico-chemical parameters like pH, foam formation, dirt dispersion, surface tension, viscosity and wetting test. The results states that the herbal shampoo possess the following characteristics such as good foam ability, good cleansing, low surface tension, viscosity and soothing property. The evaluation results of the herbal shampoo had shown better results, which is ideal to use, safe and effective in the treatment of hair fall.

Keywords: Herbal shampoo, *Oryza sativa*, Hair fall.

1. INTRODUCTION:

Shampoos are likely the most broadly utilized restorative items for cleaning hairs and scalp in our everyday life. In ancient times, shampoos are made up of variety of herbs and their extracts, but at present, most of the shampoos in the current market are formulated using surfactants [1]. The surfactants are added for their cleansing property, but it's continuous use leads to effects such as eye irritation, loss of hair and dryness of hair [2]. The alternative solution is to substitute the use of synthetic shampoos with the herbal shampoos.

In the present study, herbal shampoo was formulated by using the ingredients such as Hibiscus-rosasinensis, Embalica officinalis, Trigonella foenum graceum, Aloe barbadensis and fermented rice water makes hair smooth and shiny and as well as it improves the strength, texture and growth of hair. Fermented rice water contains high amount of anti-oxidants that are beneficial for hair health. Inositol, an ingredient present in the rice water has ability to penetrate into damaged hair and repairs it from the inside out. The optimal pH of the fermented rice water keeps hair shiny, improves skin elasticity, reduces surface friction and prevents greying of hair [3].

Amla enhances the hair natural colour by preventing premature greying of hair. It has antifungal and anti-viral properties, which prevents dandruff and other fungal infections [4]. The seeds of Trigonella foenum graceum are rich source of iron and protein, which are two essential nutrients for hair growth. The chemical compounds such as flavonoids and saponins are responsible to induce the hair growth [5].

The petals of Hibiscus rosasinensis flowers are used to stimulate thicker hair growth and to prevent hair loss and scalp disorders. Presence of amino acids and vitamin C improve the blood circulation under the scalp and boosts hair growth [6]. The proteolytic enzymes present in the aloe vera repairs the dead skin cells on the scalp. It acts as a great conditioner. Hibiscus rosa sinensis and Aloe barbadense help in soothing of hair and gives the hair bouncy, smooth and shiny appearance [7].

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A OVERVIEW ON BEDAQUILINE FOR THE TREATMENT OF DRUG-RESISTANT TUBERCULOSIS

P. SIVARAM KUMAR*, M. ARAVIND, M. VENKATA RAMANA, RAMARAO N

Department of Pharmaceutics, Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, Lam, Guntur-522034

***Corresponding Author: Mr. P.Sivaram Kumar: E Mail: sivacomputer91@gmail.com**

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ABSTRACT

Bedaquiline has been recently approved drug moiety for the treatment of pneumonic multidrug-safe tuberculosis (TB) as a component of mixed treatment in adults. Existing medicines for multi-drug safe tuberculosis (MDR-TB) have significant limitations, to the extent of their feasibility, result profile, and unconventionality of association. Bedaquiline is a novel diarylquinoline against microbial that has starting late been investigated as an assistant to existing medicines for MDR-TB. In this review, the overall properties of bedaquiline were consolidated like physicochemical properties, dose administration, mechanism of action, pharmacokinetics, pharmacodynamics,drug interactions, and side effects for better understanding.

Keywords: bedaquiline, diarylquinoline, multidrug resistance, Mycobacterium tuberculosis, tuberculosis

INTRODUCTION

Tuberculosis (TB) is contagious bacterial contamination due to mycobacterial species of the MTB complicated, maximum frequently mycobacterium tuberculosis. It's miles predominantly an airborne ailment, spread through individuals with energetic TB, that commonly impacts the lungs, however, can spread to other organs. globally, TB is a sizable public fitness issue. In 2011, an anticipated 1.7 million people died from TB. about one in three individuals international is latently inflamed with *m. tuberculosis*, and 10% of those infected will finally broaden the

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FORMULATION, CHARACTERIZATION AND *IN-VITRO* EVALUATION OF LIQUISOLID TABLETS OF EZETIMIBE

G DEEPIKA, MADHU GUDIPATI AND RAMA RAO NADENDLA

Department of Pharmaceutics, Chalapathi Institute of Pharmaceutical Sciences (Autonomous), Lam, Guntur, Andhra Pradesh-522034, India

***Corresponding Author: G. Deepika: E Mail:** Deepika.deepu541@gmail.com

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ABSTRACT

Objective: To develop ezetimibe tablets using liquisolid techniqueto increase the solubility of ezetimibetablets when compared to conventional tablets.

Methods: Ezetimibe liquisolid tablets were prepared by using liquisolid technique. The ezetimibe liquisolid formulations were characterized by pre- and post-compression parameters.

Results: Materials such as Aerosil, HPMC, grades of polyethylene glycol (PEG) showed an impact on parameters such as angle of repose, thickness, and hardness and drug release as shown in the graphs below.

Conclusion: In conclusion, the liquisolid technique was believed as a capable approach to enhance the ezetimibe solubility, Dissolution rate, Bio availability.

Keywords: Carrier powder, coating material, dissolution efficiency; liquisolid compact; poorly soluble, similarity factor

INTRODUCTION

Ezetimibe, an anti-lipidemic agent that, by inhibiting intestinal cholesterol absorption, decreases the level of blood cholesterol. Ezetimibe is a white-crystalline powder that is highly soluble in ethanol, methanol and acetone, but nearly insoluble in water. This medicine is chosen to boost the rate of dissolution as well as to improve bioavailability, by using liquisolid method [1].

In this study ezetimibe tablets are prepared by using liquisolid technique in order to

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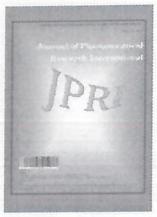

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Anti- Parkinsonian Drug Estimation by RP-HPLC

Rama Rao Nadendla[1*] and Patchala Abhinandana[1]

[1]Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur-522034, Andhra Pradesh, India.

Authors' contributions

This work was carried out in collaboration between both authors. Author RRN designed the study, wrote the protocol and managed the analyses of the study. Author PA made the literature searches and performed the statistical analysis. Both authors read and approved the final manuscript.

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ABSTRACT

Aim: The main aim of the current study is to give best and simple method for the estimation of antiparkinsonian drugs named Carbidopa, levodopa and entacapone.
Study Design: Simultaneous estimation of Carbidopa, levodopa and entacapone was performed by using Quadrapumped (SHIMADZU Prominance-i, LC-2030C) RP-HPLC equipped with PDA detector.
Place and Duration of Study: Chalapathi Drug Testing Laboratory, Chalapathi Institute Of Pharmaceutical Sciences, Lam, Guntur-522034, Andhra Pradesh, India during the period of August 2019 to February 2020.
Methodology: The assets of the study can determined as the process of qualification and quantification was done on SHIMADZU Prominance-i, LC-2030C system equipped with Phenomenex ODS (150 x 4.6 mm, 5µm) column and mobile phase was optimized using combination of acetonitrile and 0.1% ortho phosphoric acid in the ration of 50:50 v/v at a flow rate 1.0 ml/min. The wavelength was set as 270nm at ambient temperature by injecting 20µl of solution and the run time was fixed for 5 min.
Results: Calibration plot shown best regression over the concentration range of 5-160 µg/ml of Carbidopa, Levodopa and Entacapone standard solutions. The LOD and LOQ were found to be 0.85 and 2.54 µg/ml for Entacapone, 0.24 and 0.71 µg/ml for Levodopa, 0.14 and 0.43 µg/ml for Carbidopa respectively. The accuracy of the proposed method was determined by performing recovery studies and was found to be between 98-102%. The repeatability testing for both sample

**Corresponding author: E-mail: abhi.pharma44@gmail.com;*

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Method development and validation of quercetin obtained from the extraction of almond leaves by UV spectrophotometry and FTIR

N Sunitha*, K Swathi, N Rama Rao
Assistant Professor, Department of pharmaceutical Analysis, Chalapathi Institute of Pharmaceutical Sciences. LAM, Guntur, Andhra Pradesh, India

Abstract
The present study was aimed to develop and validate a simple, accurate, precise, reproducible UV-Visible spectrophotometric method and FTIR for the estimation of quercetin present in extract of almond leaves. The solvent used in the experiment was distilled water. Absorption maximum (λmax) of the drug was found to be 375 nm. The Beer's law was obeyed in the range of 25-125 µg/mL. The method was shown linear in the mentioned concentrations having line equation y = 0.008x+ 0.0115 with correlation coefficient r^2 of 0.9972. The amount of quercetin present in almond leaves extract was found to be 105 ug/ml. The recovery values for quercetin present in almond extract powder ranged from 98.57%-99.16%.The percent relative standard deviation (RSD %) of interday precision was 0.938% and intraday precision was 0.628%. The limit of detection and limit of quantification was 0.413µg/mL and 1.25µg/mL. The percent relative standard deviation of robustness and ruggedness of the method was 0.136 – 0.543. Hence, proposed method was precise, accurate and cost effective. This method could be applicable for quantitative determination of the quercetin present in almond leaves extract.

Keywords: almond leaves, quercetin, spectrophotometry, I

Introduction

Fig 1

The Indian almond (Terminalia Catappa L.) tree is abundant in tropical areas and is also found in some parts of the USA. Its leaves, fruit and bark have been used for medicinal purposes, including antioxidant and antimicrobial, owing to the high polyphenolic compounds content including tannins [11, 12]. The main tannin component in Indian Almond is reported to be punicalagin, 13 classified as a hydrolyzable tannin that is the leaves contain phytosterols, saponins, flavonoids such as quercetin and kaempferol as well as tannins such as tercatin, punicalin and punicalagin. The leaves can be used for treating and preventing diarrhoea, dysentery, Cancer and liver diseases. Indian almond leaves come from the *Terminalia catappa* tree. The leaf of this tree is especially known for its ability to act as a natural medicine and aquarium water conditioner for betta fish and shrimp tanks when the leaf has emerged in water for extended periods of time. Indian almond leaves are said to help combat fungus and bacterial problems like fin rot and can further help prevent fish from getting stressed by mimicking the water they are naturally found in. The *Terminalia catappa* tree grows throughout the tropical regions of Asia, Australia, and Africa. As we'll discuss later, the leaves fall from the tree and into the water. Tannins then leach out of the leaves into the water, adding hues of yellow and brown while lowering the pH. Indian almond leaves are usually harvested by simply picking them up off the ground leaf by leaf. After drying them properly, the leaves can then be added into the water or the tank. Almonds are sensitive souls, and are fussy about their growing conditions, which unfortunately means they can be about as challenging to grow as they are delicious.

The almond (*Prunus dulcis*, syn. *Prunus amygdalus*) is a species of tree native to Iran and surrounding countries [3, 4] but widely cultivated elsewhere. The almond is also the name of the edible and widely cultivated seed of this tree. Within the genus *Prunus*, it is classified with the peach in the subgenus *Amygdalus*, distinguished from the other subgenera by corrugations on the shell (endocarp) surrounding the seed. [*Citation needed*]

The fruit of the almond is a drupe, consisting of an outer hull and a hard shell with the seed, which is not a true nut, inside. Shelling almonds refers to removing the shell to reveal the seed. Almonds are sold shelled or unshelled. Blanched almonds are shelled almonds that have been treated with hot water to soften the seedcoat, which is then removed to reveal the white embryo.

The almond is native to Iran and surrounding countries [3, 4]. It was spread by humans in ancient times along the shores of the Mediterranean into northern Africa and southern Europe, and more recently transported to other parts of the

Trends in US FDA Biological License Approvals Over Last 5 Fiscal Years: An Observational Study

[1]Kanakam Hemanth Sai Tarun sitha Ram, [2]Yetukuri Koushik, [3]Nadendla Rama Rao*

[1,2]Department of Pharmaceutical Regulatory Affairs,

[3]Department of Pharmaceutical Sciences,

[1,2,3]Chalapathi Institute of Pharmaceutical Sciences (AUTONOMOUS), Chalapathi Nagar, Lam, Guntur, Andhra Pradesh – 522 034

*Corresponding Author Email: [1]hemanthsaitarun737@gmail.com

[2]yetukurikoushik@gmail.com

Recalls on Medical Devices in USFDA

*Yadavalli Sowjanya[1], Yetukuri Koushik[2], Nadendla Rama Rao[3]

[1,2]*Department of Pharmaceutical Regulatory Affairs,*

[3]*Department of Pharmaceutical Sciences,*

[1,2,3]*Chalapathi Institute of Pharmaceutical Sciences (AUTONOMOUS), Chalapathi Nagar, Lam, Guntur, Andhra Pradesh – 522 034*

**Corresponding Author Email:* [1]*sowjanyayadavalli96@gmail.com*

[2]*yetukurikoushik@gmail.com*

Abstract:

The purpose of the study is to illuminate the importance of medical devices during manufacturing of devices without any deviations. A drug recall is the most effective way to protect the public from a defective or potentially harmful product. A recall is a voluntary action taken by a company at any time to remove a defective drug product from the market. Drug recalls may be conducted on a company's own initiative or by FDA request. FDA's role in a recall is to oversee a company's strategy, assess the adequacy of the recall. A drug recall removes a prescription or over-the-counter drug from the market. Drug recalls in the United States are made by the FDA or the creators of the drug when certain criteria are met. When a drug recall is made, the drug is removed from the market and potential legal action can be taken depending on the severity of the drug recall. A recall is a method of removing or correcting products that are in violation of laws administered by the Food and Drug Administration (FDA). 21 CFR 7 provides guidance so that responsible firms may conduct an effective recall. Medical device recalls are usually conducted voluntarily by the manufacturer under 21 CFR 7.

Key words: CFR, FDA, medical device, over-the-counter drug, recall.

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Regulatory comparative studies for the registration process of bio similar products in Australia and Singapore

Sri Lakshmi Sowjanya Reddy Singam*, Koushik Yetukuri, Rama Rao Nadendla
Pharmaceutical Regulatory Affairs, Chalapathi Institute of Pharmaceutical Sciences, Guntur, Andhra Pradesh, India

Abstract
The expiration of patents on many biological medicinal products has prompted the development of these products as similar biological (biosimilar) products. Biosimilar' denotes a biological medicine which is highly similar to an already authorized reference biological medicine and also referred to as Bio therapeutic products, Follow on biologics, Subsequent entry biologics, with respect to different Ministry of health. Depends on type of country regulations, and approval process of generic version of biopharmaceuticals is specified. The standard approach of demonstration of bioequivalence for chemical generic products is scientifically not applicable for biosimilar products. The biosimilar product approach, based on comparability (demonstration of similarity), should be adopted. In view of the impending submissions and to facilitate access of such products at a more affordable price in Singapore, the Regulatory Authority is Health Sciences Authority (HSA). In Australia the regulatory authority Therapeutic Goods Administration (TGA) has adopted the European Union procedure for approving biosimilars, Centralized Procedure is mandatory for Biosimilar and fall within the scope of Regulation EC 726/2004; Food drug & administration is still in the process of developing guidelines regarding these types of products. In Singapore these are approved under NDA-2, NDA-3 process. This paper aims to facilitate the regulatory requirements for the approval process of Biosimilar in Regulated and Emerging markets by establishing the foundation for a harmonized regulatory standard to meet common demands of a regions like Australia & Singapore.

Keywords: bioequivalence, biosimilar, emerging markets, HSA, NDA, TGA

Introduction

A "biosimilar medication" or "biosimilar" is an exceptionally comparative, yet not indistinguishable, version of a unique natural medication (Reference medication) a medication contained enormous complex molecules got somehow or another from a living life form. In this sense, a biosimilar contrast somewhat from a conventional small molecule "Generic" medication, which is generally perceived as a pharmaceutical product that is indistinguishable, at any rate as far as active ingredients, to the first marked "originator" or "innovator" item. As the arrangement and innovation needed to create biological medicines keeps on progressing quickly, they are progressively conspicuous in the Australian and worldwide drug markets [1].

They are biologic clinical items whose dynamic medication substance are made by a living life form or got from a living being by recombinant DNA or controlled gene expression strategies. A biosimilar is a natural medication that is comparable, however not indistinguishable, to an all-around enlisted reference biotherapeutic item as far as quality, safety, and efficacy and expected to have similar mechanism of activity for similar illnesses as the pioneer biopharmaceutical drugs. These medications might be additionally called as biosimilar products follow-on protein Products and subsequent-entry biologics

The worldwide biosimilars market was esteemed at $2,552.0 million of every 2014 and is relied upon to reach $26,551.3 million by 2020, upheld by a compound annual growth rate (CAGR) of 49.1% during the forecast period 2015 to 2020, as per Allied Market Research's Report and this will open a pathway for the drug manufacturers to expand their market share, overall revenues and decrease the clinical consumption of biosimilar products.

The Current State of Biosimilar use in Australia

The Australian administrative system is nearly facilitative to the selection of biosimilars that are 'a-flagged' can be substituted for their reference products by a pharmacist without supervision by the prescribing doctor. The significant expenses related with biologics are foreseen to put an expanding trouble on public medical care spending in Australia except if measures are actualized to viably encourage expanded take-up. In the 2017-18 financial year, five of the best 10 medications by cost to the Australian Government were biologic medicines [2].

The Australian Therapeutic Goods Administration (TGA) has generally adopted the European way to deal with regulatory approval of biosimilars. To acquire TGA approval, each biosimilar should be assessed utilizing clinical, pre-clinical and laboratory-based comparability studies to create proof of comparative quality, safety and efficacy of each new biosimilar. There has been some controversy nationally and globally about appropriate information threshold requirements for biosimilar regulatory approval. Concerns have additionally been communicated with respect to patient exchanging between a reference medication and a biosimilar, due to, for instance, restricted long term efficacy, safety and immunogenicity information [3].

Registration of Medicinal Products in Singapore

The Health Sciences Authority (HSA) is the licensing authority for medicinal products in Singapore. The Health

Validated Chromatographic Method for Simultaneous Estimation of Salbutamol Sulphate, Guaifenesin and Ambroxol Hydrochloride in Bulk and Marketed Formulation

*N. Kamakshi Devi[1], M. Siva Prasad[2], N. Rama Rao[3]

[1]PG scholar, Department of Pharmaceutical Analysis, Chalapathi Institute of Pharmaceutical Sciences [Autonomous], Guntur, Andhra Pradesh – 522 034.

[2]Assistant Professor, Department of Pharmaceutical Analysis, Chalapathi Institute of Pharmaceutical Sciences [Autonomous], Guntur, Andhra Pradesh – 522 034.

[3]Principal, Department of Pharmaceutical Sciences, Chalapathi Institute of Pharmaceutical Sciences [Autonomous], Guntur, Andhra Pradesh – 522 034.

**Corresponding author Email: [1]kamakshidevinalam1@gmail.com*

[2]sivaprasad1155@gmail.com

Abstract:

The main aim of this research work is to estimate and validate the Salbutamol Sulphate, Guaifenesin and Ambroxol Hydrochloride in bulk and marketed formulation. Method development was carried out by autosampler HPLC Shimadzu 2030C 3D plus was used with stationary phase YMC column (150 × 4.6 mm, 3 µm) with ambient temperature. The mobile phase consisting of 0.1 ml orthophosphoric acid in 100 ml water [pH – 3 adjusted with 10 M Sodium hydroxide]: methanol in the ratio 70:30 v/v was pumped into the column at a flow rate of 0.9 ml/min. The injection volume was 20 µl with photo diode array detector at 233 nm. Validation was done according to ICH Q2(R1) guidelines. Linearity for Salbutamol sulphate was 1-5µg/ml, guaifenesin was 50-250µg/ml and for ambroxol hydrochloride was 30-120µg/ml with the correlation coefficient[r^2] 0.9998, 0.9999 and 0.9997. All the parameters like theoretical plates, resolution, tailing factor and %RSD was within the acceptance limits.

Keywords: Salbutamol Sulphate, Guaifenesin, Ambroxol Hydrochloride, Ascoril

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Determination of Diosgenin Present in the Extract of Stems of Fenugreek by HPTLC and FTIR

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N.Sunitha[1*], K. Swathi[1], N.Rama Rao[1]

1. Chalapathi Institute of Pharmaceutical Sciences-522 206. LAM, Guntur (Dist.), A.P India.

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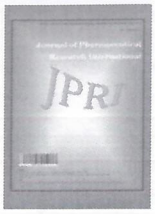
Keywords: Fenugreek, Diosgenin, HPTLC, IR.

ABSTRACT

A sensitive, fast, and reproducible high performance thin-layer chromatographic method has been developed for analysis of diosgenin from fenugreek stem extract using TLC aluminium plates precoated with silica gel G60F254. Among the different combinations of mobile phases used, best separation was achieved in methanol and water (9:1, v/v). Densitometric scanning of the plates directly at 275nm was used for analysis of diosgenin. For analysis of diosgenin, plates were scanned at 450nm after spraying and the retardation factor value of diosgenin was found to be 0.14 ± 0.1. in fenugreek stem extract sample. And also the interpretation of IR spectrum of both were compared and found to be similar. The present method is being reported for the first time and can be used for routine quality control and quantification of these marker compounds in various plant samples, extracts, and market formulations.

Anal-404-21



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Physico-Chemical Characterization of Paliperidone Palmitate and Compatibility Studies with its Pharmaceutical Excipients

Rama Rao Nadendla[1*], Prachet Pinnamaneni[1], Siva Prasad Morla[1] and Patchala Abhinandana[1]

[1]Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur-522034, Andhra Pradesh, India.

Authors' contributions

This work was carried out in collaboration among all authors. Author RRN designed the study. Author PP performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author SPM managed the analyses of the study. Author PA managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Aim: The main aim of the present study was to characterize and perform the compatibility studies of paliperidone with its excipients.
Study Design: Physico-chemical characterization and compatibility studies.
Place and Duration of the Study: Chalapathi Drug Testing Laboratory, Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, Lam, Guntur-522034 between December 2020 and January 2021.
Methodology: Physico-chemical characterization and compatibility studies of paliperidone palmitate with its excipients like HPMC, lactose, magnesium stearate, talc, microcrystalline cellulose was done using the FTIR spectrophotometer, Scanning electron microscopy, X-ray diffraction, Differential scanning calorimeter.
Results: Interaction of the paliperidone palmitate with its excipients were studied by this technique. Paliperidone palmitate showed the transition at 117.92^{0}C with the specific heat of 101.9J/g. The IR

**Corresponding author: E-mail: nadendla2000@yahoo.co.in;*

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Estimation of rutin in *Nelumbo nucifera* leaves by HPTLC

Prachet Pinnamaneni[1*], Haritha Chowdary Darapaneni[2], Yogitha Malempati[2], Jaswanth Kumar Chaluvadi[2], Rama Rao Nadendla[3]

[1] Assistant Professor, Department of Pharmaceutical Analysis, Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, lam, Guntur, Andhra Pradesh, India

[2] PG scholars, Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, lam, Guntur, Andhra Pradesh, India

[3] Principal, Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, lam, Guntur, Andhra Pradesh, India

Abstract

The present research article emphasis on the estimation of rutin in *Nelumbo nucifera* leaves by High Performance Thin Layer Chromatography (HPTLC). *Nelumbo nucifera* is also called as Lotus. The leaves of plant contain many constituents; mainly it is rich in flavonoids. Rutin and quercetin are the flavonoids present in lotus leaves. Rutin is used for strengthening and increasing the flexibility in blood vessels, and also your arteries and capillaries. HPTLC is an advanced sophisticated analytical technique of thin layer chromatography. It has the advantages like accuracy, specific identification of compounds in the plants. We used aluminium back coated silica gel of 60F 254 stationary phase and mobile phase of n-Butanol: Glacial acetic acid: Water: 0.1% Formic acid (7:1:1:0.25v/v/v/v) with dosage speed of 20µL/sec and 5×5mm band length and width at 254nm detection wavelength. Rutin was developed by ascending mode and quantified by using JustTLC software. R_f value of rutin was found to be 0.68. Further the developed method was validated for system suitability, accuracy, linearity, precision, LOD, LOQ and robustness according to ICH guidelines. Finally conclude that estimation of rutin by HPTLC method was found to be simple, precise and accurate and can be carried for routine analysis.

Keywords: Rutin, *Nelumbo nucifera*, HPTLC

Introduction

Lotus leaf is the dry leave of water lily plant lotus (Nelumbo nucifera Gaertn), has another name lotus leaf, lotus root leaf in China, most of the region has more plantation and is extensively used in food and medicine, the kind that the second batch specified for the Ministry of Health "is food and medicine". Flavonoids such as rutin (Figure-1) and quercetin are primarily included in lotus leaves. The glycoside combining the flavonol quercetin and the disaccharide rutinose is a bioflavonoid, or plant pigment sometimes referred to as rutoside, quercetin-3-O-rutinoside and sophorin, Rutin. It is a citrus flavonoid present in a wide range of plants, including vegetables and citrus fruits. The apples are rutin-filled. Rutin is also found in buckwheat, most oranges, figs, and both black and green tea [1]. Rutin has strong antioxidant properties. It also helps to create collagen and vitamin C in the body. You can add rutin to your diet by eating foods that contain it or taking it in supplement form [2].

Materials

High Performance Thin Layer Chromatography instrument used was Aetron manufactured with Sample applicator, Documentation system and Just TLC software was used for quantification of compounds. Samples were applied by using Hamilton syringe. Soxhlet apparatus and Rotary film evaporator was used for extracting the rutin from *Nelumbo nucifera* leaves.

Preparation of standard solutions

Weigh accurately about 10mg of standard rutin in a 10mL volumetric flask and make up the volume with methanol (i.e., 1000µg/mL). From the above solution pipette out 0.5mL into 10mL volumetric flask and make up the volume with methanol (i.e.,50µg/mL). This is used as working standard solution for the estimation of rutin in *Nelumbo nucifera* leaves.

Preparation of sample solution

Nelumbo nucifera leaves were collected, air dried and powdered. Extraction was done by taking powder and was placed in the Soxhlet apparatus using ethanol and water combination for one week. The collected solvent was taken and evaporated by using rotary film evaporator under -10^{0}C and 62^{0}C bath temperature with a 30rpm rotating speed. The collected residue was dissolved in methanol for further analysis.

Method Development

Estimation of rutin in the lotus leaves by using HPTLC was done using different mobile phases with different dosing speed and in different concentrations.

Chromatographic conditions

Trail 1

Stationary phase: Aluminium back coated silica gel of 60F 254
Mobile Phase: Hexane: Glacial acetic acid: Methanol: Orthophosphoric acid (8:1:1:0.25v/v/v/v)
Dosing speed: 20µL/sec
Band Length and Width: 5×5mm
Injection Volume: 20µL/sec
Detection Wavelength: 254nm
Chromatogram of trail 1 was represented in Figure-2

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A new derivative and non-derivative UV-spectroscopic approach for quantification of simvastatin and sitagliptin in bulk and pharmaceutical formulation

Rama Rao Nadendla[1*], Abhinandana Patchala[2]

[1] Professor and Principal, Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur, Andhra Pradesh, India

[2] Assistant Professor, Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur, Andhra Pradesh, India

Abstract

Simple accurate and precise spectrophotometric methods have been developed for the simultaneous estimation of simvastatin (SIMV) and sitagliptin (SITA) by employing four different analytical UV-Spectroscopic methods. From them method A was simultaneous equation method involves formation and solving the simultaneous equation using 238 nm and 267 nm as two wavelengths for simvastatin and sitagliptin respectively. Method B related to first order derivative spectrophotometry. The first order derivative absorption at 230 nm (zero crossing point of SITA) was used for SIMV and 275nm (zero crossing point of SIMV) was used for SITA. Method C is simultaneous estimation of simvastatin and sitagliptin by using dual-wavelength method. Method D involved in Q-absorption analysis based on the measurement of absorbance at two wavelengths that is the λ_{max} of SITA 267 nm and iso -absorptive point of both drugs at 250 nm. Two wavelengths were selected for each drug in such a way that the difference in absorbance was zero for the second drug. At wavelengths 225 and 248 nm SITA had equal absorbance values; therefore, these two wavelengths have been used to determine SIMV; on a similar basis 254 and 274 nm were selected to determine SITA in their binary mixtures. The four methods were obeyed the Beer's law in the concentration range of 3-15 µg/ml for SIMV and 50-150 µg/ml for SITA.

Keywords: sitagliptin (SITA), simvastatin (SIMV), dual-wavelength, q-absorption analysis, first order derivative, spectrophotometry

Introduction

Sitagliptin [(S)-5-methoxy-2-[(4-methoxy-3, 5 dimethylpyridin-2-yl) Methyl sulfinyl]-3H-benzoimidazole] is Soluble in water (42.2mg/ml) and slightly soluble in methanol. It works competitively to inhibit the enzyme dipeptidyl peptidase 4 (DPP-4). This enzyme breaks down the incretins GLP-1 and GIP, gastrointestinal hormones released in response to a meal.

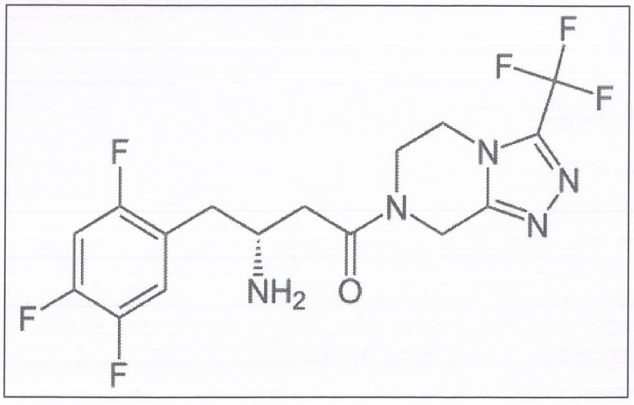

Fig 1: Stucture of Sitagliptin

Simvastatin [(1*S*,3*R*,7*S*,8*S*,8a*R*)-8-{2-[(2*R*,4*R*)-4-hydroxy-6-oxotetrahydro-2*H*-pyran-2-yl]ethyl}-3,7-dimethyl-1,2,3,7,8,8a-hexahydronaphthalen-1-yl 2,2-dimethylbutan oate] is practically insoluble in water and freely soluble in chloroform, methanol and ethanol.

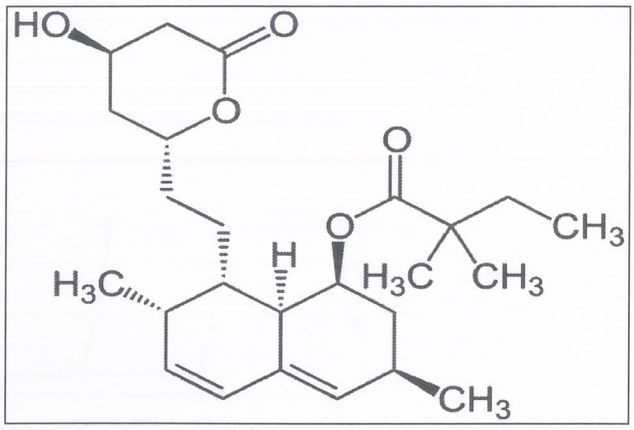

Fig 2: Stucture of simvastatin

The 6-membered lactone ring of simvastatin is hydrolyzed *in vivo* to generate the beta, delta-di hydroxy acid, an active metabolite structurally similar to HMG-CoA (hydroxy methylglutaryl CoA).

Instruments and Chemicals

Different instruments and chemicals were utilized in this study are given below.

Instruments

LABINDIA-UV 3092 UV/VIS spectrophotometer
Oscar ultrasonic's – ultra probe sonicator.
Vacuum filtration unit
Potentiometer-Titrasys 352.

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Research Article

Pharmaceutical analysis for Novel drug formulation

A Validated high Performance Liquid Chromatographic Method for the Quantification of Favipiravir by PDA Detector

Prof. Ramarao Nadendla[1*] and Dr. Abhinandana Patchala [2]

Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur-522034, Andhra Pradesh, India

Abstract: Favipiravir is an antiviral agent showing activity for the treatment of various life threatening viruses such as Ebola virus, Lassa virus and also recent virus for COVID-19. It is a pyrazine carboxamide derivative with activity against RNA viruses which targets RNA-dependent RNA polymerase enzymes which are necessary for the transcription and replication of viral genomes. The lack of research work and no compendial methods available for the estimation of this drug influenced the current research investigation to give a simple, sensitive, rapid, precise, accurate and robust isocratic high performance liquid chromatographic and UV Spectroscopic method for the determination and quantification of Favipiravir. The elution was done by using SHIMADZU Prominence-i, LC-2030 C system equipped with Shim-Pack GIST C18 (250X 4.6 mm, 5µm) column with a mobile phase mixture of 10 mM potassium dihydrogen ortho phosphate buffer (pH 4.0) and acetonitrile in the ratio of 90:10 v/v at a flow rate of 1.0 ml/min. The ultraviolet detection was done at the wavelength of 315 nm by maintaining column temperature at 30°. The total run time was 8.0 min. Calibration plot showed best regression over the concentration range of 10-60 µg/ml of Favipiravir standard solutions. The LOD and LOQ was found to be 0.18 µg/ml and 0.53 µg/ml, respectively. The accuracy of the proposed method was determined by performing recovery studies and was found to be between 99.47-100.80%. The repeatability testing for both sample and standard solutions was found as %RSD<2.0% which is within the acceptable limits showing that the method is precise as well. The proposed method was successfully applied for the marketed formulations of Favipiravir tablets. In addition the main features of the proposed method are economic and eco-friendly with less retention time around 4.622 min.

Keywords: Favipiravir, Antiviral, HPLC, UV, method development, Validation

***Corresponding Author**

Ramarao Nadendla , Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur-522034, Andhra Pradesh, India

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Quantification of vitamin-B2, B6 in *Spinacia oleracea* by HPTLC

Lakshmi Bhavani Dhanekula*, Prachet Pinnamaneni, Rama Rao Nadendla
Department of Pharmaceutical Analysis, Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur, Andhra Pradesh, India

Abstract
A new HPTLC (High Performance Thin Layer Chromatography) method was developed for the quantification of vitamin-B2, B6 in *Spinacia oleracea*. Separation of vitamins was achieved by using mobile phase as methanol: benzene: 0.1% formic acid (5: 4: 1 v/v), stationary phase as TLC silica gel 60 F_{254} (Aluminium sheets). The sample volume sprayed was 30µL, with dosage speed of 20 µL/sec. The determination was carried out by using the densitometric absorbance mode at 254nm and 365nm. R_f values & area of vitamin-B2, B6: 0.854, 0.784 & 1095, 780 respectively. The developed method was validated as per ICH guidelines and it was found to be reproducible and convenient for quantitative analysis of vitamin-B2, B6 in *Spinacia oleracea* (spinach). The method was linear in the range of 2000 ng to 10000 ng with correlation of 0.9992, 0.9993 & R_f values are 0.874, 0.780 for vitamin-B2, B6 respectively, other parameters like area was quantified and % RSD was calculated which was found to be NMT 2.0%. The method was simple, accurate, precise and successfully applied for the routine quantitative analysis.

Keywords: *Spinacia oleracea* (spinach), HPTLC, quantification, Vitamin-B2, B6

Introduction

Vitamin-B2 (Riboflavin) is 7,8-dimethyl-10-[(2S,3S,4R)-2,3,4,5-tetrahydroxypentyl]-2H, 3H, 4H, 10H benzo [g] pteridine-2, 4-dione. Molecular formula is $C_{17}H_{20}N_4O_6$, molecular weight is 376.3639 g/mol. It is used for the treatment of ariboflavinosis (vitamin B2 deficiency), cosmetic colorant; hair dyeing; skin conditioning, food additives [1]. Vitamin-B6 (Pyridoxine) is 4, 5-bis (hydroxymethyl)-2-methylpyridin-3-ol. Molecular formula is $C_8H_{11}NO_3$, molecular weight is 169.1778 g/mol. It is indicated for the treatment of vitamin B6 deficiency and for the prophylaxis of Isoniazid-induced peripheral neuropathy. It is also approved by Health Canada for the treatment of nausea and vomiting in pregnancy in a combination product with Doxylamine (as the commercially available product Diclectin) [2]. From literature review [3-12], no method was reported for quantification of vitamin-B2 & B6 in *Spinacia oleracea* by HPTLC. The main aim is to isolate and quantify the vitamin-B2, B6 present in *Spinacia oleracea* extract by using HPTLC. The main objective of the study is to develop a new HPTLC method for separation of vitamin-B2, B6 present in *Spinacia oleracea* extract, to validate the developed HPTLC method as per ICH guidelines and application of developed HPTLC method for the routine quantitative analysis.

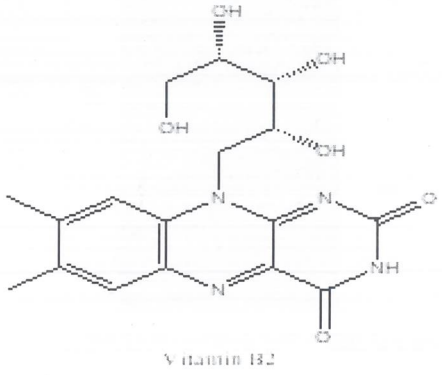
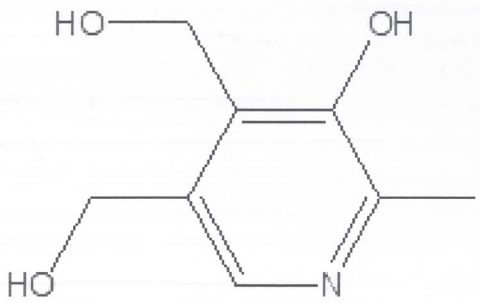


Fig 1: Structure of vitamin-B2



Pyridoxine

Fig 2: Structure of vitamin-B6

Materials and Methods

Standard vitamin-B2, B6 procured from sigma Aldrich, chemicals from Thermo fisher scientific India Pvt. Ltd., The HPTLC system manufactured by AETRON consists of following components: AETRON HPTLC model containing Linomat – 5 sample applicator, variable wavelength programmable AETRON TLC Scanner – 3 by using sprayl in software, AETRON Twin-trough chambers, Hamilton syringe (100 µL), Chromatographic analysis was performed on aluminum sheets i.e., TLC silica gel 60 F_{254} HPTLC plates (Merck, Darmstadt, Germany), cam port which is, Elite-mini luminous consists of visible light, UV- 254nm, 365nm with EOS utility, quantification of plates is done by using JUST TLC or AETRON IDS software. 1mg sensitivity balance manufactured by ESSAE was used for weighing the compounds.

Mobile Phase Preparation

For better separation of vitamin-B2, B6 - methanol: benzene: 0.1% formic acid was selected as mobile phase in the ratio of 5: 4: 1 %v/v.

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A novel quantitative estimation of antiviral drugs in combined dosage form by using RP-HPLC method

Siva Prasad Morla[1*], Abhinandana Patchala[2], Prachet Pinnamaneni[2], Rama Rao Nadendla[2]

[1] Assistant Professor, Department of Pharmaceutical Sciences, Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, Lam, Guntur, Andhra Pradesh, India

[2] Department of Pharmaceutical Analysis, Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur, Andhra Pradesh, India

Abstract

Objective: A Simple, accurate, specific and rugged reverse phase liquid chromatographic method was developed and validated for the simultaneous estimation of Lamivudine, Tenofovir, and Dolutegravir in bulk and tablet dosage form.

Method: A reverse phase gradient program has been developed to separate the all four active ingredients using 0.1% triflouro acetic acid, acetonitrile was used as mobile phase. A gradient programing has been developed and validated, on a reverse phase C18 column (150 X4.6 mm, 3µ) with a flow rate of 0.9 mL/min by monitoring at 258 nm of wavelength.

Results: The mean retention times of Lamivudine, Tenofovir, and Dolutegravir were found to be 3.06, 9.37 and 10.08 min respectively. Linearity of Lamivudine, Tenofovir, and Dolutegravir was found to be 10-50 µg/mL, 10-50 µg/mL and 1-10 µg/mL respectively. The accuracy of the proposed method was determined by performing recovery studies and was found to be between 98-102%. The repeatability testing for both sample and standard solutions was found as %RSD<2.0% which is within the acceptable limits showing that the method is precise as well. The LOD and LOQ were found to be 0.18 and 0.53 µg/ml for Lamivudine, 0.18 and 0.53 µg/ml for Tenofovir, 0.08 and 0.25 µg/ml for Dolutegravir respectively.

Conclusion: The proposed method was validated in terms of linearity, range, accuracy, precision, specificity, robustness and stability studies and the method is successfully applied for the estimation of lamivudine, tenofovir, and dolutegravir in combined tablet dosage form.

Keywords: lamivudine, tenofovir, dolutegravir and RP-HPLC

Introduction

Lamivudine, commonly called 3TC, is an antiretroviral medication used to prevent and treat HIV/AIDS. It is also used to treat chronic hepatitis B when other options are not possible. It is effective against both HIV-1 and HIV-2.

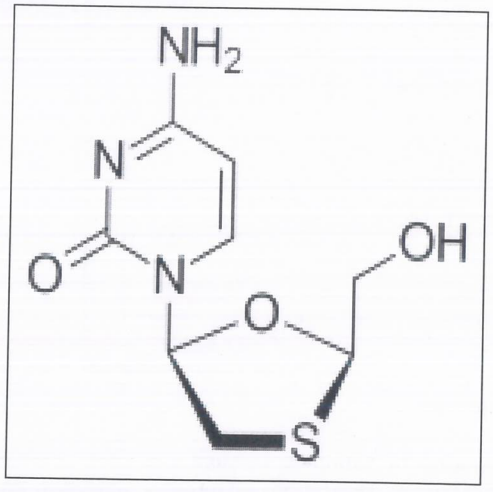

Fig 1: Structure of Lamivudine

Tenofovir disoproxil, sold under the trade name Viread among others, is a medication used to treat chronic hepatitis B to prevent and treat HIV/AIDS. It is generally recommended for use with other antiretrovirals.

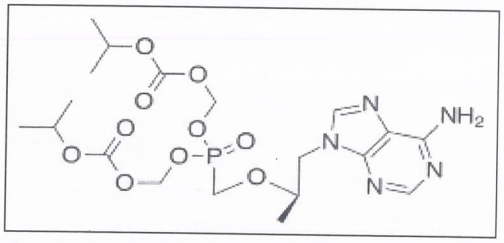

Fig 2: Structure of Tenofovir Disoproxil

Dolutegravir (DTG), sold under the brand name Tivicay, is an antiretroviral medication used, together with other medication, to treat HIV/AIDS. It may also be used, as part of post exposure prophylaxis, to prevent HIV infection following potential exposure. It is taken orally.

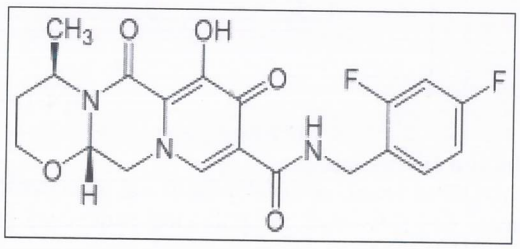

Fig 3: Structure of Dolutegravir

There are no quantitative methods available for the estimation Dolutegravir, Lamivudine, and Tenofovir

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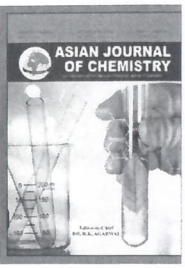

Molecular Docking Studies, Analgesic and Anti-inflammatory Screening of Some Novel Quinazolin-4-one Derivatives

K.N. RAJINI KANTH[1,*], CH. JASWANTH KUMAR[1], D. ESWAR TONY[1], SK. MUNWAR[1], RAMA RAO NADENDLA[1] and CHANDRAGIRI SIVA SAI[2]

[1]Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, Lam, Guntur-522034, India
[2]Amity Institute of Pharmacy, Amity University, Uttar Pradesh, Gonti Nagar, Lucknow-226028, India

*Corresponding author: E-mail: knrkanth2009@gmail.com

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Molecular docking studies was performed on 20 analogous novel quinazolin-4-one derivatives as cox-2 inhibitors using glide tool of maestro 11.4 application of Schrodinger software. Anti-inflammatory and analgesic activities were further evaluated for the compounds. Based on docking studies, the binding affinity of QZN-16 was found to be -10.32 kcal/mol. In order to understand the significance of R-substituents on the quinazoline-4-one nucleus, the findings of hydrogen bonding interactions between designated ligands with binding site region of 4cox were studied. The ligands which are having high docking score were subjected to pharmacological screening. The compound QZN-16 has shown analgesic and anti-inflammatory activity at a dose level of 50 and 100 mg/kg body weight, respectively when compared with standard drug indomethacin. The newly designed quinazoline-4-one derivatives may serve as lead molecules for further development.

Keywords: Structure based drug design, Quinazolin-4-one derivatives, Molecular docking, Analgesic, Anti-inflammatory, Cox-2 inhibitor.

INTRODUCTION

Docking methodologies have been used to predict the experimental binding modes and affinities of small molecules within the binding site of particular targets like receptors and enzymes and are currently being used in virtual screening studies as a standard computational tool in drug design for lead compound optimization and to find novel biologically active compounds. The search algorithm and energy scoring functions are used as fundamental tools for generating the different poses for ligand and also its evaluation in docking studies [1]. Ligand-protein docking is performed to predict the main binding modes of a ligand with a protein with a defined three-dimensional structure. Successful docking methods search high-dimensional spaces effectively and use a scoring function and give the ranking based on the binding modes [2,3]. By using docking applications, virtual screening on large libraries of analogues can be performed so that the results can be graded and structural hypotheses can be formulated on inhibition of the target by ligands, which is helpful in optimizing leads. In addition, the characterization of the binding activity plays an important role in both the logical design of drugs and the elucidation of fundamental biochemical processes [4-6].

Non-steroidal anti-inflammatory medications are among the most widely used therapeutics (NSAIDs). The pharmacological target is cyclooxygenase, which catalyzes the first and key step in arachidonic-acid metabolism. They represent a choice of treatment for different inflammatory diseases *viz.*, arthritis, rheumatism and relaxation through their anti-inflammatory, antipyretic and analgesic activities. The constitutive isozyme COX-1 plays a role in the cytoprotective mechanism of GIT and in normal functioning of the renal system [7]. In response to a pro-inflammatory stimulus, COX-2 is an inducible and short-lived enzyme that is expressed. The biosynthesis of prostaglandin requires COX-2 in inflammatory cells. Classical non-steroidal anti-inflammatory agents inhibit both isozymes to varying degrees, a characteristic that has been directly linked to the corresponding differential distribution in tissue and also represents the shared therapeutic properties and side effects of these agents [8,9]. The basis of the inhibition of COX-2

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Validated RP-HPLC analytical method for simultaneous estimation of imatinib mesylate and anastrazole in pharmaceutical formulation

Sai Sree M*, Shaik Munwar, Ramarao N
Department of Pharmaceutical Analysis, Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, Lam, Guntur, Andhra Pradesh, India

Abstract
A simple, precise, accurate, efficient and reproducible, isocratic Reverse Phase- High Performance Liquid Chromatography (RP-HPLC) method was developed and validated for the simultaneous estimation of Imatinib mesylate and Anastrazole in pharmaceutical formulation. Imatinib mesylate and Anastrazole were separated using an Phenomenex Luna 3µ C8(2) 100A°, LC Column 150 x 45, Shimadzu of 2030 LC Prominence i-series with high detection capabilities of PDA detector and the mobile phase contained a mixture of 0.02M sodium dihydrogen phosphate (pH adjusted to 2 with 0.1% orthophosphoric acid), acetonitrile and water (30:55:15,v/v/v). The flow rate was set to 1ml/min with the response detected at 228nm. The retention time of Imatinib mesylate and Anastrazole was found to be 1.88min, 3.139 min. Linearity for imatinib mesylate, in the range of 100-500µg/ml, for anastrazole in the range of 1-5µg/ml with correlation coefficient of 0.9999. The percentage recovery of Imatinib mesylate and anastrazole was found to be 100.27, 99.75 respectively. Validation parameters such as specificity, linearity, precision, accuracy, robustness, and limit of detection (LOD), limit of quantification (LOQ) were evaluated for the method according to the International Conference on Harmonization (ICH) Q2 R1 guidelines.

Keywords: imatinib mesylate, anastrazole, RP-HPLC, ICH, LOD, LOQ

Introduction

Anastrazole

Anastrazole is chemically 2-[3-(2-cyanopropan-2-yl)-5-(1, 2, 4-triazol-1-ylmethyl) phenyl]-2-ethylpropanenitrile [1].It is a potent nonsteroidal Aromatase inhibitor mainly used in the treatment of breast cancer in postmenopausal women [2]. It is an off white crystalline solid, odourless and has moderate aqueous solubility. Anastrazole is freely soluble in methanol, acetone and ethanol, tetrahydrofuran and very soluble in acetonitrile [3]. Anastrazole selectively binds to and reversibly inhibits the aromatase [4]. A cytochrome P450 enzyme complex found in many tissues including those of premenopausal ovary, liver and breast. Aromatase catalyzes the aromatization of androstenedione and testosterone into estrone and estradiol [5]. It can also contribute to decrease the risk of stroke, heart attack, chronic inflammation, prostate enlargement and prostate cancer [6]. Anastrazole is eliminated slowly with a plasma elimination half-life of 40-50 hours .As per the literature survey it is revealed that very few analytical methods for the separation and estimation of anastrazole have been reported such as UV-spectrophotometric method and HPLC methods.

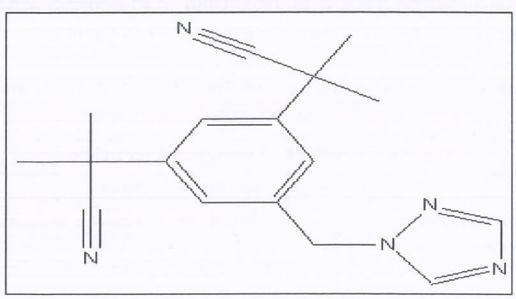

Fig 1: Structure of Anastrazole Imatinib mesylate:

Imatinib mesylate is chemically 4-[(4-Methyl-1-piperazinyl) methyl]-N-[4-methyl-3-[(4-(3-pyridinyl)-2 pyrimidinyl] amino] phenyl] benzamid methane sulfonate [7]. Imatinib mesylate is 2-phenylaminopyrimidine derivative.It is tyrosine kinase inhibitor [8]. Imatinib is designed to inhibit tyrosine kinase such as Bcr-Abl and is used in the treatment of chronic myeloid leukemia (CML), gastrointestinal stroma tumors (GISTs) [9]. It is freely soluble in dimethyl sulfoxide, methanolacetonitrile, water and ethanol and is insoluble in n-octanol, acetone.In chronic myelogenous leukemia, the Philadelphia chromosome leads to a fusion protein of *abl* with *bcr* (*breakpoint cluster region*), termed *bcr-abl*. Imatinib is used to decrease *bcr-abl* activity [10]. Imatinib mesylate is one of the newest anticancer drug on the market and was one of the first drugs to be pushed through the food and drug administration quick track approval designation [11]. The elimination halflife of imatinib mesylate and its active metabolite, N-desmethylimatinib (M1) were approximately 18 and 40hours respectively [12]. As per the literature survey it is revealed that very few analytical methods for the separation and estimation of anastrazole have been reported such as UVspectrophotometric method and HPLC methods.

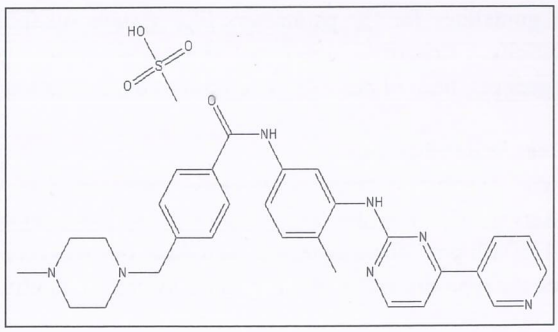

Fig 2: Structure of Imatinib mesylate

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ESTIMATION OF SAXAGLIPTIN IN PHARMACEUTICALS-A REVIEW

KAMAKSHI DEVI N*, LAKSHMI BHAVANI D, PRACHET P AND RAMA RAO N

Department of Pharmaceutical Analysis, Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, Lam, Guntur-522034

***Corresponding Author: Kamakshi Devi Nalam: E Mail: kamakshidevinalam1@gmail.com**

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ABSTRACT

An oral diabetes medicine Saxagliptin helps to control blood sugar levels for the people suffering with type 2 diabetes mellitus alone or with combination. This review discusses the analytical methods documented so far in the literature for the estimation of Saxagliptin in bulk drug and in different formulations. The primary objective of this review is to provide a brief overview of Saxagliptin to researchers on solvents, mobile phases, stationary phases, linearity range, flow rates, retention times and retardation factor by various analytical methods such as spectrophotometric, chromatographic.

Keywords: Saxagliptin, Dapagliflozin, Metformin, chromatography, flow rate, retention time

INTRODUCTION:

Type 2 diabetes mellitus (T2DM) is a chronic progressive metabolic disorder characterized by absolute or relative insulin deficiency **[1]**. Saxagliptin (SAXA), chemically, known as (1s, 3s,5s)-2-[(2s)-2-amino-2-(3- hydroxy l– tricyclo[3.3.1.1]dec-1-yl)acetyl]-2-azabicyclo[3.1.0] hexane-3-carbonitrile, is a potent, selective, long-acting, and reversible inhibitor of the enzyme dipeptidyl peptidase 4 (DPP-4) used for treatment of type 2 diabetes mellitus. It is used as monotherapy or in combination with other drugs **[2]**. Chemical formula and molecular weight of Saxagliptin is $C_{18}H_{25}N_3O_2$, 315.41 g\mol **(Figure 1)**. Saxagliptin is extensively metabolized by hydroxylation and oxidation via liver CYP_{450} enzymatic system **[3]**. DPP-4 inhibitors enhance the body's own ability to control blood glucose by increasing the active levels of incretin hormones in the body. Their mechanism of action is distinct from any existing class of oral glucose-lowering agents. They control

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ANALYTICAL METHODS FOR RALTEGRAVIR IN PHARMACEUTICALS: A REVIEW

LAKSHMI BHAVANI D*, KAMAKSHI DN, PRACHET P AND RAMA RAO N

Department of Pharmaceutical Analysis, Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur-522034

***Corresponding Author: Dr. Lakshmi Bhavani Dhanekula: E Mail: dhanekulalakshmibhavani@gmail.com; Phone No.: +917995129217**

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ABSTRACT

The main aim of this review is to provide a brief overview of analytical methods like spectrophotometric and chromatographic methods for the analysis of Raltegravir in pharmaceuticals to researchers. Integrase inhibitors, also called as integrase strand transfer inhibitor (INSTI) are one of the class of antiretroviral (HIV) drugs intended to block integrase action. Integrase is a viral enzyme that inserts viral genome into DNA of host cell. Integration is an important step in retroviral replication, blocking of integrase enzyme can halt further spread of virus. Various analytical methods for Raltegravir are reviewed in this article along with their experimental conditions in bulk, pharmaceutical dosage forms.

Keywords: Raltegravir, spectrophotometric, chromatographic, HIV, analytical methods

INTODUCTION

Raltegravir is chemically N- [(4-fluorophenyl) methyl]-5-hydroxy-1-methyl-2- {2- [(5-methyl-1,3,4-oxadiazol-2-yl) formamido] propan-2-yl}-6-oxo-1,6-dihydropyrimidine-4-carboxamide. The molecular formula is $C_{20}H_{21}FN_6O_5$ and molecular weight is 444.42g/mol. Raltegravir targets integrase, an HIV enzyme that integrates the viral genetic material into human chromosomes, a critical step in the pathogenesis of HIV. The drug is metabolized away via glucuronidation. In present study, analytical methods with better detection range for estimation of Raltegravir in its pure form and its pharmaceutical formulations [1].

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ESTIMATION OF GLIBENCLAMIDE IN PHARMACEUTICALS - A REVIEW

E. PRABHU TEJA[1*], K.N. RAJINI KANTH, P. PRACHET, M.NAGARAJU AND RAMA RAO N

Department of Pharmaceutical Analysis, Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur-522034, Andhra Pradesh, India

***Corresponding Author: Emadabathini Prabhu Teja: E Mail: prabhutejaemadabathini@gmail.com; Mob.: +91 7995230644**

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ABSTRACT

Glibenclamide belongs to the class second generation sulfonyl ureas used in the management of diabetes. The present review is generalized to describe the various methods of UV, HPLC, HPTLC, UPLC and UHPLC for glibenclamide analysis in formulations, synthetic mixtures and biological fluids. The chromatographic conditions used for the analysis were performed under various experimental conditions and combinations. Analytical parameters such as wavelength, solvent, mobile phase, correlation coefficient, linearity, retention time, retardation factor, LOD, LOQ and so on are written in this review. For budding researchers, this review is very helpful in the analysis of glibenclamide in formulation, biological fluids and synthetic mixtures.

Keywords: Glibenclamide, Metformin Hydrochloride, Pioglitazone, Glimepiride, HPLC, chromatography, flow rate, retention time

INTRODUCTION

Type 2 diabetes mellitus (DM) is a chronic metabolic prevalence disorder which results in becoming an epidemic in some of the countries, the affected people to double in next decade **[1]**. Glibenclamide is 5-chloro-N-[2-[4-(cyclohexyl carbamoyl sulfamoyl) phenyl] ethyl]-2-methoxybenzamide, with molecular weight 494 g/mol **[2]**. As of 2003, it was most popular sulfonyl urea in the United States **[14]**. Glibenclamide is used in

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SCREENING OF BIOACTIVE PHYTOCHEMICALS FOR THEIR ANTI-ALLERGIC ACTIVITY ON GUINEA PIGS AGAINST NON-IMMUNOLOGICAL CONTACT URTICARIA

Naga Lakshmi Jada [*1,2] and Narendra Babu Ankem [2]

Department of Pharmacology [1], Chalapathi Institute of Pharmaceutical Sciences, Guntur - 522034, Andhra Pradesh, India.

University College of Pharmaceutical Sciences [2], Acharya Nagarjuna University, Nagarjuna Nagar, Guntur - 522510, Andhra Pradesh, India.

Keywords:

Urticaria, Hesperidin, Ellagic acid, Benzoic acid and Geraniol

Correspondence to Author:
Jada Naga Lakshmi

Assistant Professor,
Department of Pharmacology,
Chalapathi Institute of Pharmaceutical Sciences, Guntur - 522034, Andhra Pradesh, India.

E-mail: 1985nagalakshmi@gmail.com

ABSTRACT: Pharmacological screening of selective phytochemicals for common skin allergic disorder, which is defined by the occurrence of itchy and even painful wheels, angioedema or erthyma (Urticaria). The main cause of allergic reactions is chemicals, certain foods, insect stings, which often lead to the cause of histamine release, then the tiny blood vessels (capillaries) leak fluid. For induction of urticaria (BA & CA) were selected; they cause the NICU on animal skin whenever they contact the skin. Healthy adult guinea pigs weighing 300-400 gm, were selected for the present study, totally 5 groups each contains five guinea pigs. Those groups were considered as group-1 (Disease control), group-2 (standard), group-3 (Vehicle control), group-4 (test-1) and group 5 (test-2). Parameters such as ear thickness, redness, itching, swelling and time taken for reducing swelling was recorded. Topical application of Benzoic acid and Cinnamon acid to all groups, those animals produced signs of urticaria, which is characterized by redness, itching, swelling. A dose dependent increase in ear thickness was observed in disease control. Topical treatment of phytochemicals reduces redness on guinea pig ears, ear thickness; it is significant reduced with 1% w/w ointment treated group (0.27±0.01****, 0.318±0.015****, 0.266±0.015****) when compared with the disease control group. 2% w/w ointment treated group also produced the significant effect with high reduction of ear thickness which is similar to that of standard group (0.19±0.008****, 0.214±0.009****, 0.154±0.014****). Ear thickness ****P<0.001 *vs.* disease control. Based on the results, it was concluded that selected phytochemicals are suitable for treating NICU without complications.

INTRODUCTION: The skin is the largest organ of our body, accounting for about 15% of total body weight. It is continuous with the mucous membranes lining the body surface. It is a complex organ; an average square inch of skin consists of 650 sweat glands, 20 blood vessels, and more than 1000 nerve endings [1]. Urticaria is a skin rash triggered by a reaction to food, medicine, or other irritants. It is the dermal edema resulting from vascular dilation and leakage of fluid into the skin in response to molecules released from mast cells. The major preformed mediator histamine produces a prototypic, short-lived urticarial [2]. Acute Urticaria is most often a benign self-limited skin disease.

QUICK RESPONSE CODE

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A prospective observational study on prevalence of osteoarthritis with malnutrition in Kanigiri constituency, West Prakasam, Andhra Pradesh

[1]Sreenu Thalla, [2]Bhavani Pentela, [1]A.Narendra Babu, [1]Rama Rao Nadendla*

[1]Department of Pharmacology, Chalapathi Institute of Pharmaceutical Sciences, Guntur, Andhra Pradesh, India

[2]Department of Pharmacology, Noida Institute of Engineering and Technology (Pharmacy Institute), Greater Noida, Uttar Pradesh, India

Corresponding author: sreenuthalla87@gmail.com

Reviews

Rodent models for nicotine withdrawal

Ranjithkumar Chellian[1], Azin Behnood-Rod[1], Dawn M Bruijnzeel[1], Ryann Wilson[1], Vijayapandi Pandy[2] and Adriaan W Bruijnzeel[1]

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DOI: 10.1177/02698811211005629
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Abstract

Background: Animal models are critical to improve our understanding of the neuronal mechanisms underlying nicotine withdrawal. Nicotine dependence in rodents can be established by repeated nicotine injections, chronic nicotine infusion via osmotic minipumps, oral nicotine intake, tobacco smoke exposure, nicotine vapor exposure, and e-cigarette aerosol exposure. The time course of nicotine withdrawal symptoms associated with these methods has not been reviewed in the literature.

Aim: The goal of this review is to discuss nicotine withdrawal symptoms associated with the cessation of nicotine, tobacco smoke, nicotine vapor, and e-cigarette aerosol exposure in rats and mice. Furthermore, age and sex differences in nicotine withdrawal symptoms are reviewed.

Results: Cessation of nicotine, tobacco smoke, nicotine vapor, and e-cigarette aerosol exposure leads to nicotine withdrawal symptoms such as somatic withdrawal signs, changes in locomotor activity, anxiety- and depressive-like behavior, learning and memory deficits, attention deficits, hyperalgesia, and dysphoria. These withdrawal symptoms are most pronounced within the first week after cessation of nicotine exposure. Anxiety- and depressive-like behavior, and deficits in learning and memory may persist for several months. Adolescent (4–6 weeks old) rats and mice display fewer nicotine withdrawal symptoms than adults (>8 weeks old). In adult rats and mice, females show fewer nicotine withdrawal symptoms than males. The smoking cessation drugs bupropion and varenicline reduce nicotine withdrawal symptoms in rodents.

Conclusion: The nicotine withdrawal symptoms that are observed in rodents are similar to those observed in humans. Tobacco smoke and e-cigarette aerosol contain chemicals and added flavors that enhance the reinforcing properties of nicotine. Therefore, more valid animal models of tobacco and e-cigarette use need to be developed by using tobacco smoke and e-cigarette aerosol exposure methods to induce dependence.

Keywords

Nicotine, mecamylamine, spontaneous, precipitated, withdrawal, dependence, tobacco, vapor, smoke, e-cigarettes, smoking cessation

Introduction

Cigarette smoking is the leading preventable cause of disease and premature death in the world. (–)-Nicotine is a natural tobacco alkaloid and the main addictive chemical in conventional and electronic cigarettes (e-cigs). When tobacco smoke is inhaled, nicotine is absorbed in the lungs and then rapidly enters the brain and binds to nicotinic acetylcholine receptors (nAChRs). The stimulation of nAChRs causes the release of dopamine in the mesolimbic system and produces a mild stimulant effect (Benowitz, 2009; Prochaska and Benowitz, 2016). Nicotine also stimulates the release of other neurotransmitters such as acetylcholine, noradrenaline, serotonin, glutamate, gamma-aminobutyric acid, and endorphins (Benowitz, 2009, 2010). In addition to mild euphoria, nicotine reduces stress and anxiety, and improves mood and overall wellbeing (Benowitz, 2008; Picciotto and Mineur, 2014; Xi et al., 2009). The positive reinforcing effects of nicotine play a role in the initiation of smoking. Long-term nicotine exposure causes neuroadaptations and tolerance, which leads to compulsive smoking to maintain normal brain function (Prochaska and Benowitz, 2016). Discontinuation of smoking in nicotine-dependent individuals alters brain neurotransmitter release and produces negative affective withdrawal symptoms (Benowitz, 2010).

Nicotine withdrawal is characterized by somatic symptoms, affective symptoms, attention deficits, and cognitive deficits. Somatic nicotine withdrawal symptoms include bradycardia, gastrointestinal discomfort, increased appetite, and tremors. Affective nicotine withdrawal symptoms include depression, anxiety, anhedonia, dysphoria, hyperalgesia, and irritability (Kenny and Markou, 2001; Markou, 2008; McLaughlin et al., 2015). Nicotine withdrawal symptoms peak during the first week of smoking abstinence and may last up to 4 weeks (McLaughlin et al., 2015; Paolini and De Biasi, 2011). The highly aversive nicotine withdrawal symptoms make it challenging to maintain abstinence (Hughes, 2007; Hughes et al., 1991). Negative affective nicotine withdrawal symptoms contribute more to relapse than somatic withdrawal signs (Bruijnzeel, 2017).

Nicotine replacement therapy, bupropion, and varenicline are US Food and Drug Administration (FDA) approved smoking cessation medications (Casella et al., 2010; Crooks et al., 2014; Patel et al., 2010). Bupropion is a noradrenaline–dopamine reuptake inhibitor and a neuronal nicotinic acetylcholine receptor ($\alpha3\beta2$, $\alpha4\beta2$, and $\alpha7$ nAChRs) antagonist (Crooks et al., 2014; Slemmer et al., 2000). Varenicline is a potent partial agonist at $\alpha4\beta2$ nAChRs and a full agonist at $\alpha7$ nAChRs (Mihalak et al., 2006). Clinical studies suggest that bupropion and varenicline

[1]Department of Psychiatry, University of Florida, Gainesville, USA
[2]Department of Pharmacology, Chalapathi Institute of Pharmaceutical Sciences, Guntur, India

Corresponding author:
Ranjithkumar Chellian, Department of Psychiatry, University of Florida, 1149 Newell Dr., Gainesville, FL 32611, USA.
Email: ranjithchellian@ufl.edu

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Review Article

A Review on Tibouchina urvilleana (DC.) Cogn

Vinnakota Gowthami [1]* Jada.Naga Lakshmi[1]

[1.] Department of Pharmacology, Chalapathi Institute of Pharmaceutical Sciences, Lam, Chalapathi Nagar, Guntur-522034, INDIA

***Corresponding author's E-mail:** gowthami1821@gmail.com

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ABSTRACT

Tibouchina urvilleana (DC.) Cogn belongs to family Melastomataceae. Native place of the plant is in Brazil. *Tibouchina urvilleana* plants characteristic are young stems were 4-sided and covered in short hair, broad grayish green leaf, with softly hair on the leave. Flowers are large, bright purple flowers with obviate petals. Fruits are Hypanthium reddish and shaped like a u- shaped vase - growth habit, and it is quite tall when matured. *Tibouchina urvilleana* is used as Ornamental Plants because of their purple flowers. Literature survey of *Tibouchina urvilleana* revealed the presence of different classes of natural products including flavonoids, flavonol- glycosides, isoflavonoids, anthocyanins, tannins, triterpenes, and phenolic derivatives. The plant is traditionally reported for its use for the treatment of anti-inflammatory, antioxidant, antti-nocieptive (relieving chronic pain), anti- microbial, anti-lesimanial activity; aluminum accumulation in leaves, Nobotanin B extracted from the plant Tibouchina Species is a potent PARG(Poly(ADP-ribose)glycohydrolase inhibitor. This review is short review on *Tibouchina urvilleana*.

Keywords: *Tibouchina urvilleana (DC.) Cogn,* Princess Flower, *Lasiandras urvilleana*, Quaresmeria.

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INTRODUCTION

Tibouchina Urvilleana is species of flowering plant that belong to the Melastomataceae family[1].Being popularly known as Glory bush, Princess Flower, Lasiandra urvilleana[2]. Phonetic spelling tib-OO-kee-nuh ur-VIL-ah-nuh[3]. *Tibouchina urvilleana* is mainly distributed in Brazil, tropical and subtropical regions of Americas, and it grown as a garden plant throughout the world. In Brazil, *Tibouchina* species are known as "Quaresmeria"[4]. *Tibouchina urvilleana* can be evergreen shrubs or herbaceous perennials, with simple prominently veined, soft hairy leaves and saucer- shaped purple flowers with conspicuous stamens[5].

Figure 1: *Tibouchina urvilleana (DC.) Cogn*

Tibouchina urvilleana

Family name:	Melastomataceae
Synonyms:	*Appendicularia grandiflora*, *Appendiculatia splendens*, *Pleroma urvilleana*, Lisiandra.
Common name:	Princess flower, Glory Bush, Purple Glory Tree, Lasiandra, Pleroma, Brazilian Sendudok.

Taxonomy / Scientific Classification

Kingdom:	Plantae
Division:	Tracheophyta
Order:	Mytales
Family:	Melastomataceae
Genus:	Tibouchina
Species:	*Tibouchina urvilleana* (DC.) Cogn, Princess Flower, Glory Bush, Lasiandra Princess Flower
Class:	Dicotyledonate

Description and Ethnobotany

Tibouchina urvilleana is a large, dense, and rounded –but sprawling. Evergreen shrub or small ornamental tree ranges from 10 to 15 feet (20 feet with proper training) in height. The dark green, velvety, four to six –inch long leaves have several prominent longitudinal veins instead of the usual one and are often edged in red. Large, royal purple blossoms, flaring open to five inches, are held on terminal panicles above the foliage, creating a spectacular

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Review Article

Review on Phyto-Pharmacological and Medicinal Uses of *Hyptis suaveolens* (L) Poit

Yerramsetty Gayathri*, A. Narendra Babu, J. Naga Lakshmi, K. Kiranmai, G. Kavya
Department of Pharmacology, Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, Lam, Guntur, Andhra Pradesh, India.
***Corresponding author's E-mail:** gayathriyerramsetty@gmail.com

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ABSTRACT

The current review aimed to provide a comprehensive overview of Phyto constituents and ethnobotanical uses, of *Hyptis suaveolens*, and to list its the significant medicinal benefits. A lot of researchers, from their studies indicated the applications of various parts of the plant to authenticate the claims of medical professionals. A wide range of traditional uses are cited in the literature, ranging from uses for malaria, constipation, stomach problems, renal inflammation to external uses in repelling insects and treating injuries such as lacerations and burn related damage to skin and tissues. The pharmacological study data have demonstrated the vital activities of *Hyptis suaveolens* that support uses such as antimicrobial, antidiabetic, antiulcer, and antiinflammatory. Numerous important phytochemicals viz., flavonoids, terpinoids and others have been isolated, identified and reported. As a medicinal plant, *H. suaveolens* is endowed with immense exploitation and utilization value and is widely used worldwide, it was used in many regions as a medicinal tea. Therefore, an attempt was made to demonstrate its medicinal potential further.

Keywords: *Hyptis suaveolens*, Antimicrobial, Anti-inflammatory, Wound Healing, Anti-Oxidant, Antiplasmodial, Antiulcer, Gastroprotective, Antifertility.

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INTRODUCTION

Hyptis suaveolens is a very common plant in India. The plant may be collected in large quantities from the wild as well as from those cultured as a crop by the Indians. Indians used to call it "Chan/Wilaiti tulsi" and the morning soup made by mixing it with corn is called "Bate" meaning memory aid. Its aromatic phytoconstituents are destroyed by gastrointestinal secretions, but the mucilaginous property may be substantially increased. Tea made from the roots of *H. Suaveolens* is used to purify the blood, and it is also used as a remedy for the "diseases" of women. It has been used as a medicinal tea in many places in Asia, [1] and as a food and source of essential oil in South America. [2]

Plant taxonomy

Subkingdom	–	Tracheobionta
Superkingdom	–	Spermatophyta
Division	–	Magnoliophyte
Class	–	Magnoliopsida
Subclass	–	Asteridae
Order	–	Lamiales
Family	–	Lamiaceae
Genus	–	Hyptis Jacq
Species	–	Hyptis suaveolens(L.) poit

Figure 1: Whole plant

Distribution

Lamiaceae or Labiatae is a common weed of roadsides and wastelands, a member of the Lamiaceae or Labiatae. The *H.suaveolens* (pignut) is usually defined as annual, permanent, or subshrub orvine or herb.[3] It is an annual herb that covers roadsides, railway lines, wastelands, waterways, pastures, and deciduous forest, where the soil is polluted, and it is native to tropical America. In all growth areas, it can form complex thickets. It spread widely in Australia and Queensland, China, Indonesia, Papua New Guinea, Solomon Islands (Northern Territory), French Polynesia, Chuuk and the Icelandic Federal States (Yap Islands), Niue Islands, and in Guamand, in the United States, the Hawaiian Isles.[4] In West and Central Africa, it is widely distributed and, in some countries, it is seen as an insidious species. The spread of Hyptisis now thinnings in Northern India in the Vindhyansk Forest, between the

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Research Article

Phytochemical and Pharmacological Evaluation of *Jatropha curcas* Seed Extract

A. Narendra Babu*, SK. Ayesha, S. Nirosha, V. L. Mounika, J.Naga Lakshmi
Department of Pharmacology, Chalapathi Institute of Pharmaceutical Sciences, Chalapathi nagar, Lam, Guntur, Andhra Pradesh, India.
***Corresponding author's E-mail:** narendraankem@rediffmail.com

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ABSTRACT

Aggression can emit to vulnerability to a frightening situation. Aggression is caused by a heterogeneous mixture of social, psychologic and biological factors. Aggression is prominently seen when a disturbance occurs in the fine balance of neurotransmitters such as 5-hydroxytryptamine, gamma-aminobutyric acid, dopamine and their receptor subtypes. The present study investigated the ability of aqueous extract of *Jatropha curcas* seeds (AEJC) evade aggression. Foot shock induced aggression test was utilized as model for screening of anti-aggressive activity. Extract was given orally at a dose level (100 and 250 mg/kg) once daily for three days, while Diazepam (2.5 mg/kg), was administered as reference standard. Control group animals were given an equal volume of vehicle (10%, v/v, TWEEN 80 suspension). As a result, *Jatropha curcas* Linn seed extract (AEJC) has a gentle anti-aggressive activity qualitatively comparable to that of diazepam.

Keywords: Aggression, 5-hydroxytryptamine, gamma-aminobutyric acid, Jatropha curcas, Diazepam.

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INTRODUCTION

Social conflict and intra-specific aggression are key aspects of natural animal behaviour and have been shown to be a biologically relevant mean of examining central neurochemical functions. A number of ways have been developed to induce aggression in mice. Administration of anxiolytic agents has been found to be useful in the suppression of aggressive behaviour in animal models[1].

Aggression is a deliberate series of actions that lead to harm or injury to another organism and thus constituting a major public health concern across the globe. In clinical settings, aggression has been classified into two more specific subtypes, such as proactive and reactive aggression. Proactive aggression is over controlled, planned, predatory and driven by reward contingencies, whereas reactive aggression is generally characterized by an over aroused and impulsive response to a perceived threatening stimulus, with a single goal of reducing or eliminating the perceived threat[2]. Offensive aggression in animals possesses many of the characteristic features of reactive aggression in human beings including impulsive responses and neurochemical abnormalities[3]. The use of animal models of aggression affords the possibility of assessing the effects of drugs on specific types of aggression.

Aggression is caused by a heterogeneous mixture of social, psychologic and biological factors. Involvement of ɣ-aminobutyric acid (GABA)-ergic neurotransmission in the neurobiology of aggressive behaviour has often been reported. It has been suggested that agents acting on the $GABA_A$ receptor complex, could be biological modulators of aggression[4]. It has also been reported that small amounts of alcohol, the neuroactive steroid 3α, 5α-tetrahydro progesterone and benzodiazepines may heighten aggression in humans as well as in animals, whereas higher doses reduce aggression[5].

Despite advances in western system of medicine and medical technology world over, its increasingly being realized that if we have to support the healthcare requirements of our ever-increasing population, we will have resort to economical, yet effective alternatives and there cannot be a better alternative than the herbal drugs which have had a long history of safe usage in different parts of the world, including India. The attention of the world is now being drawn more and more to herbs and herbal medicines as the synthetic drugs seem to have come up against a wall in the treatment of illness which is described as life style diseases[6].

The seeds of *Jatropha curcas* have good potentials as a fuel substitution. However, the seeds in general, are toxic to human and animals. Curcin is a toxic protein isolated from the seeds, and also contains a high concentration of phorbol esters[7,8]. The seed is used for the treatment of arthritis, gout and jaundice.[9] The seed of this plant has also been used traditionally for the treatment of many ailments including burns, convulsions, fever and inflammation[10]. The seed oil can be applied to treat eczema and skin diseases and to sooth rheumatic pain[11]. The oil is also used externally for the treatment of sciatica, dropsy and

Review Article

A Review on *Tibouchina Urvilleana* (DC.) Cogn

Vinnakota Gowthami [1]* Jada.Naga Lakshmi[1]

[1.] Department of Pharmacology, Chalapathi Institute of Pharmaceutical Sciences, Lam, Chalapathi Nagar, Guntur-522034, INDIA

***Corresponding author's E-mail:** gowthami1821@gmail.com

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ABSTRACT

Tibouchina Urvilleana (DC.) Cogn belongs to family Melastomataceae. Native place of the plant is in Brazil. *Tibouchina Urvilleana* plants characteristic are young stems were 4-sided and covered in short hair, broad grayish green leaf, with softly hair on the leave. Flowers are large, bright purple flowers with obviate petals. Fruits are Hypanthium reddish and shaped like a u- shaped vase - growth habit, and it is quite tall when matured. *Tibouchina Urvilleana* is used as Ornamental Plants because of their purple flowers. Literature survey of *Tibouchina Urvilleana* revealed the presence of different classes of natural products including flavonoids, flavonol-glycosides, isoflavonoids, anthocyanins, tannins, triterpenes, and phenolic derivatives. The plant is traditionally reported for its use for the treatment of anti-inflammatory, antioxidant, antti-nocieptive (relieving chronic pain), anti- microbial, anti-lesimanial activity; aluminum accumulation in leaves, Nobotanin B extracted from the plant Tibouchina Species is a potent PARG(Poly(ADP-ribose)glycohydrolase inhibitor. This review is short review on Tibouchina urvilleana.

Keywords: *Tibouchina Urvilleana (DC.) Cogn,* Princess Flower, Lasiandras Urvilleana, Quaresmeria.

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INTRODUCTION

Tibouchina Urvilleana is species of flowering plant that belong to the Melastomataceae family[1].Being popularly known as Glory bush, Princess Flower, Lasiandra urvilleana[2]. Phonetic spelling tib-OO-kee-nuh ur-VIL-ah-nuh[3].*Tibouchina urvilleana* is mainly distributed in Brazil, tropical and subtropical regions of Americas, and it grown as a garden plant throughout the world. In Brazil, *Tibouchina* species are known as "Quaresmeria"[4]. *Tibouchina urvilleana* can be evergreen shrubs or herbaceous perennials, with simple prominently veined, soft hairy leaves and saucer- shaped purple flowers with conspicuous stamens[5].

Figure 1: *Tibouchina Urvilleana(DC.) Cogn*

Tibouchina urvilleana

Family name	Melastomataceae
Synonyms	Appendicularia Grandiflora, Appendiculatia Splendens, Pleroma Urvilleana,Lisiandra.
Common name	Princess flower, Glory Bush, Purple Glory Tree, Lasiandra, Pleroma, Brazilian Sendudok.

Taxonomy / Scientific Classification

Kingdom	Plantae
Division	Tracheophyta
Order	Mytales
Family	Melastomataceae
Genus	Tibouchina
Species	Tibouchina Urvilleana (DC.) Cogn, Princess Flower, Glory Bush, Lasiandra Princess Flower
Class	Dicotyledonate

Description and Ethnobotany

Tibouchina Urvilleana is a large, dense, and rounded –but sprawling. Evergreen shrub or small ornamental tree ranges from 10 to 15 feet (20 feet with proper training) in height. The dark green, velvety, four to six –inch long leaves have several prominent longitudinal veins instead of the usual one and are often edged in red. Large, royal purple blossoms, flaring open to five inches, are held on terminal panicles above the foliage, creating a spectacular

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Review Article

Phytopharmacological Properties of *Tamarindus indica*: An Overview

K.Kiranmai*, A.Narendra Babu, B.Padmavathi, Y. Gayathri, R. Naveen
Department of Pharmacology, Chalapathi Institute of Pharmaceutical Sciences,
Chalapathi Nagar, Lam, Guntur-522034, Andhra Pradesh, India.
***Corresponding author's E-mail:** kajakiranmai@gmail.com

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ABSTRACT

Tamarindusis a monotypic genus and belongs to the family Fabaceae. It is commonly known as Tamarind tree. It is indigenous to tropical Africa and exotic to Asia and Central America. Traditionally it is used for Inflammation, tumours, ring worm, diseases of blood, small pox, eye disease, ear ache, snake bite, urinary discharges, bad odour in perspiration, astringent, appetizing, laxative, anthelmintics, heals wounds and fractures, biliousness, bile disorders heals ulcer, liver, Ankylostomiasis (hookworm). Every part of the plant (leaves, stem, seed, root, bark and fruit) is therapeutically effective in treating various human diseases. The aim of the present review is to describe its nutritional values, geographical conditions, collection and cultivation, chemical constituents, pharmacological activities of various plant parts of *Tamarindus indica.*

Keywords: *Tamarindus indica,* Fabaceae, Inflammation, Astringent, Laxative, Ankylostomiasis, Anthelmintics.

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INTRODUCTION

Plants are the basic elements of traditional medicine and are used in larger amount. *Tamarindus indica (T. indica)* is multi-stemmed, it needs dry climate for its growth, It reaches 24 m height and 7 m girth and it has pale yellow and pink flowers. Every single part of *T. indica* (fruit, leaves, stem, root, body) has its own nutritional value and extensive usage in the area of medicine. In traditional medicine, it is used in wound healing, abdominal pain, diarrhea, dysentery, parasitic infestation, fever, malaria and respiratory problems. It is also frequently used in tropical countries because of its laxative and aphrodisiac properties. The plant lives for 80-100 years produces fruits more than 50 years. The seeds of *T. indica* has anavailable protein source, mainly in the countries where the protein deficiency as a common problem. Based on the phytochemical analysis, *T. indica* contains the phenolic compounds like catenin, procyanidin B2, epicatechin, tartaric acid, mucilage, pectin, arabinose, xylose, galactose, glucose, uronic acid and triterpen.[1]Kernel composed of D-glucose, D-xylose, D-galactose and L-arabinose. The leaves alone contains flavone C-glycosidesorientin, vitexin, isoorientin and isovitexin. The leaves and in combination with fruits contains tartaric acid and malic acid. The fruit pulp yields tamarindienal(bitter) and certain amino acids include serine, beta-alanine, proline, pipecolinic acid, phenylalanine and leucine.[2]

Table 1: Scientific Classification[3]

Domain	Eukaryota
Kingdom	Plantae
Phylum	Spermatophyta
Subphylum	Angiospermae
Class	Dicotyledonae
Order	Fabales
Family	Fabaceae
Subfamily	Faboideae
Genus	*Tamarindus*
Species	*T.indica*

Binomial Name: *Tamarindus indica*. L

Synonyms[4]:

Tamarindus umbrosa Salisb.

Tamarindus officinalis Hook.

Tamarindus occidentalis Gaertn.

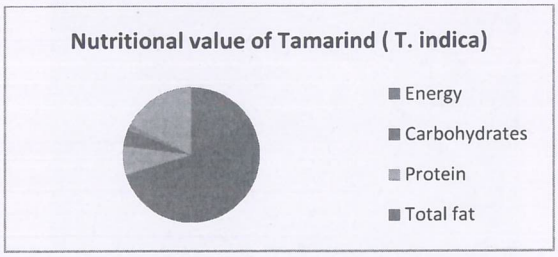

Figure 1: The nutritional values of *Tamarindus indica* raw fruit[1]

Review Article

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REVIEW ON PHYTOPHARMACOLOGY OF *AZIMA TETRACANTHA* LAM PLANT (SALVADORACEAE)

Rayadurgam Naveen *, A Narendra Babu, J. Nagalakshmi, B. Padmavathi, K. Kiranmai, V. Naga Sai Prameel, V. Gowthami, B. Deepthi,

Department of Pharmacology, Chalapathi Institute of Pharmaceutical Sciences, Lam, Chalapathi Nagar, Guntur, Andhra Pradesh, India

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***Corresponding author**
E-mail: rayadurgamnaveen98@gmail.com

DOI:

ABSTRACT

Medicinal Plants have played a central role in the prevention and treatment of diseases since prehistoric times. In recent years, there has been growing interest in the study of medicinal plants and their extensive use in different countries. However, today it is essential to pay for the scientific proof as to whether it is rational to use a plant or its active principles. Hence the present communication constitutes a review with adequate information on the medicinal properties, ethno-medicinal uses, phytochemistry, and pharmacological activities of an Indian medicinal plant, *Azima tetracantha* Lam belonging to the family of Salvadoraceae. A wide range of phytochemical constituents have been isolated from *A. tetracantha* Lam which possesses activities like as stimulant, expectorant, anti-asthmatic activity, antispasmodic, analgesic, anti-inflammatory, anti-ulcer, anti-diarrhoeal, insecticidal, anti-microbial, antivenom activity, hepatoprotective, nephroprotective, hypoglycemic and hyperlipidemic activities. Hence, extracts of *Azima tetracantha* could form one of the best options for developing novel natural medicine.

Keywords: *Azima tetracantha* Lam, Salvadoraceae, Medicinal plants, antispasmodic.

INTRODUCTION

Most of the natural products used in folk remedy have solid scientific evidence with regard to their biological activities. However, there is little information or evidence available concerning the possible toxicity that medicinal plants may cause to the consumers in relation to drug discovery and development, there are different weights of concern of all relevant groups such as health authorities, pharmaceutical industry, and patients which need to be taken into consideration[1].

Azima tetracantha (Salvadoraceae) is a well-known medicinal herb, termed 'Mulsangu' in Tamil and 'Kundali' in Sanskrit. Root, root bark and leaves of *Azima tetracantha* (Lam) are used with food as a remedy for rheumatism, diuretic and as stimulant. Traditionally Indian medical practitioners use *Azima tetracantha* (Lam) in inflammatory conditions, cough, asthma, small pox and diarrhoea[2,3]. The major phytoconstituents reported in *Azima tetracantha* (Lam) are azimine, azecarpin, carpine, isorhamnitine-3-O-rutinoside, friedelin, lupeol, glutinol and β-sitosterol *Azima tetracantha* (Lam) is reported to have antifungal, anti-tumour, antidiabetic, anti-diarrhoeal and hepatoprotective activities.

Azima tetracantha (Lam) is a low, spinouts, highly branched bush, woody below but with pale green, herbaceous, almost quadrangular young branches. The leaves are in opposite to sub-opposite, decussate pairs. They are shortly petiolate, about 2 x 4 cm long, entire, elliptic, acute, sharply mucronate, rigid, pale green with an acute base. Usually, there are two laterally placed spines in the axil of a leaf. The spines which morphologically represent the first pair of leaves of the auxiliary shoot are about three cm long, more or less, triangular in cross section, very sharp and with an indurate apex. The plant is dioeciously[4]. The flowers are borne in the axils of leaves. Generally, there is cymes of three flowers in the axil of a leaf which is the upper branches, especially of the male plants become greatly reduced or even completely suppressed.

Besides efficacy, ethyl acetate extract of *Azima tetracantha* Lam should meet the safety requirement for its development as an alternative medicine. In this study acute and chronic toxicity test was carried out on the extract to explore its safety feature[4-6].

PLANT PROFILE

Plant name

Azima tetracantha Lam.

Synonyms

Monetia barlerioides, Kundali, *Kandena spinosa* Rafin, *Monetia aungustifolia* Boj

Taxonomy

Kingdom: Plantae
Division: Magnoliophyta
Class: Magnoliopsida
Sub-class: Dilleniidae
Order: Brassicales
Family: Salvadoraceae
Genus: *Azima*
Species: *tetracantha*

Vernacular names

Telugu: Tella uppichettu
Tamil: Mulsangu
Kannada: Uppimullu

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REVIEW ON RESEALED ERYTHROCYTES

Naga Sai Prameel*, D. Eswar Tony, A. Nrendra Babu, R. Naveen, B. Padmavathi and K. Kiranmai

Department of Pharmacology, Chalapathi Institute of Pharmaceutical Sciences, Lam, Chalapathi Nagaar, Guntur, 522034, India.

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***Corresponding Author**
Naga Sai Prameel
Department of Pharmacology, Chalapathi Institute of Pharmaceutical Sciences, Lam, Chalapathi Nagaar, Guntur, 522034, India.

ABSTRACT

Among the various carriers used for targeting drugs to various body tissues, the cellular carriers meet several criteria desirable in clinical applications, among the most important being biocompatibility of carrier and its degradation products. Leucocytes, platelets, erythrocytes, nanoerythrocytes, hepatocytes, and fibroblasts etc. have been proposed as cellular carrier systems. Among these, the erythrocytes have been the most investigated and have found to possess greater potential in drug delivery. Erythrocytes are the most abundant cells in the human body (~5.4 million cells/mm3 blood in a healthy male and ~ 4.8 million cells/mm3 blood in a healthy female) having potential carrier capabilities for the delivery of drugs and drug loaded microspheres. Drug-loaded carrier erythrocytes are prepared simply by collecting blood samples from the organism of interest, separating erythrocytes from plasma, entrapping drug in the erythrocytes, and resealing the resultant cellular carriers. Encouraging the use of erythrocytes in drug delivery include various advantages like as remarkable degree of biocompatibility, Complete biodegradability, lack of toxic product, controllable life-span, decreasing drug side effects etc. So many drugs like aspirin, steroid, cancer drug which having many side effects are reduce by resealed erythrocyte. Biopharmaceuticals, therapeutically significant peptides and proteins, nucleic acid-based biologicals, antigens and vaccines, are among the recently focused pharmaceuticals for being delivered using carrier erythrocytes. Current review highlights isolation, drug loading methods, Evaluation methods and applications of resealed erythrocytes for drug delivery.

KEYWORDS: Resealed Erythrocytes, carrier, Isolation, evaluation, Applications of Resealed erythrocytes.

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REVIEW ARTICLE

PROSPER THE IMMUNITY THROUGH DIET – A MUST IN UNEASE SITUATIONS

Gottipati Kavya*, Darsi Eswar Tony, Ankem Narendra Babu, Rama Rao Nadendla, Yerram settee Gayathri, Kanda Bala Bhavana

Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur, Andhra Pradesh, India

ABSTRACT

As the world watches COVID -19, a disease caused by a novel corona virus, SARS – CoV-2, the focus has shifted to immunology. The immune response is critical for controlling and eliminating CoV infections. Hopefully, the profound understanding gained between the hosts innate immune system and corona viruses would lessen the lung inflammation induced by CoVs, which was identified by careful investigation of the immune system. The immune system's duty is to protect the host from viruses, germs, and other diseases.The immune system produces different cells to deal with infections caused by these pathogens, not only to destroy the current dwelling harmful agents, but also to guard the host from future attacks of the same kind. The immune system is always active, but when a person becomes infected, it becomes even more active.A number of vitamins, as well as other sources of vitamins and trace elements, have been shown to have an important role in strengthening the immune system and reducing infection risk. This review article discusses the numerous nutrients that can be used in antiviral and antibacterial defense. Dietary practices for acquiring a healthy microbiota can also benefit the immune system.

KEYWORDS: SARS-CoV-2, Corona virus, Covid-19, Immunity, Nutrition, Healthy diet, Lung inflammation

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CORRESPONDENCE:
Gottipati Kavya * ✉ rechalkavyagottipatikavya@gmail.com
Address - Chalapathi Institute of Pharmaceutical Sciences, Guntur, Andhra Pradesh, India

INTRODUCTION

The network of biological processes is termed as immune system which protects an organism against various diseases. The immune system is responsible to defect various pathogens, bacteria, viruses, parasitic worms, cancer tumor cells, various objects as wood splinters and wounds, differentiating them from organisms own health issues.(1) Two major subsystems of immune system are present in many species.

Innate immune system

It provides a response which is preconfigured to wide variety of stimuli and situations.

Adaptive immune system

It provides a response which is tailored to catch stimulus produced by learning to identify molecules which are experienced earlier. Both the subsystems use cells and molecules to perform their respective functions.(2)

Unspecific immune system is present in all kinds of organisms. Bacteria have it in the form of enzymes which protects against various virus infections. Further fundamental mechanisms of immune system evolved in animals and ancient plants persist in their modern descendants. Mechanisms involved mainly are antimicrobial peptides called as defensins, phagocytosis and also the complement system. Jawed vertebrates which include humans, have more advanced defense mechanisms, which also includes the adaptability to recognize the pathogens and other objects more effectively and efficiently.

Immune Cell Development in Humans

During birth, the immune system of an infant is particularly characterized by a not fully developed non-specific immune system. Additional to this, a deleted activated T cells, a suppressed capacity of antigen-specific cells and also the presence of higher amounts regulatory T cells alters immune responsiveness. In the earlier months of life the antigen specific immune response developed will be in parallel to the immune tolerance maintenance against commonly found compounds in the environment of infant and mother.(3) Immunological disorders such as autoimmunity and allergy are caused due to the impact on immune system function by the disturbances of these compounded changing processes.

Human milk contains a variety of immunologically active compounds, such as antibodies, that are individually adjusted to the mother's environment, as well as the newborn's environment, in order to protect the infant from infections. Human milk regulates the described developmental pathways in addition to providing immediate protection after birth. The importance of good nutrition during the first few months of life for overall immune system development is highlighted by the role of human milk. Human milk can pass on the infant's "mother immunological memory." Individual examination of human milk reveals compounds that act as key modulators. Immunologically active peptides, a variety of glycolipids, long-chain polyunsaturated fatty acids, and non-digestible oligosaccharides have all been identified as potential modulators. The interaction of different immune system

Prevalence of Risk Elements, Severity Assessment and Treatment Outcomes of Stroke – A Prospective Observational Study

Sreenu Thalla[1]*, Harsheenee Bellamkonda[2], Shaik Tanisha Bibi[2]

[1]Department of Pharmacy Practice, Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur, Andhra Pradesh, India.

[2]Department of Pharmacy Practice, Vijaya Institute of Pharmaceutical Sciences for Women, Enikepadu, Vijayawada, Andhra Pradesh, India.

ABSTRACT

Stroke is the third major cause of death worldwide and is a major public health challenge in society. 15 million people suffer from it each year, and one-third is left permanently disabled one-third die worldwide. The average age of onset is above 55 years in western studies which were also found similar in the Indian population. There is a male predominance ratio of approximately 5:1. This study was conducted in Neurology Department at New Government General Hospital, Vijayawada.165 patients were selected out of 152 were selected with the positive response of males and females of the Neurology department. The majority of patients were affected with lower limb weakness 106. Majority of patients were consuming alcohol were 105, [male-104, female-1], followed by smoking 97, [males-87, females-10]. The majority of patients had hypertension as a major risk factor 111, diabetes 92, Hyperlipidemia 90, seizures 66 patients. CT showed clots were in majority 127 than those who had haemorrhage 25. The majority of drugs given to stroke patients are antiplatelets, antihypertensives, Dyslipidemics and antibiotics were. Aspirin was the majorly used drug in a maximum number of 138, followed by Atorvastatin 131, Clopidogrel 113, Citicoline 119. Assessment done by Glasgow Coma Scale had the majority of patients were with moderate scoring 79 [males-60, females-19]. Assessment Done by NIHSS Scale had the majority of patients were under the moderate-severe category 79 [males-63,females-16].

Key Words: *Stroke, Hypertension, Dyslipidemia, Diabetes, Prevalence.*

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INTRODUCTION

According to World Health Organization, stroke is defined as a group of disorders of brain and blood vessels that develops rapidly with the clinical signs and the disturbances of the cerebral function lasting for 24 hours or longer leading to death, which occurs with a vascular origin [1]. Out of these 5 million people die and another 5 million are permanently disabled. High blood pressure contributes to more than 12.7 million stroke cases were reported worldwide. Europe averages approximately 650,000 stroke deaths each year. In the US the prevalence of stroke is about 7 million. The majority of people are over the age of 50-65 years and high blood pressure contributed as the major risk factor. China has the highest rate of deaths due to stroke along with South America and Africa. In India the adjusted prevalence rate of stroke ranges,84-262/100,000 in rural and 334-424/100,000 in urban areas. The incidence rate is 119-145/100,000 based on the recent population studies [2]. Stroke is an acute focal neurological deficit that develops within 24 hours. Thereisischemic stroke (88%), hemorrhagic stroke (12%), and transient ischemic attack. Cerebrovascular accident (or) Stroke is an injury caused to the brain due to poor blood flow which leads to death if not diagnosed in its early stages. It occurs due to the following reasons, the brain cannot receive the needed blood supply due to interruption of blood flow, and rupturing of blood vessels occurs due to invading of blood supply to surrounding

Corresponding author: Sreenu Thalla
address :Department of Pharmacy Practice, Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur, Andhra Pradesh, India.
E-mail:✉ sreenuthalla87 @ gmail.com
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Review Article

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A PHYTOPHARMACOLOGICAL REVIEW ON *PHASEOLUS VULGARIS*

Bolisetty Padmavathi *, A. Narendra Babu, R. Naveen, K. Kiranmai, V. Naga Sai Prameel
Department of Pharmacology, Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, Guntur, Andhra Pradesh, India

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***Corresponding author**
E-mail: padmavathiganeshbabu@gmail.com

DOI:

ABSTRACT

Natural medicine plays a significant role in pharmaceutical industry. *Phaseolus vulgaris* L is a naturally available plant which is very frequently used in our daily life. *Phaseolus vulgaris* L is commonly known as bean; is an annual leguminous plant, belonging to family Fabaceae. *Phaseolus vulgaris* L is highly nutritious, easily and cheaply available. It is indigenous to central and South America. *Phaseolus vulgaris* L has wide number of uses due to its high content of phytochemical constituents. Flavonoids are responsible for its wide range of uses like antioxidant and neuroprotection. *Phaseolus vulgaris* L is most commonly taken by mouth for weight loss and obesity. It is also commonly taken for treatment of diabetes. The seed is diuretic, hypotensive and also used in the treatment of cancer of the blood. The present review reveals nutritional values, geographical conditions, propagation, collection and cultivation, phytochemical constituents and pharmacological activities of *Phaseolus vulgaris* L.

Keywords: *Phaseolus vulgaris* L, Fabaceae, leguminous, Antioxidant, Neuroprotection, Flavonoids, Obesity, diabetes, Cancer.

INTRODUCTION

From ancient times we are using plants as a medicinal source. Ayurvedic medicine and folk medicine has created a tremendous era in treatment of many diseases. Natural products are safer than synthetic compounds. Herbal medicines are widely used due to their less toxic nature. *Phaseolus vulgaris* L is a herbal substance which have wide number of uses in treatment of acne, bladder, burns, cardiac, carminative, depurative, diabetes, diarrhoea, diuretic, dropsy, dysentery, hiccups, itch, kidney, resolvent, eczema, emollient, rheumatism, sciatica, and tenesmus.[1,2]

Phaseolus vulgaris Linn is widely consumed food crop due to its seed. It is most likely used as human and animal food and is a popular pharmacological agent in medicine. Its uses have been extended to folk medicine. It is originated in tropical America and grown in tropic and temperate regions of the world. The highest bean producer and consumer is Latin America. Beans are traditional and mostly used food in Brazil, Mexico, the Andean zone, Central America and the Caribbean[3]. Common bean has high nutritional importance and it is a good source for proteins and calories. It contains very important nutrients like iron, copper, phosphorus, magnesium, zinc, calcium, potassium and vitamins.it also has its high importance in diet with its starch, fiber, vitamins, and minerals.

Plant profile

Plant name: *Phaseolus vulgaris* Linn
Synonyms: *Phaseolusa borigineus* Burkart, *Phaseolus communis* Pritz, *Phaseolus compressus* DC, *Phaseoluses culentudsalisb, Phaseolus nanus* L.

Taxonomic classification

Kingdom: Plantae
Subdivision: Tracheoblonta
Super-division: Spermatophyta
Division: Magnoliophyta
Class: Magnoliopsida
Subclass: Rosidae
Order: Fabale
Family: Papilionaceae
Tribe: Phaseolae
Sub tribe: Phaseolinae
Genus: *Phaseolus*
Species: *vulgaris*[1,4]

Vernacular Names

Bengali: Barbati Beej.
English: Kidney bean, Snap bean, Green bean, Dry bean, String bean.
French: Haricot commun.
German: Gartenbohne.
Hindi: Rajma.
Italian: Fagiolo, Faxoe, Faisoe (Liguria) ,Fasoel (Piemonte), Cornett (Lombardia), Fasioi, Fasoler (Veneto), Fasol, Fasulein (Emilia), Fasciolo (Umbria), Fascinale (Abruzzi), Suriaca, Vasuli (Calabria), Fasolu, Trujaca (Sicilia), Fasoleddu, Basolu, Pisu (Sardegna)
Latin: *Phaseolus vulgaris*
Malayalam: Beans.
Portuguese: Feijao (dry), Feijao-vagem (green).
Spanish: (green - Mexico), Judía, Judíacomún, Frejol (Bolivia, Chile, Peru), Fréjol (Ecuador), Frijol (Mexico, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Cuba, Peru), Alubia, Fríjol (Colombia), Frísol (Colombia), Habichuela (Puerto Rico, Dominican Republic), Habilla (Paraguay), Chícharo (dried seed), Poroto (Argentina, Bolivia, Chile, Panama, Peru, Uruguay), Tabla (green - Chile), Vainita (green - Bolivia, Ecuador, Peru, Chile). Tamil Sigappu Kaaramani.
Telugu: Chikkudu ginjalu

A prospective observational study on quality of life of stroke patients in neurology department of tertiary care hospital

***Sreenu Thalla,** G.Siva Bharat, T.Jai Divya, J.Venkateswara Rao, Rama Rao Nadendla
Department of Pharmacy Practice, Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur, Andhra Pradesh

Corresponding author Email: sreenuthalla87@gmail.com

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Avalable online at: http://www.iajps.com *A Research article*

ASSESSMENT OF RISK FACTORS AND KAP QUESTIONNAIRE ON ANTIBIOTICS USAGE AND IMPACT OF CLINICAL PHARMACIST IN PEDIATRIC PATIENTS DIAGNOSED WITH LOWER RESPIRATORY TRACT INFECTIONS IN TERTIARY CARE TEACHING HOSPITAL

Katta.Roja , N.Sri Naga Swathi Gowri , N. Bala Saraswathi , N. Venkata Rama Rao , N. Rama Rao

Department of Pharmacy Practice, Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur

Article Received: January 2021 **Accepted:** January 2021 **Published:** February 2021

Abstract:

Aim: *To find out risk factors, KAP (knowledge, attitude and practice) questionnaire of antibiotic usage, identify incidence of various types of lower respiratory tract infections and the impact of clinical pharmacist in pediatric patients diagnosed with respiratory tract infections.*

Purpose*: Now a days the incidence of lower respiratory tract infections was increasing day by day in the present scenario. So here we need to assess the risk factors, incidence of various types of lower respiratory tract infections and to know the knowledge, attitude and practice of parents regarding infection control.*

Methods: *A prospective observational study proposed to be conducted in 6 months, all the patients were administering with KAP questionnaire, and by direct interviewing the patients regarding risk factors.*

Setting: *the study was conducted in government general hospital, Guntur.*

Participants: *the study included 158 subjects who were diagnosed with lower respiratory tract infection.*

Results: *Regarding the risk factors we assessed that pre term, lack of nutritional status, formula feeding, positive smoking exposure, low birth weight and incidence were as pneumonia, bronchiolitis, WALRTI, and tracheitis.*

Conclusion: *our study concluded that type of occurrence of lower respiratory tract infections are as follows pneumonia, bronchiolitis, WALRTI, and tracheitis. our study found that major risk factors are pre term, lack of nutritional status, formula feeding, positive smoking exposure, low birth weight. Regarding the KAP quesionnarries , study revealed the poor knowledge , negative attitude and poor practice on usage of antibiotics . Preventive measures should be taken to prevent the occurrence of lower respiratory tract infections.*

Corresponding author:

K. Roja,

PHARM.D (Doctor of Pharmacy),

Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur,

Kvkatta196@gmail.com ,9666830742

QR code

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Avalable online at: http://www.iajps.com *A Case Study*

EXPOSURE OF SLEEP DISORDERS AND INCIDENCE IN PATIENTS WITH STROKE- A PROSPECTIVE OBSERVATIONAL COHORT STUDY IN A TERTIARY CARE TEACHING HOSPITAL

(Dr) Gayathri Gurram[1], M. Keerthi[1], Y. Sudharani[1], N. Prathyusha[1], Dr. N. V. Sundharachary[2], Dr. K. Nani Babu[3], Dr. Rama Rao Nadendla [4]

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Abstract:

A stroke is a medical condition in which poor blood flow to the brain results in poor oxygen and nutrition to the brain cells which ultimately leads to death of brain cells. A sleep disorder, or somnipathy, is a medical disorder of the sleep patterns of a person or animal. Some sleep disorders are serious enough to interfere with normal physical, mental, social and emotional functions. The aim of this study is to find the exposure of sleep disorder in patients, those who are newly diagnosed with stroke. The objectives of the study are: To determine the exposure and incidence of sleep disorders in patients with stroke. To assess the type of sleep disorder in patients with stroke. To assess how counselling plays an important role in improving the proper management of diseases. The methodology of the study involves, the subjects who satisfy the study category are taken into study and patient consent form was taken. Subject information was collected using data collection forms and details of the study were secured. Later the standard questionnaires are asked and filled before and after the treatment. The collected data from the subjects with the help of questionnaires are assessed to determine the exposure and incidence of sleep disorders in subjects who are newly diagnosed with stroke (both ischemic and hemorrhagic). Results obtained in our study concludes that Snoring is the most common sleep disorder in patients with stroke followed by Day time sleepiness followed by Sleep talking followed by Sleep apnea followed

by Night terrors followed by Sleep paralysis followed by Bruxism, Restless leg syndrome,
Nightmares and Narcolepsy. However, sleep disorders are self-limiting in the early stages, so by educating bringing awareness about medication usage, lifestyle modification, dietary modifications, and sleep hygiene counseling's and providing patient information leaflets we observed there is a gradual decrease in symptoms.

Keywords: *Stroke, sleep apnea, sleep disorders, bruxisum, night mares, Epworth scale, Berlin questionnaire, Pittsburgh Sleep Quality Scale, Sleep Quality Scale.*

Corresponding author:
Gayathri Gurram,

QR code

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Research Article

IMPACT OF SCREEN TIME ON ANTHROPOMETRIC MEASURES, SLEEP QUALITY AND DURATION OF SLEEP, MENTAL HEALTH: A CROSS-SECTIONAL STUDY

Venkata Sai Srinivas Pulivarthi[1]*., Maheshwara Reddy Vuduthuri[1]., Praveen Malempati[1]., Sai Praveen Kumar Kondareddy[1]., M. Maneesh Kumar Reddy[2] and Rama Rao Nadendla[3]

[1]Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, Lam, Guntur
[2]Department of Pharmacy Practice, Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, Lam, Guntur
[3]Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, Lam, Guntur

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Screen time, Sleep quality and duration, Anthropometric measures, Anxiety, Depression.

ABSTRACT

Aims: To assess the impact of screen time on anthropometric measures, mental health, duration and quality of sleep in undergraduates.
Settings and Design: Cross-sectional study
Materials and Methods: A comparative cross-sectional study was carried out in different UG colleges for 6 months. UG student's age 18-24 years were included in this study. The impact of the screen on anthropometric measures, mental health problems, quality and duration of sleep was analyzed by using questionnaires and SPSS for statistical analysis.
Results: A total of 1965 participants (695 males and 1270 females), aged 19.57± 1.172 were included in the study. Positive correlation were found between screen time and anxiety *(r= +1.000, p=0.0001)* and depression *(r= +0.510, p=0.0001)*, Negative correlation was found between screen time and sleep *(r=-0.369, p=0.0001),* there is no association between screen time and BMI *(r=-0.069, p=0.002).*
Conclusions: The study showed that increased screen time is associated with poor sleep quality and the symptoms of anxiety and depression was also increased with an increase in screen time. Despite this, students with poor sleep quality are associated with an increased risk of depression. There is no association between screen time and body mass index and the students are more dependent on the gadgets.

INTRODUCTION

Presently the use of gadgets has been increased enormously and has become an integral part of our daily routine life .[1] Excessive screen time leads to Internet addiction it is characterized by a maladaptive pattern of internet use leading to clinically significant impairment or distress.[2] Sedentary time spent in front of a television or computer screen has become one of the major unhealthy lifestyle habits, and some studies showed that there is an association of screen time and obesity and anthropometric indices.[3] Excessive Smartphone usage is associated with a wide range of negative impacts on social and health outcomes .[4]

MATERIALS AND METHODS

The study is aimed to assess the impact of screen time on anthropometric measures, mental health and duration and quality of sleep in undergraduates.

Corresponding author:* **Venkata Sai Srinivas Pulivarthi
Chalapathi Institute of Pharmaceutical Sciences, Chalapathi Nagar, Lam, Guntur

A cross-sectional study was conducted in Under Graduate colleges in and around Guntur, selecting the colleges in a random sampling method. Adult students of age between 18-24years with no history of psychological disorders like depression and anxiety and any other sleep disorders using electronic gadgets like a Smartphone, television, tablets, laptops, desktops, and video game consoles were included in the study and obtained written consent. Students who are not willing to consent and who are not interested to participate in the study were excluded Information regarding demographics, screen time, previous mental health history, and anthropometric measures were gathered using a validated Data Collection Form. The following instruments were administered to gather data regarding the subject's mental health and sleep quality and duration:

1. The Sleep-quality questionnaire also knows as Sleep Condition Indicator was developed by Colin Espie, a professor of sleep medicine at the University of Oxford and it is an eight-item scale that was developed based on DSM-5 workgroup draft criteria. [5]

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ASSESSMENT OF MEDICATION ADHERENCE AND RISK FACTORS IN CARDIO VASCULAR PATIENTS

[1]Suresh Davala, [2]Konidana Dileep Chand, [3]Mohammad Aslam, [4] Dr. N. Srikanth, [5]Dr. Nani Babu Kalla, [6]Prof. Ramarao Nadendla

[1] (Pharm-D), CLPT
[2](Pharm-D), CLPT
[3](Pharm-D), CLPT
[4] Associate Professor, Dept. of Cardiology, Government General Hospital, Guntur.
[5]Assistant Professor, Department of Pharmacy Practice, CLPT
[6]M. Pharm, PhD, Principal, CLPT

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Abstract:

Cardiovascular diseases have become the single leading cause of death and disease burden globally in low and middle income or countries such as India. The aim of study is to evaluate medication adherence and risk factors and obtaining results from effective counseling.

The objectives where to measure medication adherence and risk factors in cardiovascular patients.

The methodology involves subjective who satisfy the study category taken into study and patient consent form was taken, subject information was collected using data collection forms and details of subjects were received. MMAS form was filled by patients for 3 follow ups and assessed.

Data collected by using data collection form includes MMAS-8 criteria of assessing medication adherence and risk factors which we commonly see in CARDIO VASCULAR patients. The p value found to be insignificant and the patients are somewhat adhered to medication after second follow up.

The patients were improved on medication adherence after second follow up. The gradual increase had observed with the adherence. Finally, this study states lack of medication adherence is leading cause for the progression of the disease and leading to death.

Corresponding author:
Konidana Dileep Chand,
(Pharm-D), CLPT
E-Mail: Dileepchand01@gmail.com.

QR code

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

A PROSPECTIVE OBSERVATIONAL STUDY ON APPRAISAL OF INCIDENCE, PREDISPOSING FACTORS AND CLINICAL OUTCOMES IN NEONATAL SEPSIS

***G.Siva Bharat, T.Jai Divya, Sreenu Thalla, J.Venkateswara Rao, Madhuri Para, Sandeep Kanneganti, Rama Rao Nadendla,**

Department of Pharmacy Practice, Chalapathi Institute of Pharmaceutical Sciences, Guntur, Andhra Pradesh

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Abstract:

Neonatal sepsis is a most common and frequent cause of morbidity and mortality in neonates. This study was conducted to appraise the incidence, predisposing factors and clinical outcomes of neonatal sepsis. A non experimental prospective cross sectional study was conducted for a period of 6 months in Neonatal Intensive Care Unit and Sick Newborn Care Unit of tertiary care teaching hospital located in Guntur. Study was ethically approved from Institutional ethical committee. A total of 197 neonates with age 0-28 days with clinical sepsis and culture proved sepsis were included into the study. Among 197 neonates, 78.7% with clinical sepsis and 21.3% neonates with culture positive sepsis. 68.5% neonates were diagnosed with early onset neonatal sepsis and 31.5% with late onset neonatal sepsis. Low birth weight (56.3%) was the predominant risk factor for neonatal sepsis and incidence rate was 20.6%. Klebsiella pneumonia (43.9%) was most isolated microorganism. Neonatal septicemia is one of the leading causes of infant morbidity and mortality. Our study found that sepsis was predominantly found in female patients and inpatients whose mode of delivery is vaginal. Most common isolated organism in culture positive cases is Klebsiella pneumonia. EOS is predominantly seen in culture where as LOS in clinical sepsis.

***Keywords**: sepsis, gasping, EOS, LOS, mortality*

Corresponding author:

G.Siva Bharat,

Department of Pharmacy Practice,

Chalapathi Institute of Pharmaceutical Sciences, Guntur, Andhra Pradesh

Email: *bharath.gavini@gmail.com*

Phone: *+91 83320 14828*

QR code

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