3.2.2 Number of research papers per teachers in the Journals notified on UGC website during the last five years

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Formulation and evaluation of Herbal Hand wash containing Ethanolic extract of *Glycyrrhiza glabra* root extract

Ankit Patel*, Pankaj Kushwah, Dr. Sujit Pillai, Ajay Raghuvanshi, Nitin Deshmukh

GRY Institute of Pharmacy, Borawan, Khargone.
*Corresponding Author E-mail: **pankajnipd@gmail.com**

ABSTRACT:
Natural remedies are more acceptable in the belief that they are safer with fewer side effects than the synthetic ones. Herbal formulations have growing demand in the world market. The present work deals with the development & evaluation of the herbal hand wash containing ethanolic extract of liquorice root (*Glycyrrhiza glabra*). Hand-washing is very important process in day to day life. Hands are major source through which microbial infections may occur thus proper hand was must be required using appropriate hand wash formulation. Herbs are known to have antimicrobial properties thus utilization of such herbs as antimicrobial agent is a common practice now. Present study involves formulation of herbal hand wash using extract of liquorice root (*Glycyrrhiza glabra*). Disc diffusion method was utilized for evaluation of the antimicrobial activity against skin pathogens of the prepared herbal hand. Its efficacy was checked and compared with the standard commercial hand wash. Results revealed that extract of liquorice root (*Glycyrrhiza glabra*) formulation was more efficient in reducing the number of organisms from hands based handwash with less or no side effects. Thus, owing to higher antimicrobial activity efficacy these herbal extract can be used in the preparation of herbal hand wash on commercial scale.

KEYWORDS: Hand wash, antimicrobial activity, *Glycyrrhiza glabra* .

1. INTRODUCTION:

Skin is one of the most exposed part of the body requires protection from the pathogens. To protect the skin from harmful micro organisms and to prevent spreading of many contagious diseases hand washing is absolutely an important precaution. Food production workers and foodservice personnel must be taught to use correct hand and fingertip washing by management in preparation for work. Regulatory authorities do not require the use of a fingernail brush. However, correct use of a fingernail brush to wash hands and fingertips is the best way to assure removal of transient microorganisms.[1] Hands are primary mode of transmission of microbes and infections. Hand hygiene is therefore the most important measure to avoid the transmission of harmful germs and prevent the nosocomial infections.[2]

There are large numbers of medicinal plants which are widely used in the treatment of skin diseases and also possessed antimicrobial activity. However, plants are very complex in their compositions and their therapeutic activity depends on their major active chemical constituents. Also, improper authentication of herbs, adulterations by microorganism, and pesticide residue, has made standardization of herbal drug of primary importance. Thus before using these medicinal herbs in any formulation, their authentication is necessary. Traditional healers have long used plant to prevent or cure infectious conditions. Plants are rich in wide variety of secondary metabolites such as tannins, terpenoids, alkaloids, and flavonoids etc. which have been found to possess *in-vitro* antimicrobial properties. Considering this ultimatum; an attempt has been made to screen classical literature for the herbs with antimicrobial properties and it has been found that *Glycyrrhiza glabra root extract* holds that antimicrobial potency.[3] Thus, we aimed to formulate and evaluate herbal hand sanitizer comprising of alcoholic extracts combination of these astonishing herbs using other suitable excipients; which can be used as ready to use herbal hand wash.

2. MATERIALS AND METHODS:

Samples of *Glycyrrhiza glabra* root were collected during August (2016) from Store room of Gry institute of Pharmacy college Borawan, Khargone, M.P. The hand wash was prepared from the ethanolic extracts of *Glycyrrhiza glabra.* 10 g of the powdered root of plant were extracted with 100 ml of ethanol solution (9 parts of ethanol and 1 part of distilled water) by means of

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Research Article

SYNTHESIS AND ANTIBACTERIAL ACTIVITY OF SOME NEW SUBSTITUTED AZETIDINE DERIVATIVES

Rajni Shah, Deepesh Rathore, Farzana Khan, Nitin Deshmukh, Sujit Pillai

G.R.Y. Institute Pharmacy, Borawan, Khargone MP, India

E-mail address: rajni.shah210@gmail.com

ABSTRACT

Four-membered nitrogen heterocycles such as β-lactams and azetidines are useful substrates in organic chemistry for the design and preparation of biologically active compounds. New series of 4(3-Chloro-(Substituted-Phenyl)-4-oxoazetidine1-yl)1-phenylthiosemicaebazide derivative were synthesized by the reaction of Schiff base with 2-Chloro acetyl chloride. Synthesized compounds were evaluated for their Anti- bacterial activity against Gram positive bacteria (Bacillus Subtilis) and gram negative bacteria (Klebsiella pneumonia). In this synthesis 6 derivatives are used named as NM_1, NM_2, NM_3, NM_4, NM_5 and NM_6.Synthesized compounds show significant activity against bacteria strains on agar plate. Their structures were established on the basis of elemental analysis, IR and NMR spectral data. The different substituted azetidine derivatives were synthesized followed by cyclization reaction. The newly synthesized azetidine derivatives were evaluated for their antimicrobial activity. The synthesized compounds NM_1 showed effective antimicrobial activity. This clearly indicates that new azetidine derivatives can be effectively synthesized by method mentioned in this study.

Cite this article as: Shah R, Rathore D, Khan F, Deshmukh N, Pillai S, Synthesis and antibacterial activity of some new substituted azetidine derivatives, Journal of Drug Delivery and Therapeutics. 2017; 7(7):113-115

INTRODUCTION:

Azetidine is the four membered heterocyclic compound which contain one Nitrogen atom in their ring. β-lactams and azetidines have caught the attention of organic chemists and medical researchers. The azetidines are four-membered nitrogen heterocycles of great interest for fundamental research and useful for practical applications[1].

Scheme: Synthesis of proposed derivatives.

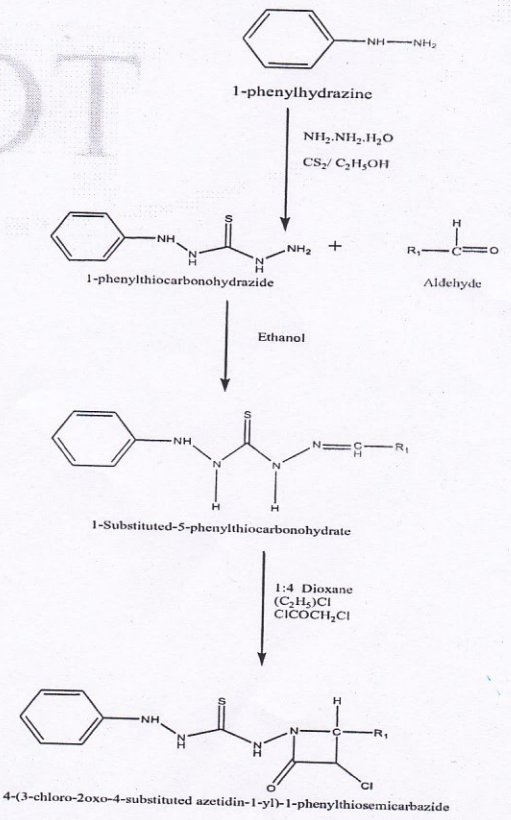
Substituted aldehyde: NM_1= Benzaldehyde, NM2= P-Chloro benzaldehyde, NM_3= 3-Nitrobenzaldehyde, NM_4= Diamino benzaldehyde, NM_5= 4-Bromo benzaldehyde and NM_6= 2-Chlorobenzaldehyde.

MATERIALS AND METHOD:

Synthesis of 1-Phenylthiocarbonohydrazide

Phenyl hydrazine (0.1mole) was dissolved in ethanol (95% 50ml) and ammonia solution 20ml. The CS_2 20ml was added slowly within 15 minute with shaking and solution is allowed to stand for 1hr.

Experimental:



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REVIEW ARTICLE

A Review on Mucosal Drug Delivery System

Mahajan Sakshi, Mandloi Rampal, Birla Nikhlesh, Dr. Pillai Sujit
G.R.Y. Institute of Pharmacy, Borawan, Khargone (MP), India
*Corresponding Author E-mail: **sakshimahajan2329@gmail.com**

ABSTRACT:
The main objective of any drug delivery system is to deliver the drug over an specified Period of time, to provide a therapeutic amount of drug at proper site of action. Mucoadhesive drug delivery is one of the important novel drug delivery system. Mucoadhesive dosage form may be designed to prolongs the residence time, rapid onset of action, good bioavailability it also by pass the hepatic first pass metabolism and providing a controlled rate of drug release. There are many routes of mucoadhesive drug delivery system such as buccal route, oral route, Nasal route, ocular route, Gastrointestinal route, vaginal route and rectal route. In the Mucoadhesive drug delivery system the drug comes in contact with the mucous layer and adhere the drug to the epithelial surface of mucous membrane. Mucoadhesion defines the mechanism by which the two material are held together for a specific period of time by interfacial forces. It describes the attractive forces between a biological material and mucous or mucous membrane. This review article gives information about Mucoadhesion Various theories of mucoadhesion, Mechanism of Mucoadhesion, Factors affecting Mucoadhesion, Evaluations and various Mucoadhesive dosage form.

KEYWORDS: Mucoadhesion, Bioadhesion\ Mucoadhesion Theories, Factors and Evaluations.

INTRODUCTION:

With the advancement in the drug formulations and different routes of administration; the knowledge of drug transport across tissues have been increased.[1] Among the various approaches to modifying drug delivery systems (DDS) aiming to increase bioavailability, mucoadhesion (the ability of a object to remain attached to mucous membranes) occupies a special position.

As gates to the entry of nutrients, antigens, and medicinal formulations (MF) into the body, mucosal tissues mediate the assimilation of substances needed by the body and protection against foreign substances[2] The concept of mucoadhesion was introduced in the field of controlled release drug delivery systems in the early 1980s. Thereafter, several researchers have focused on the investigations of the interfacial phenomena of mucoadhesive hydro gels with the mucus For drug delivery purpose, the term bioadhesion implies

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Review Article

STIGMA MAYDIS: A PROMISING TRADITIONAL THERAPEUTIC HERB

Nikhlesh Birla*, Sumeet Dwivedi

Faculty of Pharmacy, Oriental University, Indore, Madhya Pradesh, India

**Corresponding author: nikhilbirla9@gmail.com*

ABSTRACT

Medicinal plants plays vital role in treatment of various diseases. In recent years, plant materials have been used as medicine for wide variety of human ailments due to side effects of several allopathic drugs and development of resistance to currently used drug for infectious disease. Medicinal effect of the plant is due to their phytochemical constituents. This review focuses on the available scientific evidence on potential uses of *Stigma maydis* in healthcare including its phytochemical, pharmacological, and botanical description and its toxicological studies. *Stigma maydis* (Zea mays) is yellowish thread-like strand found inside the husks of corn. Corn Stigma measure 4-8 in (10-20 cm) long and are collected for medicinal use before the plant is pollinated. Stigma maydis chemically contains proteins, vitamins, carbohydrates, Ca^{2+}, K^{+}, Mg^{2+} and Na^{+} salts, volatile oils, and steroids such as sitosterol and stigmasterol, alkaloids, saponins, tannins, and flavonoids. Stigma maydis has been claimed to have effect more particularly on renal diseases including chronic nephritis, benign prostate hyperplasia, gout and cystitis. *Stigma maydis* also served as remedy for heart trouble, jaundice, malaria, and obesity. It works very effectively to treat urinary tract infections. *Stigma maydis* also shows inhibitory effect on melanin production and act as whitening agent in cosmetics.

Keywords: Corn silk, Antioxidant, Maize silk, Purple corn, Barbedemais, Phytochemical

1. INTRODUCTION

Maize (Zea mays. L) is the third most planted food crop and one of the major energy sources among the people of the semiarid tropics. Zea mays L is most important edible grain in the world and it is also known as Corn, Maize, Indian corn, Mealie. The annual global production of corn is about 780 million metric tons, of which the United States and China produce more than 40% and 20%, respectively. In addition to the grains, other parts of maize plant are used for the treatments of several ailments. As maize plant contains the various components of therapeutic values, it has been used for centuries as remedy for human diseases. Stigma maydis are scientifically referred to as Corn silks which are made from stigmas, the yellowish thread like strands from the female flower of maize which measures about 4-8 in (10-20 cm). Corn silk is the waste material from corn cultivation and available in abundance. It has been used as traditional medicine in many parts of the world such as China, Turkey, United States, and France. It is used for treatment of kidney stone, urinary infection, prostate disorder, cystitis, edema, bedwetting and obesity. It soothes and relaxes the lining of the bladder and urinary tubules, hence reducing irritation and increasing urine secretion. The US food and Drug Administration has confirmed its safety and non-toxicity. Drugs made from its extract are non-prescription drugs [1-6].

Fig. 1: Maize plant

1.1. Plant description

Columbus discovered maize in the New World in 1492 and brought it back to Spain, from where it spread throughout Europe, to North Africa, the Middle East, India and China. Maize (Zea mays, or Corn as it is known in some countries) is the only cereal crop that has

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Research Article

STANDARDIZATION AND *IN-VITRO* ANTI UROLITHIATIC ACTIVITY OF *STIGMA MAYDIS*

Nikhlesh Birla*, Sumeet Dwivedi

Faculty of Pharmacy, Oriental University, Indore, Madhya Pradesh, India

**Corresponding author: nikhilbirla9@gmail.com*

ABSTRACT

Stigma maydis (*Zea mays*) is yellowish thread-like strand found inside the husks of corn. Corn stigma measure 4-8 inch (10-20 cm) long and are collected for medicinal use before the plant is pollinated. In present study, various standardization parameters of *Stigma maydis* like macroscopical, microscopical characters, physicochemical parameters have been evaluated. Behaviour on treatment with different chemical reagents of the dried *Stigma maydis*, were studied to fix some pharmacognostic parameters that vary from region to region. Preliminary phytochemical studies on different extracts were also reported. In this study the antiurolithiatic activity of aqueous extract of *Stigma maydis* was also investigated by *in vitro* model of urolithiasis. In this method test tubes were divided in three experimental groups and test group received 200mg/ml conc. of test sol., standard group received 200mg/ml conc. of standard drug (cystone) and control group was without any drug. At the end of the study precipitates of calcium oxalate of the all three groups were collected and the percentage inhibition of each group was calculated.

Keywords: Anti Urolithiatic activity, Kidney stone, Supersaturation, Aggregation of calcium containing crystal, *cornsilk*, Poaceae

1. INTRODUCTION

The drug consists of the stigmas of the female flowers harvested during the flowering period. The pale yellowish or brownish stigmas are filamentous, 0.1-0.2 mm thick, and upto 20 cm long. It is native to Central America, but now days cultivated worldwide. The drug is imported from the former USSR, Bulgaria, Albania, and former Yugoslavia and it is also obtained from the USA. Corn has sweetish taste and its odour is faint, used in cystitis, rheumatism and arthritis [1]. The plant is reported to possess antiviral [2], antifungal[3], diuretic [4] and antitumour [5] activity. It contains fixed oil, essential oil, flavonoids, saponins, bitter substances, tannin-like polyphenols, reducing sugars, mucilage. Its utilization by the Peruvian Indians as an intoxicant is supposed to be based on the presence of alkaloids, which after being inhaled cause psychic stimulation [6].

2. MATERIAL AND METHODS

2.1. Plant material

2 kg of *stigma maydis* were collected from local market in rainy session. The *stigma maydis* was dried at room temperature (24 to 27°C) or shade dried [7]. The dried *Stigma maydis* was then grounded to coarse powder. *Stigma maydis* was identified and authenticated by botanist Dr. S.K. Mahajan, retired professor of P.G. College, Khargone MP, India. Plant authentication voucher number obtained was 213/Bot/PGC/11 for *stigma maydis*.

2.2. Processing of plant material

After authentication, *Stigma maydis* was dried at room temperature until they were free from the moisture and subjected to physical evaluation for different parameters.

2.3. Reagents

All the chemicals used in this study were obtained from Hi Media Laboratories Pvt. Ltd. (Mumbai, India), Sigma Aldrich Chemical Co. (Milwaukee, WI, USA), SD Fine-Chem. Ltd. (Mumbai, India) and SRL Pvt. Ltd. (Mumbai, India).All the chemicals used in this study were of analytical grade.

2.4. Methods

The organoleptic characters including colour, odour, taste and external features of *stigma maydis* were observed and the results were recorded in Table 1. The extractive values were determined successively starting from petroleum ether, chloroform, ethyl acetate,

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RESEARCH ARTICLE

Formulation and Evaluation of Fast Dissolving film of Labetalol Hydrochloride

Sanket Jain*, Sujit Pillai, Rampal Singh Mandloi, Nidhi Namdev, Nikhlesh Birla
GRY Institute of Pharmacy, Borawan (Distt. Khargone) 451228.
*Corresponding Author E-mail: **sanketj0960@gmail.com**

ABSTRACT:

The present study was aimed to formulate and evaluate oral fast dissolving oral films of Labetalol Hydrochloride using different grades of water soluble polymers HPMC (E5, E15, E50). The suitable plasticizer Propylene Glycol were selected for the preparation of the film. The films are prepared by solvent casting method. Nine formulations (F1-F9) of Labetalol Hydrochloride films were prepared and films were evaluated for appearance, weight variations, thickness, folding endurance, surface pH, drug content and *In-vitro* dissolution studies gave satisfactory result. F2 was found to be the best and acceptable formulation which contains HPMC E5 whose drug content was about 99.06±0.025% and percentage (%) drug release in 9 min. is about (99.2±0.152%) high as compared to other formulation and has surface pH of (6.6±0.126) obtained in simulated saliva (pH buffer 6.7).

KEYWORDS: Labetalol Hydrochloride, HPMC (E5, E15, E50), Propylene Glycol, Polyvinylpyrrolidone, Citric acid.

1. INTRODUCTION:

Despite of tremendous advancement in drug delivery the oral route of drug administration is the most important method of administration of drug for systemic effect. Oral route is most preferred route by medical practitioners and manufacturer due to highest acceptability of patients.[1] Many pharmaceutical companies have directed their research activity in reformulating existing drugs into new dosage forms. One such relatively new dosage form is the oral strip, a thin film that is prepared using hydrophilic polymers that rapidly dissolves on the tongue or buccal cavity.[2] It is an ultrathin strip (50-150 microns thick) of postage stamp size with an active agent which is simply placed on the patient's tongue or any oral mucosal tissue, instantly wet by saliva the film rapidly hydrates and adheres onto the site of application. It then rapidly disintegrates in a matter of seconds and dissolves to release medication for oromucosal absorption.[3]

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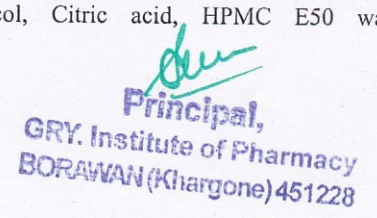
Hypertension is the state of increase in blood pressure than normal tension of 120/80 mm Hg. It is not a disease in itself, but is an important risk factor for cardio-vascular mortality and morbidity.[4]

Anti-Hypertensive's are the agents that tend to lower the Blood pressure. Different classes of drugs have received prominence with passage of time.[4]

Labetalol HCl competitively blocks adrenergic stimulation of β-receptors within the myocardium (β1-receptors) and within bronchial and vascular smooth muscle (β2-receptors), and α1-receptors within vascular smooth muscle.[5] Labetalol is a white or off-white crystalline powder, soluble in water. It is used to treat chronic and acute hypertension of pheochromocytoma and hypertension crisis. It has a half life of 6-8 hrs.[4]

2. MATERIAL AND METHOD:

Labetalol hydrochloride was purchased by Yarrow Pharm Pvt. Ltd, Mumbai. HPMC [E5, E15], vanillin was purchased by Yarrow Pharma Pvt. Ltd, Mumbai, Propylline Glycol, Citric acid, HPMC E50 was



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REVIEW ARTICLE

A Review on Pulmonary Drug Delivery System

Patidar S., Mandloi R., Pillai S., Birla N.
GRY Institute of Pharmacy Borawan (Khargone) M.P. India.
*Corresponding Author E-mail: **sagarpatidar398@gmail.com**

ABSTRACT:

Now a day's pulmonary drug delivery remains the preferred route for administration of various drugs. Pulmonary drug delivery is currently the focus of accelerated research and development because of the potential to produce maximum therapeutic benefit to patients by directly targeting drug to the site of pathology in the lungs. These routes of drug delivery may give the advantages like a small amount of drug, less adverse reaction and rapid onset of action. Drug delivery by the pulmonary route has evolved to be one of the most widely used systemic or local drug delivery approach. Recent progress within biotechnology has generated a group of novel protein and peptide drugs to which administration to the respiratory tract, to obtain systemic delivery seems advantageous compared to e.g. parenteral or gastrointestinal administration (tablets, capsules etc.). A successful pulmonary administration requires a harmonic interaction between the drug formulation, the inhaler device, and the patient. The delivery device plays a major role in the efficiency of pulmonary delivery, and great strides have been made in the development of new devices in recent years. The devices most commonly used for respiratory delivery, including nebulizers, metered-dose inhalers, and dry powder inhalers. the choice of device will depend on the drug, the formulation, the site of action, and the pathophysiology of the lungs. Pulmonary drug delivery system has been widely used in various diseases conditions like asthma, COPD, angina pectoris, diabetes, cancer, migraine, tuberculosis, acute lung injury and other.

KEYWORDS: Pulmonary drug delivery, drug deposition, drug delivery carriers, drug delivery devices, applications.

INTRODUCTION:

Pulmonary drug delivery system has been widely used for the treatment of lung diseases and is acclaimed for the asthma Treatment and chronic obstructive pulmonary diseases. This System is a needle free technique. But administration of drug by this route is Technically challenging because oral deposition can be high, and Variation inhalation techniques may affect the quantity of the Drug delivered to the lungs. Delivery of locally acting drugs to the Site of action reduce the amount of dose needed to produce the Pharmacological action but now the lungs have been studied as A possible route to administer the treatment of systemic disease Like diabetes mellitus, angina pectoris, cancer, bone disorders, Migraine, tuberculosis, acute lung injury and others. Pulmonary Delivery is apprehended by various ways like aerosols, Metered Dose inhaler systems (MDIs), Dry powder inhalers (DPI) And Nebulizers. These types of system may contain Nano Formulations like micro emulsions, micelles, bio-degradable Nanoparticles and liposomes. [1] Millions of people are affected by pulmonary diseases and their populations are continuously increasing worldwide. These include chronic obstructive pulmonary disease (COPD), tuberculosis, lung cancer, cystic fibrosis, Pulmonary hypertension, asthma and various others which Are complex human airway disorders. [2] The primary goal of inhalation therapy for local treatment is to reduce pulmonary symptoms, for example, Through the alleviation and/or prevention of airway inflammation and

Principal,
GRY. Institute of Pharmacy
BORAWAN (Khargone) [illegible]

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Evaluation of diuretic activity of ethanolic extract of *Stigma maydis* in rats

Nikhlesh Birla[1*], Sumeet Dwivedi[2]
[1] Research Scholar, Faculty of Pharmacy, Oriental University, Indore, Madhya Pradesh, India
[2] Faculty of Pharmacy, Oriental University, Indore, Madhya Pradesh, India

Abstract
Stigma maydis (*Zea mays*) is yellowish thread-like strand found inside the husks of corn. Corn Stigma measure 4-8 in (10-20 cm) long and are collected for medicinal use before the plant is pollinated. The diuretic activity of ethanolic extract of *Stigma maydis* in albino rats was studied by the lipschitz Test. The diuresis activity was determined by administered the rats with different dose treatments of 200 mg/kg (low), 400 mg/kg (medium) and 500 mg/kg (high) of ethanolic extract of *Stigma maydis*. Cumulative urine volume was significantly increased with the dosage levels (200-500 mg/ kg). The urinary excretion of water and electrolytes exhibited by standard drugs were significantly, as compared to control group over a period of 24 hours. After 7 h furosemide treated group showed higher indices for diuresis (4.71), lipschitz value (2.09) and also After 24 hr also Furosemide treated group showed higher indices for diuresis diuresis (3.70), lipschitz value (3.37). Standard drugs showed higher values of saluretic index (Na^+ 1.95, k+1.72 Cl^- 1.71) and (Na^+ 1.46, k+1.16 Cl^- 1.26) were observed with different dosage of ethanolic extract of *stigma maydis* treated groups. the higher natriuretic values were observed with urea treated group (Na^+/ K^+ 3.23) where as ethanol extract of *stigma maydis* treated group shown (Na^+/ K^+ 3.26) moderately good natriuretic effect as compare to standard drug treatments. From the result it can be observed that ethanolic extract of *Stigma maydis* has shown a significant diuretic activity by increasing urinary output and increased excretion of sodium, potassium, chloride when compared to control.

Keywords: diuretic activity, saluresis, ethanol, lipschitz test, furosemide, *cornsilk,* poaceae

Introduction
The drug consists of the stigmas of the female flowers harvested during the flowering period. The pale yellowish or brownish stigmas are filamentous, 0.1-0.2 mm thick, and upto 20 cm long. It is native to Central America, but now a days cultivated worldwide. The drug is imported from the former USSR, Bulgaria, Albania, and former Yugoslavia and it is also obtained from the USA. Corn have sweetish taste and its odour is faint, used in cystitis, rheumatism and arthritis[1]. The plant is reported to possess antiviral, antifungal, urolithiatic and antitumour activity. It contains fixed oil, essential oil (containing carvecrol and other terpenes), flavonoids, saponins, bitter substances, tannin-like polyphenols, reducing sugars, mucilage. Its utilization by the Peruvian Indians as an intoxicant is supposed to be based on the presence of alkaloids, which after being inhaled, cause psychic stimulation.

Material and Methods
Plant material
2000 kg of *stigma maydis* were collected from local market in rainee session. The *stigma maydis* was dried at room temperature (24 to 27^0 c) or shade dried. The dried *Stigma maydis* was then ground to coarse powder. *Stigma maydis* was identified and authenticated by a botanist Dr. S.K. Mahajan, retired professor of P.G. College, Khargone [M.P., India].

Processing of Plant material
After authentication, *Stigma maydis* was dried at room temperature until they were free from the moisture.

Reagents
All the reagents were of Analytical grade and purchased from kasliwal brothers, Indore, India.

Preparation of plant extract
The *Stigma maydis* were shade dried and powdered. The crude plant extract was prepared by Soxhlet extraction method. 500 g of powdered plant material was extracted with 2000 ml of ethanol. The process of extraction was carried out up to 24 hr, till the solvent in siphon tube of an extractor became colorless. The extract were filtered and evaporated to dryness using rotary evaporator. Further the dried extracts were maintained in a refrigerator at 4 °C for further diuretic activity.

Experimental Animals
Albino rats weighing between 140-200 g of either sex were used in the study and were obtained from the animal house of GRY institute of Pharmacy, borawan, M.P., India. The animals were maintained under standard husbandry conditions for an acclimatization period of 15 days before performing the experiments. All rats were housed in metallic cages and temperature maintained at 22+2 °C.

Experimental Design
The diuretic activity of ethanol extract of *Stigma maydis* in albino rats was studied by the lipschitz test. Male Albino rats were divided into 4 groups of 7 rats in each. The group I serves as normal control received normal saline 25 ml/kg b.wt, the group II received Furosemide (25 mg/kg, p.o) in vehicle, III group received Urea (1 g/kg, p.o) & IV group were treated with low (200mg/kg), medium (400mg/kg),

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RESEARCH ARTICLE

Biosensors: Current tool for Medication and Diagnosis

Punasiya Rakesh*, Patel Pramod, Pillai Sujit
GRY Institute of Pharmacy, Borawan, Khargone (M.P.)
*Corresponding Author E-mail: **rakeshpunasiya@yahoo.com**

ABSTRACT:

Biosensors function by coupling a biological sensing element with a detector system using a transducer. The first scientifically proposed as well as successfully commercialized biosensors were electrochemical sensors for multiple analytes. Nowadays, the importance of a monitoring and regulating many different parameters in areas such a food industry a, clinical diagnoses, hygiene, environmental protection, drug development, or forensics is increasing. Therefore, there is a need to have reliable analytical devices available, which are able to perform quick and accurate analyses. A biosensor is a device that measures biological or chemical reactions by generating signals proportional to the concentration of an analyte in the reaction. Biosensors are employed in applications such as disease monitoring, drug discovery, and detection of pollutants, disease-causing micro-organisms and markers that are indicators of a disease in bodily fluids (blood, urine, saliva, sweat). it consists of the following components. One of the ways how to overcome many disadvantages of the conventional methods is to use proper designed biosensor. The main reason why biosensors are still rarely used in mentioned areas is their often impracticability for real samples, whereas a biosensor developed for standards is not automatically applicable for real samples. Biosensors, a hybrid of physical and chemical sensing technique, is among one of the recently described class of the sensor. IUPAC provide recognition to this type of sensors only some seventeen years prior to today. In principle, biosensors are receptor-transducer based tool which could be employed for interpreting the biophysical or biochemical property of the medium. Moreover, the most intriguing character that sets this type of sensors apart from others is the presence of biological/organic recognition element which enables the detection of particular biological molecules in the medium Development of biosensors brought a new era of advancement in science.

KEYWORDS: Biosensors, Thermocouple, Transducer, application.

INTRODUCTION:

A biosensor is a sensitive analytical tool which converts biological, signals provided by the analyte into electrical signals. it consists of an immobilized layer of biological material coupled with a transducer. The biological material may be an enzyme or an antibody or an organelle or a hormone or entire cells.[1]

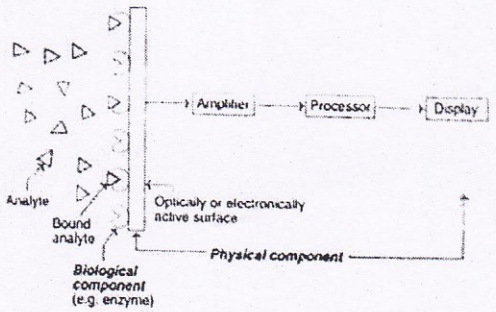

Fig-1: Basic diagram of Biosensor

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RESEARCH ARTICLE

Overview on the Biology, Management and Control of Zika Virus Diseases

Punasiya Rakesh*, Patidar Vardhika, Pillai Sujit
GRY Institute of Pharmacy, Borawan, Khargone (M.P.)
*Corresponding Author E-mail: rakeshpunasiya@yahoo.com

ABSTRACT:
The Aedes mosquito that deposits the virus in the epidermis and dermis of the bitten host during a blood meal transmits ZIKV. Indeed, both skin fibroblasts and epidermal keratinocytes were found to be highly permissive to infection with ZIKV Infection of skin fibroblasts rapidly resulted in the presence of high levels of RNA copy numbers and a gradual increase in the production or ZIKV particles over time, indicating active viral replication in the infected cells. The first direct detection of ZIKV in Asia as well as the first evidence of transmission by an urban vector occurred when the virus was isolated from A. aegypti mosquitoes collected in Malaysia in 1966. The structure of zika virus bears similarities with the other viruses of the Family of Flaviviridae and the Genus of Flavivirus, especially Dengue Virus (DENV). Flaviviruses are classified in Taxonomy under the group 'ssRNA positive-strand viruses, no DNA stage where RNA strand directly provides the template for viral protein synthesis without any intermediate DNA step. During the health crisis, no hospitalizations or deaths were recorded, but it was the first time that Zika fever was found to be hemorrhagic. Additionally, this was the first time that ZIKV was discovered outside of the typical geographical range – Africa and Asia. It was hypothesized that ZIKV could spread to other Pacific Islands.

KEYWORDS: Zika virus, Vaccine, RNA, DNA.

INTRODUCTION:
Zika virus is an arbovirus of the genus Flavivirus, in the family Flaviviridae, which was first identified in 1947, in the Zika Forest in Uganda during a monitoring program on wild yellow fever. It is related to other flaviviruses, including the viruses that cause dengue, yellow fever and West Nile fever[1]. Zika virus has been isolated from Ae. Africanus, Ae. Apicoargenteus, Ae. Luteocephalus, Ae. Aegypti, Ae. Vitattus and Ae. furcifer mosquitoes and the most common clinical manifestations in patients with Zika infections included high fever, malaise, stomach ache, diarrhea, conjunctivitis, dizziness, and anorexia other less frequent manifestations included myalgia, headache, retro-orbital pain, edema, and vomit[2].

Eradication of Zika virus poses substantial challenges because of its sylvatic transmission cycle between aedes mosquitoes and non-human primates. Although Zika virus is known to have circulated in parts of Africa and the Asia-Pacific region, a series of epidemics during the past decade have transported this virus eastward across islands in the Pacific Ocean[3].

In 1954, the first 3 cases of human infection were reported in Nigeria. Serosurveillance studies in humans suggest that Zika virus is widespread throughout Africa, Asia, and Oceania[4]. In 2007 the first big Zika outbreak

Analgesic activity of ethanolic extract of flower of *Lantana camara*

Dr. Rakesh Punasiya*, J. Choudhary, S. Pillai
GRY Institute of Pharmacy Borawan Khargone (M.P.)
*Corresponding Author E-mail: **rakeshpunasiya@yahoo.com**

ABSTRACT:
The flower of the plant *Lantana camara* were extracted with ethanolic solvents and screened for their analgesic activity. The ethanolic extract of the plant *Lantana camara* has showed the presence of flavonoids. The analgesic activity of different extracts of *Lantana camara* flower is evaluated by tail flik methods where the responses are jumping withdrawal of paws and licking of paws. This study demonstrates that flower powder of *Lantana camara* has significant analgesic activities.

KEYWORDS: *Lantana camara,* Analgesic activity Ethanolic extract.

INTRODUCTION:

For many centuries, it is a known fact that humankind depends on plants as an indirect source of energy and shelter. It has been found that near about 80% of all established natural products originate from plants. Natural products continue to play an important role in the discovery and development of new pharmaceuticals as clinically useful drugs as starting materials to produce synthetic drugs.[1]

Lantana camara is a low erect, rugged hairy, ever green shrub (Verbenaceae) native to tropical America. Known by several common names viz., blacksage, cuasquito, angel lip, flowered sage, shrub verbena, white sage and wild sage all over the world, it is a significant weed of which there are some 650 varieties in over 60 countries or island groups. L. camara has several uses, mainly as a herbal medicine and in some areas as firewood and mulch.

It is also used for the treatment of cancers, chicken pox, measles, asthma, ulcers, swellings, eczema, tumors, high blood pressure, bilious fevers, catarrhal infections, tetanus, rheumatism, malaria and atoxy of abdominal.[2]

Traditional uses:

Lantana camara has been used in many parts of the world to treat a wide variety of disorders. In Central and South America, the leaves were made into a poultice to treat sores, chicken pox and measles. Fevers, colds, rheumatism, asthma and high blood pressure were treated with preparations from the plant In Ghana, an infusion of the whole plant was used for bronchitis and the powdered root in milk was given to children for stomach-ache. In Asian countries, leaves were used to treat cuts, rheumatism, ulcers and intestinal worms. It has been claimed that a steroid, lancamarone, from the leaves, exhibited cardio tonic properties and that lantamine, an alkaloid from the stem, bark and roots showed antipyretic and antispasmodic properties comparable to those of quinine. In India the leaves of the plant are boiled for tea and the decoction is a remedy against cough and it is used as a lotion for wounds and Pounded leaves are applied to cuts, ulcers and swellings.[3]

It is established and expanding in many regions of the world. *Lantana* probably derives from the ancient Latin name of the genus *Viburnum* which it resembles a little in foliage and inflorescence. *Lantana camara* is a notorious, noxious and invasive weed belonging to verbenaceae family. *Lantana camara* is one of the ten worst weeds of the world, which is a native of tropical and subtropical America. The species was introduced in India from Sri Lanka in 1809. *Lantana* was introduced to India at the National Botanical Gardens, Calcutta in 1807 as an ornamental plant. *Lantana camara* L. is an invasive weed that is wide spread in India.[4]

Medicinal plants represent an important source of medically important compounds. Since ancient time, medicinal plants are used to cure several types of health problems. Recently, there is a growing interest in the pharmacological evaluation of various plants used in different traditional system of medicine. *Latana camara* L. belong to the family Verbenaceae, is such a herb used traditionally to treat various ailments like tetanus, rheumatism, malaria, cough, fevers, cold, asthma and reported pharmacological activities like anti-inflammatory, analgesic, antihypertensive, antimicrobial, fungitoxic, cytotoxic, and hypoglycemic properties. Many important phytoconstituents responsible for the activity were isolated.[5]

MATERIAL AND METHODS:

Corpus ID: 99921976

RP-HPLC METHOD FOR ESTIMATION OF ETORICOXIB AND THIOCOLCHICOSIDE FROM TABLET DOSAGE FORM

P. Sujit, D. Nitin, Vidya Vihar · Published 2016 · Chemistry

A rapid, simple and sensitive RP-HPLC method was developed for the simultaneous estimation of Etoricoxib and Thiocolchicoside in tablet dosage form using C-18 column (250 mm, 4.6 mm, 5µ) RP column and Acetonotrile: 0.05M ammonium acetate (80:20) pH 6.5 as mobile phase at flow rate of 1.0 ml/min. A 240 nm UV detection wavelength was used. The calibration curve was plotted and was linear at 2-40 µg/ml for both Etoricoxib and Thiocolchicoside with retention time 5.01 min and 9.04 min respectively... Expand

Figures and Tables from this paper

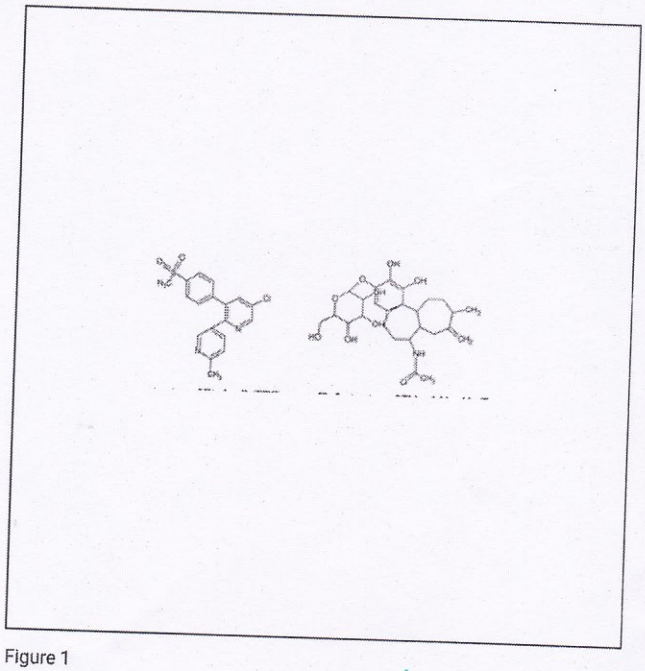

Figure 1

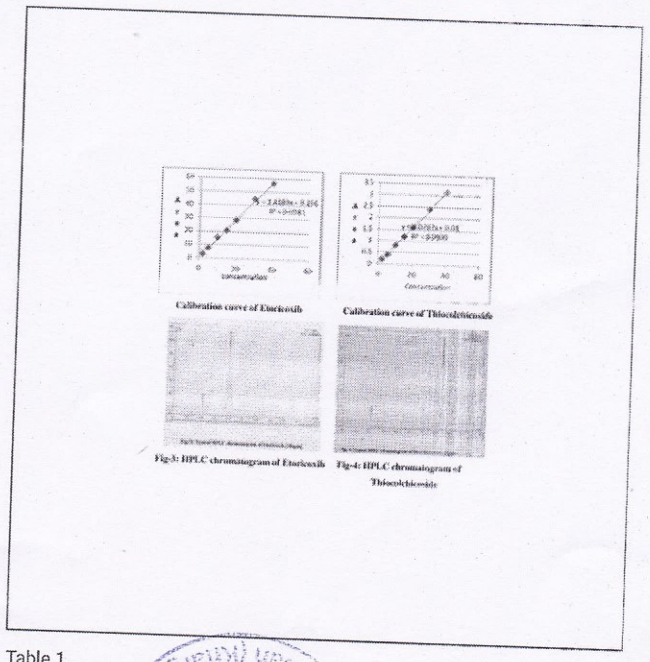

Table 1

Principal,
GRY. Institute of Pharmacy
BORAWAN (Khargone) 451228

GRY Institute of Pharmacy Borawan (Khargone) M.P.

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Research Article

Development of quantitative method for analysis of Meropenem and Amoxycillin by RP-HPLC method

Nitin Deshmukh*, Rachna Patel, Prabhat K. Das

GRY Institute of Pharmacy, Borawan, Khargone, MP, India

*For correspondence
Nitin Deshmukh,
GRY Institute of Pharmacy,
Borawan, Khargone, MP,
India.
Email: nitin_deshmukh90@rediffmail.com

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Revised: 23 July 2016
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ABSTRACT

Objective: Development of quantitative method for analysis of Meropenem and Amoxycillin by RP-HPLC method.

Methods: A simple, precise and accurate reverse phase high performance liquid chromatographic (RP-HPLC) method has been developed and validated for the simultaneous determination of Meropenem and Amoxicillin. The chromatographic separation was performed on Cromosil C18 column (250 mm × 4.6 mm i.d, 5 µm particle size). Mobile phase consist of a mixture of phosphate buffer (pH 6.8) and acetonitrile in the ratio of 70: 30 v/v at a flow rate of 1.0 ml/min. The detection wavelength was set at 229 nm. The proposed method was validated for linearity, accuracy, precision, robustness, LOD and LOQ.

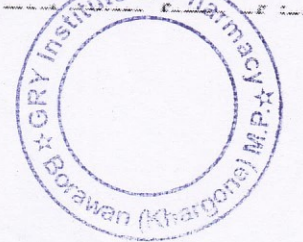
Results: The calibration was linear over the range of 10-50 µg/ml for Meropenem and 10-50 µg/ml for Amoxicillin. The average retention time for Meropenem was found to be 5.41±0.015 min and Amoxicillin was found to be 2.73±0.03.

Conclusions: The method can be easily adopted for quality control analysis.

Keywords: Meropenem, Amoxicillin, RP-HPLC, Validation.

Introduction

Meropenem is a carbapenem antibacterial agent with a broad spectrum of activity which encompasses Gram-negative, Gram-positive and anaerobic bacteria. Like other carbapenems, meropenem is stable against chromosomal and extended-spectrum β-lactamases. Extensive comparative clinical data demonstrate that meropenem can be used effectively as empirical monotherapy in moderate to severe intra-abdominal infections. It also shows potential in [illegible] experience in this infection type remains limited. Compared with standard combination regimens, meropenem offers the benefits of ease of administration without the need for monitoring. It also offers improved CNS tolerability compared with imipenem/cilastatin with the option of a higher maximum dosage, which may be a particular advantage in patients with severe intra-abdominal infections.[1] Meropenem was identified as a potential broad-spectrum antimicrobial for the treatment of keratitis with excellent in vitro activity.[2]



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Research Article

Synthesis and microbiological activity of 8-hydroxy quinoline derivatives and related compounds

Nitin Deshmukh*, Prabhat Das, K. Karma

GRY Institute of Pharmacy, Vidya Vihar, Borawan, Khargone, M.P., India

*For correspondence
Mr. Nitin Deshmukh,
Asst Professor, GRY Institute of Pharmacy, Vidya Vihar, Borawan, Khargone, M.P., India.
Email: nitin_deshmukh90@rediffmail.com

ABSTRACT

Objective: Hydrazine and substituted hydrazines have tendency to take part in substitution as well as condensation reaction. The condensation with suitable carbonyl compound gives hydrazides. These hydrazides undergo cyclization under suitable condition gives 2-nitrogen atom containing heterocyclic ring system. These compounds have pronounced antibacterial activity. 1,3,4-oxadiazole constitute a unique class of nitrogen and oxygen containing five member heterocycle. During the last years considerable evidence has also accumulated to demonstrate the efficacy of 1,3,4-oxadiazole including antifungal, anticancer, anticonvulsant, insecticidal, anti-bacterial, anti-inflammatory and other biological effects.

Methods: Some new Quinoline derivatives were synthesized by the reaction of Quinoline, chloroethylacetate, hydrazine hydrate and substituted benzoic acid. The structures of the various synthesized compounds were characterized on the basis of elemental analysis, IR and H^1NMR spectral data. These compounds were also screened for their antimicrobial and antifungal activity.

Results: The synthesized compounds 1a and 3c showed effective antibacterial activity against *Basillus substilis* whereas 2b and 4d showed effective anti-fungal activity against *Candida albicans* and *Aspergillus niger* respectively.

Conclusions: New oxadiazole derivative compounds exhibit significant antimicrobial activity.

Received: 10 February 2016
Accepted: 24 February 2016

Keywords: Quinoline derivatives, Synthesis, Oxadiazole, Anti-microbial acivity

Introduction

Literature surveys indicate that quinoline derivatives possess diverse pharmacological activities, including antimicrobial[1], antimalarial[2], antiviral[3], antitumor[4], immunomodulatory[5], caspase-3 inhibition[6], antileishmanial[7], local anesthetic[8], antiarrhythmic[8] and anti-inflammatory activities[9]. Also hydrazide constitutes one of the most versatile classes of compounds possessing a wide spectrum of activities. It has been reported that hydrazide derivatives possess antimicrobial[1,10], antimalarial[11], antiamoebic[12] and antitumor[13]

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PHARMACOLOGICAL EFFICACY OF METHANOLIC EXTRACT OF THE PLANT *GINKGO BILOBA*, AGAINST ISOPROTERENOL INDUCED CARDIAC TOXICITY IN RATS

Narendra S Badore *, Prabhat Kumar Das and Sujit Pillai

GRY Institute of Pharmacy, Borawan, Khargone - 451228, Madhya Pradesh, India.

Keywords:

Antioxidant, Cardiotoxicity, *Ginkgo Biloba*, Isoproterenol

Correspondence to Author:
Mr. Narendra S Badore

Assistant Professor in Pharmacognosy, Department of Pharmacognosy, GRY Institute of Pharmacy, Vidya Vihar, Borawan, Khargone - 451228, Madhya Pradesh, India.

E mail: kumar_prabhat3027@yahoo.com

ABSTRACT: *Ginkgo Biloba* is a potent antioxidant dietary source for human health. Oxidative stress through generation of free radicals damages the myocardium in different experimental condition. The present research was designed to evaluate the cardio protective role of chronic oral administration of *Ginkgo biloba* leaf extract against Isoproterenol induced myocardial injury. Male Wistar albino rates were randomly divided into five groups (n = 6) and treated as per treatment protocol with three different dose of *Ginkgo biloba* extract (125, 250, and 500 mg/kg b.w.) orally for thirty days. At the end of the treatment all the rats (except control rats) were administered with Isoproterenol (85 mg/kg) two consecutive days and subjected to biochemical and histopathological estimation. Isoproterenol (group II) induced the oxidative myocardial damage via alteration in the endogenous antioxidant enzymes and myocardial marker enzymes. Ginkgo biloba extract in all three dose (group III, IV and V) shows protective mechanism via decreasing thiobarbituric acid reactive substance (TBARS) and enhancing the endogenous antioxidant enzymes (reduced glutathione (GSH), superoxide dismutase (SOD) and catalase). Thus, the study shows that *Ginkgo biloba* extract exhibits significant antioxidant activity and protect the heart from free radical mediated toxicity of Isoproterenol.

INTRODUCTION: Myocardial infarction (MI) is the acute condition of necrosis of the myocardium that occurs as a result of imbalance between coronary blood supply and myocardial demand. [1] Oxidative stress resulting from increased production of free radicals is associated with decreased levels of antioxidants in the myocardium and plays a major role in cardiovascular diseases. [2] Damage to the myocardial cells arises due to the generation of toxic reactive oxygen species (ROS) such as superoxide radical, hydrogen peroxide and hydroxyl radical.[3]

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Isoproterenol (ISO) is an adrenergic agonist and acute administration of ISO in experimental animals causes necrosis to heart muscle. [4] ISO damages the myocardial via calcium accumulation in cytosolic membrane, generation of reactive oxygen species and procogulant activity. [5] ISO causes the patchy pathological changes in the myocardial tissue, which is almost clinically relevant to myocardial infarction of ischemic heart disease. [6]

Phytopharmaceutical are gaining importance in allopathic as well as traditional medicine owing to their non-addictive and less toxic nature. Drugs to enhance the endogenous antioxidant enzymes to protect the heart from stress have been paid more attention. Natural antioxidants play a major role to reduce the oxidative stress by scavenging the excess free radicals. [7] Administration of antioxidants during ischemic reperfusion injury (IRI) ameliorates the severity of IRI through

Principal, GRY. Institute of Pharmacy BORAWAN (Khargone) 451228

ORIGINAL ARTICLE

Phytochemical and antioxidant evaluation of *Ipomoea reniformis*

Ajay Raghuvanshi[1], D. M. Kar[1], Prabhat Das[2], Narendra S. Bhadore[2], Vijay Salvekar[2], Renu Bala[2]

[1]Department of Pharmacology, School of Pharmaceutical Sciences, Siksha 'O' Anusandhan University, Kalinga Nagar, Bhubaneswar, Odisha, India, [2]Department of Pharmacology, GRY Institute of Pharmacy, Borawan, Khargone, Madhya Pradesh, India

Abstract

Objective: *Ipomoea reniformis* was studied for its traditionally claimed activity, and still, it is unexplored. The plant can be further explored for the study of traditionally claimed unexplored activities, as well as isolation and identification of active constituents may lead to new findings. The objective of our study is to investigate antioxidant activity of the extracts of *I. reniformis* using *in vitro* models. The measured quantity of extract of *I. reniformis* was evaluated for its antioxidant activity as compared with standard by different models. The present investigation may be concluded that the plant *I. reniformis* is endowed with significantly antioxidant activity due to the presence of phenolics and flavonoids, thereby justifying its use in the indigenous system of medicine. **Materials and Methods:** *I. reniformis* was collected, dried, and extracted with different solvents, and finally, five extracts were studied for their total phenolics and flavonoids content followed by determination of antioxidant activity by 1, 1-diphenyl-2-picrylhydrazyl, superoxide radical scavenging, and α-amylase inhibitory activity. **Results:** The obtained results showed that ethanolic extract contains a higher concentration of phenolics and flavonoids and showed highest antioxidant activity among all the samples. **Conclusion:** The plant showed the antioxidant activity, and we believe that antioxidant activity of *I. reniformis* was due to synergistic effect of phytochemicals present in it. Further evidencing the need to conduct studies that can identify the active components responsible for the activity.

Key words: Antioxidant activity, *Ipomoea reniformis*, phenolics and flavonoids

INTRODUCTION

Many plants, particularly medicinal plants, have been extensively studied for their antioxidant activity in the recent years. It is believed that an increased intake of food rich in natural antioxidants is associated with lower risks of degenerative diseases, particularly cardiovascular diseases and cancer.[1] Many diseases in a human organism such as Alzheimer disease, arthritis, and cancer may be the due to increased levels of free radicals. Secondary metabolites from plants have important biological and pharmacological activities, such as antioxidative, anti-allergic, antibiotic, hypoglycemic, and anticarcinogenic.[2-4] The herbals are a good source for production of wide range of natural antioxidants. However, still, there is not enough knowledge and data about the practical usefulness of most of them. There are three major classes of plant chemicals: Terpenoids, phenolic metabolites, and alkaloids.[5] Among these three groups, phenolic compounds are the most important for dietary applications and the most extensively researched.[6] Phenolic compounds consist of acids such as hydroxybenzoic and hydroxycinnamic acid, hydrolyzable polyphenols, condensed tannins, and flavonoids. Plant species are generally protected by these compounds from oxidative damage and have been used as antioxidants by humans. Novel antioxidants from natural sources are of great importance for applications, functional foods, and nutraceuticals. Phytochemical screening is one of the methods that have been used to explore antioxidant compounds in

Address for Correspondence:
Ajay Raghuvanshi, Research Scholar at School of Pharmaceutical Sciences, Siksha 'O' Anusandhan University, Odisha, India. Phone: +91-9826582110.
E-mail: raghuaj15@gmail.com

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Original Article

Role of *Ginkgo biloba* Extract, Against Isoproterenol Induced Cardiac Toxicity in Rats

Narendra Singh Badore[1]*, Prabhat Kumar Das[2], Sujit Pillai[3], Akshita Thakur[1]

[1]Department of Pharmacognosy, GRY Institute of Pharmacy, Borawan, Khargone, Madhya Pradesh, INDIA.
[2]Department of Pharmacology, GRY Institute of Pharmacy, Borawan, Khargone, Madhya Pradesh, INDIA.
[3]Department of Pharmaceutical chemistry, GRY Institute of Pharmacy, Borawan, Khargone, Madhya Pradesh, INDIA.

ABSTRACT

Objective: *Ginkgo biloba* is a potent antioxidant dietary source for human health. Oxidative stress through generation of free radicals damages the myocardium in different experimental condition. The present research was designed to evaluate the cardio protective role of chronic oral administration of *Ginkgo biloba* leaf extract against Isoproterenol induced myocardial injury. **Material and methods:** Male Wistar albino rats were randomly divided into five groups (n = 6) and treated as per treatment protocol with three different dose of *Ginkgo biloba* extract (125, 250, and 500 mg/kg b.w.) orally for thirty days. At the end of the treatment all the rats (except control rats) were administered with Isoproterenol (85 mg/kg) two consecutive days and subjected to biochemical and histopathological estimation. **Results:** Isoproterenol (group II) induced the oxidative myocardial damage via alteration in the endogenous antioxidant enzymes and myocardial marker enzymes. *Ginkgo biloba* extract in all three dose (group III, IV and V) shows protective mechanism via decreasing thiobarbituric acid reactive substance (TBARS) and enhancing the endogenous antioxidant enzymes (reduced glutathione (GSH), superoxide dismutase (SOD) and catalase). The extract effect was compared with the reference standard α-tocopherol which also offered similar protection in biochemical and histopathological changes. **Conclusion:** Thus, the study shows that *Ginkgo biloba* extract exhibits significant antioxidant activity and protect the heart from free radical mediated toxicity of Isoproterenol.

Key words: Antioxidant, Cardiotoxicity, *Ginkgo biloba*, Isoproterenol, Wistar albino rats, α-tochopherol.

INTRODUCTION

Myocardial infarction is the acute condition of necrosis of the myocardium that occurs as a result of imbalance between coronary blood supply and myocardial demand.[1] Oxidative stress resulting from increased production of free radicals is associated with decreased levels of antioxidants in the myocardium and plays a major role in cardiovascular diseases.[2] Damage to the myocardial cells arises due to the generation of toxic reactive oxygen species such as superoxide radical, hydrogen peroxide and hydroxyl radical.[3] Isoproterenol (ISO) is an adrenergic agonist and acute administration of ISO in experimental animals causes necrosis to heart muscle.[4] ISO damages the myocardial via calcium accumulation in cytosolic membrane, generation of reactive oxygen species and procogulant activity.[5] ISO causes the patchy pathological changes in the myocardial tissue, which is almost clinically relevant to myocardial infarction of ischemic heart disease.[6]

Phytopharmaceutical are gaining importance in allopathic as well as traditional medicine owing to their non-addictive and less toxic nature. Drugs to enhance the endogenous antioxidant enzymes to protect the heart from stress have been paid more attention. Natural antioxidants play a major role to

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Correspondence:
Mr. Narendra S Badore,
Asst. Professor, Department of Pharmacognosy, GRY Institute of Pharmacy, Vidya Vihar, Borawan, Khargone, Madhya Pradesh, INDIA.
Phone no.: 07773855009
E-mail: kumar_prabhat3027@yahoo.com

www.ijper.org

Article

Pharmacological investigation of plant Moringa pterygosperma extract, against hepatoxicity

January 2010 · Journal of Pharmacy Research

Authors:

Das Prabhat **Birla Nikhlesh** **Praveen Nayak**
Institute of Technical Education and Research
Pani Ranjan Saumya

Abstract

The protective effects of the ethanolic and aqueous extract of plant Moringa pterygosperma, against CCl4 induced hepatotoxicity in albino rats was investigated. For acute and massive invasion of hepatopathy, CCl4 (i.p injection of CCl4+Olive Oil in 1:1 ratio; 2ml/kg) was used and the insidious intoxication was evidenced by significant various biochemical parameters followed by significant weight loss in toxic control group. The administration of ethanol and aqueous extracts (250mg/kg of body weight) for 7 days, elicited protective action since the elevated levels of marker enzymes (AST, ALT, ALP) of liver functions were found to be decreasing progressively in a dose dependent manner with net weight gain. In the ethanolic extract 250mg/kg treated rat group all the marker enzymes were analyzed to be decreasing significantly and the final body weight was also significantly increased when compared with the toxic control group. The serum total protein and the serum albumin were also approaching normal values. The results found in aqueous extract 250mg/kg treated rat were quite promising and were comparable with a standard polyherbal drug Liv-52. The statistically processed results support the conclusion, that the ethanolic and aqueous extract of Moringa pterygosperma (Linn.) whole plant possesses significant protective activity against CCl4 induced hepatopathy.

No full-text available

Citations (0) References (0)

ResearchGate has not been able to resolve any citations for this publication.

Evaluation of *Ipomoea reniformis* for antimicrobial activity.

Ajay Raghuvanshi[1*], D.M. Kar[1], Prabhat Das[2], Renu Bala[2].

[1]School of Pharmaceutical Sciences, Siksha 'O' Anusandhan University, Kalinga Nagar, Bhubaneswar, Odisha.

[2]GRY Institute of Pharmacy, Borawan, Khargone.

*Corresponding Author E-mail: **raghuaj15@gmail.com.**

ABSTRACT:

Scientific validation of much medicinal flora is lacking in India and still many species are used traditionally. From many years *Ipomoea reniformis* was studied for its traditionally claimed activity and still it is unexplored. The plant can be further explored for the study of traditionally claimed unexplored activities, as well as isolation and identification of active constituents may lead to new findings. In the present study whole plant of *I. reniformis* was collected, dried and extracted with various solvents according to solubility index, and finally five extracts were studied by well diffusion assay for their antifungal and antimicrobial effects on both gram positive, gram negative bacteria and a fungal species. The study revealed that ethyl acetate extract was having highest activity that is why fractions of the ethyl acetate extract was prepared by various solvents and again the antimicrobial study was done with each fraction. The ethyl acetate extract and fraction exhibited activity against both Gram positive and Gram negative bacteria, while the aqueous extracts elucidated antimicrobial activity against only *Staphylococcus aureus*. The ethanolic and chloroform extracts showed inhibition of *Aspergillus niger*. The plant showed antimicrobial activity, evidencing the need to conduct further studies that can identify their active components responsible for the activity.

KEYWORDS: *Ipomoea reniformis,* antimicrobial activity, LCMS, IR and NMR.

INTRODUCTION:

Antibiotics brought about a revolution to control pathogenic diseases and infections. But these synthetic drugs are out of reach to millions of people. Those people who live in remote places depend on traditional healers, whom they know and trust[1]. Microbial diseases rank as number one cause for almost half of the deaths in underdeveloped and tropical countries. The frequency of life threatening infections caused by pathogenic microorganisms has increased worldwide and is becoming an important cause of morbidity and mortality in immune compromised patients in developed countries[2]. Secondary metabolites are present in all higher plants. They play an important role in the plants protection against bacteria, virus, fungi and insects[3]. Microbial infections are considered as the most common causes of food borne diseases worldwide.

Examples of food spoiling microorganisms include *Pseudomonas aeruginosa, Bacillus subtilis, Lactobacillus sp. Saccharomyces cerevisiae* and *Aspergillus niger*[4]. In fokelore medicine, medicinal plants have been used widely in facilitating antimicrobial activity with high degree of successes. The literature survey revealed that the ethanolic extract of the whole plant, *Ipomoea fistulosa* exhibited significant activity against a number of Gram positive and Gram negative bacteria except *Streptococcus faecalis*; the aqueous extract was found to be inactive[5]. The antimicrobial activity of artificially grown sweet potato (*Ipomoea batatas*) leaves was investigated against both gram positive and gram negative bacteria[6]. Antimicrobial activity of metal complexes prepared from the leaf proteins of *Ipomoea carnea* was reported[7]. Antimicrobial activity of *Ipomoea carnea* leaves was reported against both Gram positive and Gram negative bacteria[8]. Considering the plants, as sources for antimicrobial drugs with reference to antibacterial and antifungal agents, a systematic investigation is undertaken to screen the local flora for antimicrobial activity from *Ipomoea reniformis* plant. In the present study well diffusion method was used to study the antimicrobial activity using the microbial strains (*Escherichia coli* NCIM 2109; *Staphylococcus aureus* NCIM 2079, *Pseudomonas aeruginosa* NCIM 2036; *Bacillus subtilis* NCIM 2250 and *Aspergillus niger* NCIM 545).

MATERIAL AND METHOD:

Plant material:

The plant material used in this study was whole plant of *Ipomoea reniformis*, collected from Narmada valley, Maheshwar, Madhya Pradesh, India during Aug 2012 and was authenticated by the Taxonomist Dr. S. K Mahajan, Botany Department, Government P. G. College Khargone M.P.

Extraction and Fractionation:

The plant materials were initially rinsed with distilled water and dried on paper towel in laboratory at (37 ± 1°C) for 24 h and

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Review Article
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A REVIEW ON "LEPROSY DISEASE"

Nikhlesh Birla, Priyal Patidar, Rampal Mandloi,
GRY Institute of Pharmacy , Borawan, Khargone MP
* Corresponding Author: nikhilbirla9@gmail.com

ABSTRACT

Leprosy is regarded as one of the oldest chronic long standing infection which is caused by slow growing bacteria & acid fast bacillus 'MYCOBACTERIUM LEPRAE' and newly discovered 'MYCOBACTERIUM LEPROMATOSIS'. Bacteria can also be found in macrophages, muscle cells and endothelial cells of blood vessels, bacilli start multiplying slowly (about 12-14 days for one bacterium to divide into two) within the cells. As the bacilli multiply, bacterial load increases in the body and cause infection. Further it is clinically characterized by cardinal signs: Hypopigmentedskin patches with definite loss of sensation, thickened peripheral nerves & disfigurement of body parts.Biopsy Test, Smear test using Ziehl Neelsen Test and Lapromin Test are used for the detecting the bacteria which cause leprosy. In the ancient time leprosy was treated by injecting naturally occurring oil of 'Chaulmoogra Nut' & now modern treatment is MDT which is combination of drugs: Dapsone, Rifampicin & Clofazimine.

Keywords: Leprosy , Lapromin Test, Ziehl Neelsen Test.

INTRODUCTION

The word Leprosy comes from the Ancient Latin Greek word "*lepra*" – a deeply infectious, contagious skin disease which make skin peel off & scaly.[1] Incubation period of the disease is an average of about 5-9 years but it may take up to 10 years to develop the sign of the infection[2]. Leprosy is also known as 'Hansen's Bacillus Spirally because in 1873, Dr. Gerhard Armauer Hansen in Norway discovered the causative agent of leprosy i.e. M. Leprae[3]. Leprosy can strike in any age group right from infants to adults & has no sex predilection. The disease primarily affect the patient's skin & the nervous system. It cause disfiguration of the skin & other body parts like toes of the feet, hands[5]. The condition produce inflammatory elevated nodules (solid, raised bumps in or under the skin) called 'Granulomas' cause by infectious organisms & by other material such as suture and keratin.[4]

Principal,
GRY. Institute of Pharmacy
BORAWAN (Khargone) 451228

GRY Institute of Pharmacy Borawan (Khargone) M.P.

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Formulation and Evaluation of Pioglitazone HCl Fast Dissolving Tablet using Solid Dispersion

Pinky Yadav*, Pankaj Patel, Prabhat Das, Nitin Deshmukh, Dr. Sujit Pillai

Dept. of Pharmaceutics, GRY Institute of Pharmacy, Borawan, Khargone (M.P)

*Corresponding Author E-mail: **kumar_prabhat3027@yahoo.com**

ABSTRACT:

Pioglitazone HCL is a BCS class-II (poorly water soluble) drug and its absorption is dissolution rate limited. The solubility and the dissolution rate of the drug was enhanced by using the solid dispersion technique. The main purpose of this investigation was to increase the solubility and dissolution rate of pioglitazone HCL by the preparation of its solid dispersion with PEG-6000 using solvent evaporation methods. FT-IR spectra revealed no chemical incompatibility between drug and PEG-6000. The result obtained show that the dissolution profile of pioglitazone HCL solid dispersion was considerably improved. The dissolution profile solid dispersion formulation SD1 contains (1:1) (drug: polymer) formulation SD2 (1:2) & formulation SD3 (1:3) was found to be 97.83±0.09, 94.03±0.09, 91.26±0.03 respectively. Based on the above dissolution data SD1 is found to be best as a solid dispersion for fast dissolving tablet. Based on the result solid dispersion technique can be an acceptable method for improving the dissolution profile of poorly aqueous soluble drug.

KEYWORDS: Pioglitazone HCL, Fast dissolving tablet, Solid dispersion, PEG-6000, Solvent Evaporation Method.

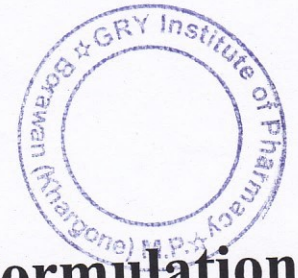
INTRODUCTION:

Pioglitazone hydrochloride is an oral hypoglycemic agent, which is a commonly prescribed drug for the treatment of patients with type II diabetes mellitus. Pioglitazone hydrochloride is a basic (pKa = 12.06) which is practically insoluble in water and alkaline buffer solutions, but as per the Biopharmaceutical Classification System (BCS) Pioglitazone categorized as class II drug. The oral absorption is uniform, rapid and complete with a bioavailability of nearly 100% and an elimination half-life of 3-7 hrs. Delivery Systems (NDDS) aim for the same by formulating a dosage form, convenient to be administered so as to achieve better patient compliance. One such approach is oral dispersible tablet. Solid dosage forms are popular because of ease of administration, accurate dosage, selfmedication, pain avoidance and most importantly the patient compliance.

Mouth dissolving tablets are also called as fast dissolving tablets, melt-in mouth tablets, Orodispersible tablets, rapid melts, porous tablets, quick dissolving etc. Mouth dissolving tablets are those when put on tongue disintegrate instantaneously releasing the drug which dissolves or disperses in the saliva the faster the drug into solution, quicker the absorption and onset of clinical effect. Some drugs are absorbed from the mouth, pharynx and esophagus as the saliva passes down into the stomach. In such cases, bioavailability of drug is significantly greater than those observed from conventional tablets dosage form. Diabetes Mellitus (DM) is a group of syndromes and chronic metabolic disorder characterized by hyperglycemia, altered metabolism of lipids, carbohydrates and proteins because of a lack of or ineffective use of the hormone insulin and associated with reduced life expectancy, significant morbidity due to specific diabetes related micro vascular complications and diminished quality of life. A fasting blood glucose level of 126 mg/dl and 200 mg/dl post prandial (oral Glucose load) is considered as indication of DM. In present work, an investigation was made to use crospovidone and sodium starch glycolate, Croscarmellose sodium as superdisintegrants in the design of mouth dissolving tablets.

Oral bioavailability of drugs depends on its dissolution rate, therefore major problems associated with these drugs was its very low aqueous solubility, which results into poor bioavailability after oral administration. Many methods are available to improve dissolution rate, solubility characteristics, including salt formation, micronization, and addition of solvent or surface active agents[1].

Solid dispersion prepared by solvent evaporation is one of these methods, which was most widely and successfully applied to improve the solubility, dissolution rates and consequently the bioavailability of poorly soluble drugs[2,3]. Several water soluble carriers such as mannitol, urea, lactose, citric acid, polyvinyl pyrrolidone, β-cyclodextrin and polyethylene glycols like PEG 6000 are used as carriers for enhancement of aqueous solubilty [4-6].Pioglitazone hydrochloride is a thiazolidinedione antidiabetic agent that decreases insulin resistance in the periphery and in the liver resulting in increased insulin-dependent glucose disposal and decreased hepatic glucose output.[7] Pioglitazone is a potent and highly selective agonist for peroxisome



Formulation and Evaluation of Ramipril Fast Dissolving Tablet using Solid Dispersion

Hitendra Choudhary, Bhagwan Yadav*, Pankaj Patel, Prabhat Das, Dr. Sujit Pillai

Dept. of Pharmaceutics, GRY Institute of Pharmacy Borawan Khargone (M.P)

*Corresponding Author E-mail: **kumar_prabhat3027@yahoo.com**

ABSTRACT:

Solubility is a key parameter for oral bioavailability of poorly water soluble drugs. Ramipril is sparingly soluble in water which affects the absorption of drug via GIT, and ultimately makes the drug with low bioavailability. In the present study is solubility enhancement of Ramipril by solid dispersion technique. Solid dispersion of Ramipril is prepared by using two polymers ie: Polyvinyl Pyrrolidone (PVP K30) and Polyethylene Glycol 4000 (PEG 4000) in different ratios (1:1, 1:2, 1:3) using solvent evaporation method. On the basis of % drug content and solubility study S.D.2 and S.D.5 solid dispersion were selected an taken for formulation of fast dissolving tablet of Ramipril. On evaluating various FDTs of Ramipril the best formulation was found to be F6 (1:2 PEG 4000) showed disintegration time was 28 sec. and cumulative percentage drug release 97.68 % in 40 min.

KEYWORDS: Bioavailability, Ramipril, PVP K30, PEG 4000, Solid dispersion.

INTRODUCTION:

The oral route of drug administration is the most common and preferred method of delivery due to convenience and ease of ingestion. From a patient's perspective, swallowing a dosage form is a comfortable and a familiar means of taking medication. As a result, patient compliance and hence drug treatment is typically more effective with orally administered medications as compared with other routes of administration, for example, parenteral.[1] More than 90% of drugs have poor solubility. It is estimated that 40% of active New Chemical Entities (NCEs) identified in combinatorial screening programs employed by many pharmaceutical companies are poorly water soluble.[2] After administering a drug orally, it firstly dissolves in gastric and or intestinal fluids, and then permeates the membranes of the GI tract to reach systemic circulation.

Therefore, a drug with poor aqueous solubility will typically exhibit dissolution rate limited absorption, and a drug with poor membrane permeability will typically exhibit permeation rate limited absorption. Unfortunately, many of these potential drugs are abandoned in the early stages of development due to solubility concerns. It is therefore becoming increasingly more important that methods for overcoming solubility limitations be identified and applied commercially such that the potential therapeutic benefits of their active molecules can be realized. Poorly water-soluble drugs are increasingly becoming a problem in terms of obtaining the satisfactory dissolution within the gastrointestinal tract that is necessary for good bioavailability. It is not only existing drugs that cause problems but it is the challenge of medicinal chemists to ensure that new drugs are not only active pharmacologically but have enough solubility to ensure fast enough dissolution at the site of administration, often gastrointestinal tract. Dissolution of solid dosage forms in gastrointestinal fluids is a prerequisite to the delivery of the drug to the systemic circulation following oral administration. Dissolution depends in parts on the solubility of the drug substance in the surrounding medium. Surface area of drug particle is another parameter that influences drug dissolution, and in turn drug absorption, particle size is a determinant of surface area. Solubilization is the process by which the apparent solubility of a poorly water soluble substance is increased. Solubilization techniques include addition of a co-solvent, salt formation, Prodrug design, Complexation, particle size reduction, and the use of surface active agents (Micellization). Use of solvate and hydrates, polymorphs, hydrotrophy, use of absorbents, pH adjustment, solubilizing vehicles, etc. are the some other physicochemical approaches to enhancing oral absorption of poorly water soluble drugs.[3]

Solid dispersions have been widely used to increase the dissolution rate, and hence improving the bioavailability of poorly water soluble drugs. They are defined as a dispersion of one or more active ingredients in an inert carrier or matrix in the solid state. Usually, a drug substance is incorporated into a water-soluble polymer, leading to a molecular, a crystalline or an amorphous dispersion of the drug. Although the metastable drug form dissolves faster than the crystalline state, the dissolution rate depends on the drug–polymer ratio.

Ramipril is adapted to the a-live metabolite Ramiprilat by alarmist esterase enzymes.ACE inhibitors, arrest the accomplishments of (ACE) angiotensin converting agitator thus blurred the assembly of Angiotensin II and as well

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Pharmacognostical, Phytochemical and Fluorescence analysis of the plant *Bougainvillea spectabilis* (Willd.)

Prabhat Kumar Das[1]*, Dr. Jai Singh Vaghela[2], Narendra Badore[3]

[1]Research Scholar, Bhupal Nobles' University, Udaipur (Raj.)

[2]Associate Professor, Bhupal Nobles' University, Udaipur (Raj.)

[3]Associate Professor, GRY Institute of Pharmacy, Borawan, MP.

*Corresponding Author E-mail: **kumar_prabhat3027@yahoo.com**

ABSTRACT:

Objective: The aim of the study is to investigate the Phytochemical, Pharmacognostical, Fluorescence analysis and heavy metal testing of the plant *Bougainvillea spectabilis* (WILLD.). **Methods:** The plant powder was extracted with different solvents such as petroleum ether, chloroform, ethyl acetate, ethanol, and water. The different extracts were tested qualitatively for the identification of various phytochemical constituents. The plant powder was subjected to fluorescence analysis in daylight and in ultraviolet-light (254 nm and 365 nm) and heavy metal testing. **Results:** Water soluble extractive value was found to be higher than ethanol, Ethyl acetate, chloroform and petroleum ether. The total ash values were found to be higher followed by water soluble ash and acid insoluble ash. From the phytochemical screening result showed the presence of various phytochemical constituents such as alkaloid, glycoside, Carbohydrate, Flavonoids, Saponins, Terpenoids, Taninns and phytosterols. Fluorescence analysis of leaf powder of *Bougainvillea spectabilis* showed characteristic coloration with various chemicals. The presence of heavy metals like cobalt, mercury, nickel, silver and zinc were found negative. **Conclusion:** Thus the bioactive natural products in leaf extracts of *Bougainvillea spectabilis* can be used in the development of new pharmaceuticals that enhances therapeutic use.

KEYWORDS: Fluorescence, *Bougainvillea spectabilis,* Phytochemical, Chloroform, Ethyl acetate, Ethanol.

INTRODUCTION:

The medicinal plants are of great interest to human health. Plant based medicines have been a part of traditional healthcare in most parts of the world for thousands of years[1,2]. Plant-based therapy has been used as a vital component in the traditional medicine systems and the use of herbal medicine for the treatment of diseases and infections is as old as mankind. The therapeutic potential, including the antioxidant, antimicrobial, and anti carcinogenic properties of higher plants, is due to the presence of secondary metabolites[3-4] which provide definite physiological action on the human body and these bioactive substances include tannins, alkaloids, carbohydrates, terpenoids, steroids, flavonoids, and phenols.

Drug discovery led to the isolation of early drugs from medicinal plants such as cocaine, codeine, digitoxin, quinine, and morphine, of which some are still in use[5-7]. Plant secondary metabolites consist of low-molecular weight compounds that are regarded as not essential for sustaining life, but as crucial for the survival of the producing organism[8].

The genus Bougainvillea is a native to South America and derived its name from Louis Antoine de Bougainville (1729–1811), an admiral in the French Navy who encountered the plant in Brazil, in 1768, and it was introduced to the rest of the world where it became both widespread and popular, due to its versatility, richness and suitability to thrive in degrading environmental conditions. With its sharp thick thorns it is avoided by cattle, goats, monkeys and even birds. It loves open sunshine and the colors of some varieties grow brighter and more attractive in hot dry climate[9]. The genus Bougainvillea in the

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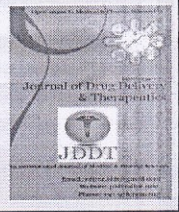


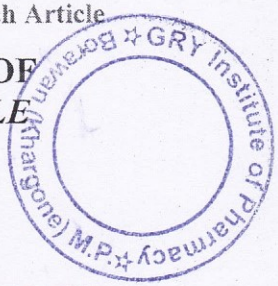
Open Access Research Article

PRELIMINARY PHYTOCHEMICAL AND DIURETIC SCREENING OF ETHANOLIC AND AQUEOUS EXTRACT OF *ZINGIBER OFFICINALE*

Manvendra Badore, Pallavi Mahajan, Prabhat Das, Narendra Badore, Sujit Pillai

GRY Institute of Pharmacy, Borawan, Khargone, M.P., India

E-mail address: kumar_prabhat3027@yahoo.com



ABSTRACT

The present study was to evaluate Diuretic activity of ethanolic and aqueous extracts of *Zingiber officinale* Rhizome in wistar rats. Ethanolic and aqueous extracts were administered to experimental rats orally at the doses of 500 mg/kg p.o. Furosemide (5 mg/kg) was used as positive control in the study. The diuretic effect of the extract was evaluated by measuring urine volume & sodium content. Urine volume was significantly increased by ethanolic extract in comparison to the aqueous and control group, while the excretion of sodium was also increased by extract. The ethanolic extract had the additional advantage over aqueous extract. We can conclude that ethanolic extract of *Zingiber officinale* produced notable diuretic effect which appeared to be comparable to that produced by the reference diuretic furosemide.

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INTRODUCTION:

Diuretics, also called water pills, are medications designed to increase the amount of water and salt expelled from the body as urine. There are three types of prescription diuretics. They're often prescribed to help treat high blood pressure. The drugs reduce the amount of fluid in your blood vessels, and this helps lower your blood pressure. Other conditions are also treated with diuretics. Congestive heart failure, for instance, keeps your heart from pumping blood effectively throughout your body. This leads to a buildup of fluids in your body, which is called edema. Diuretics can help reduce this fluid buildup. Ginger (*Zingiber officinale*) is one of the most widely used natural products consumed as a spice and medicine for treating nausea, dysentery, heartburn, flatulence, diarrhea, loss of appetite, infections, cough, and bronchitis. Ginger (*Zingiber officinale*), a member of the Zingiberaceae family, is a popular spice used globally especially in most of the Asian countries. Chemical analysis of ginger shows that it contains over 400 different compounds. The major constituents in ginger rhizomes are carbohydrates (50–70%), lipids (3–8%), terpenes, and phenolic compounds. Terpene components of ginger include zingiberene, β-bisabolene, α-farnesene, β-sesquiphellandrene, and α-curcumene, while phenolic compounds include gingerol, paradols, and shogaol. These gingerols (23–25%) and shogaol (18–25%) are found in higher quantity than others. Besides these, amino acids, raw fiber, ash, protein, phytosterols, vitamins (e.g., nicotinic acid and vitamin A), and minerals are also present. The aromatic constituents include zingiberene and bisabolene, while the pungent constituents are known as gingerols and shogaols. Other gingerol- or shogaol-related compounds (1–10%), which have been reported in ginger rhizome, include 6-paradol, 1-dehydrogingerdione, 6-gingerdione and 10-gingerdione, 4- gingerdiol, 6-gingerdiol, 8-gingerdiol, and 10-gingerdiol, and diarylheptanoids. The characteristic odor and flavor of ginger are due to a mixture of volatile oils like shogaols and gingerols. Ginger has been used as a spice as well as medicine in India and China since ancient times. It was also known in Europe from the 9th century and in England from the 10th century for its medicinal properties. Native Americans have also used wild ginger rhizome to regulate menstruation and heartbeat. Ginger is thought to act directly on the gastrointestinal system to reduce nausea. Therefore, it is used to prevent nausea resulting from chemotherapy, motion sickness, and surgery. Ginger is known as a popular remedy for nausea during pregnancy. Ginger is also used to treat various types of other GI problems like morning sickness, colic, upset stomach, gas, bloating, heartburn, flatulence, diarrhea, loss of appetite, and dyspepsia (discomfort after eating). According to Indian Ayurvedic medicinal system, ginger is recommended to enhance the digestion of food.

Besides these, ginger has been reported as a pain relief for arthritis, muscle soreness, chest pain, low back pain, stomach pain, and menstrual pain. It can be used for

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A Review Article on Melanoma

Prabhat Das, * Nitin Deshmukh, Narendra Badore, Chetan Ghulaxe, Pankaj Patel
GRY Institute of Pharmacy, Borawan, MP – 451228.

INTRODUCTION [30,17]

Skin cancer is the most common form of human cancer . The most common warning sign of skin cancer is a change in the appearance of the skin, such as a new growth or a sore that will not heal. The term "skin cancer" refers to three different conditions. From the least to the most dangerous, they are:

1) Basal cell carcinoma (or basal cell carcinoma epithelioma): [17]

The most common type of skin cancer, a disease in which the cancer cells resemble the basal cells of the epidermis, the outer layer of the skin.it is also called carcinoma epithelioma.

2) Squamous cell carcinoma:-

Cancer that begins in squamous cells -- thin, flat cells that look under the microscope like fish scales. Squamous cells are found in the tissue that forms the surface of the skin, the lining of hollow organs of the body, and the passages of the respiratory and digestive tracts. Squamous cell carcinomas may arise in any of these tissues. The word "squamous" came from the Latin squama meaning "the scale of a fish or serpent."

3) Melanoma:-

The two most common forms of skin cancer are basal cell carcinoma and squamous cell carcinoma. Together, these two are also referred to as nonmelanoma skin cancer. Skin cancer is also known as skin neoplasia. Melanoma is generally the most serious form of skin cancer because it tends to spread (metastasize) throughout the body quickly.

MELANOMA [30, 12]

Melanoma is a malignant tumor of melanocytes. Such cells are found predominantly in skin, but are also found in the bowel and the eye. Melanoma is one of the less common types of skin cancer, but causes the majority (75%) of skin cancer related deaths. Melanocytes are normally present in skin, being responsible for the production of the dark pigment melanin. Despite many years of intensive laboratory and clinical research, early surgical resection of thin tumors still gives the greatest chance of cure. Melanoma is the most serious type of skin cancer. It begins in skin cells called melanocytes.Melanocytes are the cells that make melanin, which gives skin its color. Melanin also protects the deeper layers of the skin from the sun's harmful ultraviolet (UV) rays. [12]

When people spend time in the sunlight, the melanocytes make more melanin and cause the skin to tan. This also happens when skin is exposed to other forms of ultraviolet light (such as in a tanning booth). If the skin receives too much ultraviolet light, the melanocytes may begin to grow abnormally and become cancerous. This condition is called melanoma.

Around 60,000 new cases of invasive melanoma are diagnosed in the United States each year, more frequently in males and in Caucasians. It is more common in Caucasian populations living in sunny climates than in other groups, or in those who use tanning salons. According to a WHO report about 48,000 melanoma related deaths occur worldwide per year. The treatment includes surgical removal of the tumor, adjuvant treatment, chemo- and immunotherapy, or radiation therapy.

HISTORY [29,30]

The history of melanoma is described as an evolved situation of events. When dating back to the first time melanoma was found by surgery, the time was the year 1787. During this time, the person that discovered it, John Hunter, did not know what it was specifically. He had never seen anything like it. He quoted it as a cancerous fungous. He took out the tumor and they placed it in the Hunterian Museum which is located in the Royal College of Surgeons in England. Around 1968, they discovered that the tumor showed signs of metastatic melanoma, which is a melanoma that affects the internal organs. Metastatic melanoma tends to show up in the third stage. The lymph nodes get affected and then take over the internal organs usually starting with the liver and lungs. Melanoma was first called a disease by a man named Rene Laennec. The main history of melanoma starts here. In the history of melanoma, there were many lecture made by Rene in Paris around 1804-20. There were also writing and general educations about melanoma. The idea that advanced melanoma was untreatable was first described by Samuel Cooper is 1840. This still holds true today. As the stages increase with melanoma, the less chance of survival the melanoma patient has.[30]

Henry Lancaster also contributed in the history of melanoma as we know it today. He correlated that the sunlight intensity showed a very solid conformation that exposure to sunlight aids in the development of melanoma. The same exposure to tanning beds is just as likely to degrade and mutate skin cells. The degradation of skin cell DNA is directly linked to ultraviolet rays that the sun as well as the tanning bed emits. It is because of this that the melanoma can develop.

As the history of melanoma progresses, they find more ways to treat and remove the spots of cancer that pop up. As of now, there still exists no specific cancer cure for advancement of melanoma. There are many trial tests that are being preformed diligently but no solid evidence can prove effectiveness in each.