Development and Evaluation of Solid Lipid Nanoparticulate hydrogel of miconazole nitrate and its Anti-fungal activity

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Abstract:

The aim of this study was to prepare a miconazole nitrate solid lipid nano particulate hydrogel and to evaluate its antifungal activity. By using a modified solvent injection technique, MN-loaded SLNs were produced and characterised in terms of particle size, entrapment efficiency etc., after incorporation of SLNS into hydrogels, rheological measurements were performed and in-vitro drug permeation tests were carried out using Franz diffusion technique. SLN dispersions exhibited average size between 975 ± 7.02 and 1945 ± 14.01 nm. All the dispersions had high entrapment efficiency ranging from 61.44 ± 0.14% to 82.35 ± 0.05%. The *in vitro* release study suggested that there was an inverse relationship between EE% and *in vitro* release. In 24 hrs the drug release was observed ranging from 74.95% to 91.40%. The kinetic analysis of all release profiles was found to follow Higuchi's diffusion model**.** Agar well diffusion method was used for antifungal studies against *Aspergillus Niger*and compared with 2% commercially available miconazole nitrate formulation. The mean zone of inhibition obtained by 1% miconazole nitrate loaded SLN was 24 mm. SLN formulation showed enhanced antifungal activity than thecommercially available formulation and concluded that SLN is a promising carrier system for topical delivery of miconazole nitrate.

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INTRODUCTION

Solid Lipid Nanoparticles (SLN) have received a lot of attention as cutting-edge topical medication delivery methods *(1)*. The carrier is made up of lipids that are healthy, well-tolerated, and low in toxicity *(2)* SLN provide labile compound protection from chemical deterioration *(1)* and directing the medicine to the skin's outer layers (3). Anti-mycotic therapy targets the stratum corneum, and increasing local bioavailability improves the formulation's effectivenesslocally *(4)*.

Topical particulate carriers for various imidazole antifungal medications have been studied as SLN *(5)*. These medications make excellent SLN encapsulation candidates due to their high lipophilicity. However, the small size of lipid particles guarantees tight contact with the Stratum corneum and an occlusive effect that may be used to increase drug penetration into the skin *(6)*.

infections

The mechanism of action of MN is based on the suppression of ergosterol production, which results in the lysis of fungal cell membranes, and the suppression of peroxidase, which causes an accumulation of peroxide inside the cell and cell death *(11,12)*.

Aspergillus Niger

The fungus *Aspergillus Niger* is a type of mould, which can sometimes be attributed to the cause of some cases of pneumonia. It is also the causative agent of 'black mould' on the outsides of certain foods, such as apricots, onions, grapes, etc. - therefore making*Aspergillus Niger* a food 'spoilage' organism. (31)

These are classed as 'Conidiophores' - an organism which forms filaments or hyphae, otherwise known as conidia (the a-sexual method of fungal reproduction). The name '*Aspergillus*' comes from the Latin word

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Protective Effect OfEthanolic Leaf Extract Of *Cleome Gyanandra* On Gentamicin Induced Nephrotoxic Rats

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Abstract

The aim of the study is to protective effect of ethanolic leaf extract of *Cleome Gyanandra* on gentamicin induced nephrotoxic rats. Nephrotoxicity is also known as toxic kidney disease. this is caused by aristolochic acid that is present in the body and causes injury or damage to the kidney.The model of gentamicin induced nephrotoxicity is considered as one of the most widely used experimental model to study the useful effects of many drugs and kidney function.The acute oral toxicity study was done according to oecd 423 guidelines. wistar albino rats of either sex were selected randomly. the animals were fasted overnight, doses of 100, 250, 500, 1000, 2000, 3000 and 5000mg/kg body weight, were administered orally. The experimental animals were randomly divided in to 5 groups (n= 6). At the experiments: the pharmacological studies like acute toxicity studies, nephro protective activity like biochemical parameters in serum: i) renal biomarkers i.e., decrease of serum uric acid , urea, bun, creatinine levels, total serum proteins by increasing dose ii) non renal biomarkers i.e., higher dose is more effective in decreasing bilirubin, serum chlolestrol, serum glucose level than lower dose.Bio-chemical parameters in urine like urea, uric acid, creatinine decreases as the dose increases. It seems that *Cleome Gyanandra* are able to improve kidney function against GM-induced nephrotoxicity. In this study it indicates that *Cleome Gyanandra* have shown a good nephroprotective activity by decreasing serum renal markers, serum non renal parameters and morphological parameters.

Key words:*Cleome Gyanandra* , gentamicin, nephrotoxicity.

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Introduction

Kidneys are responsible for the excretion of water and nitrogenous waste products produced from the body Kidneys maintain concentration of the blood and water balance in the body. The normal concentrating mechanism of kidney can increase concentration of toxins[1]. Drugs induced nephrotoxicity like aminoglyosides like gentamycin, antineoplastic agents like cisplatin,Antitumor antibiotics like Mitomycin, Antimicrobial agents likeTetracycline.Some examples of herbs used for nephrotoxicity is *Aervalanata , AervaJavanica, Acorus Calamus, BoerhaaviaDiffusa, CrataevaNurvula, Carica Papaya, Curcuma Longa.* The usage of herbs in nephrotoxicity is increased for being safe and alternative medicine[13,14].

Multiple doses of gentamicin cause nephrotoxicity by inhibiting protein synthesis in renal cells[2]. This mechanism specifically causes necrosis of cells in the proximal tubule, resulting in acute tubular necrosis which can lead to acute renal failure[3].

Depending on the duration of drug exposure to animal's nephrotoxicological studies may be done by urine or by serum samples parameters used are renal biomarker (uric acid, urea, creatinine, BUN, total proteins, albumins) and non renal biomarkers (bilirubin, total cholesterol, total glucose). *Cleome gynandra* (Capparidaceae) is used as a medicinal plant and can be found in all over world. It grows as a weed in paddy fields and also in road sides and in open grass lands[14]. In India it is never

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ORIGINAL ARTICLE **OPEN ACCESS**

Determination of bioactive components of *Barleria cuspidata* and *Barleria buxifolia* by Gas Chromatography-Mass Spectrometry analysis

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ABSTRACT
The present study was carried out to identify the phytoconstituents present in the methanol extract of whole plant of Barleria buxifolia Linn and Barleria cuspidata Heyne ex Nees by GC-MS analysis. The plants of Barleria buxifolia and Barleria cuspidata after air dried were subjected to sequential extraction with chloroform and methanol by soxhlet extraction apparatus. Then the methanol extract of both the plants was further subjected to gas chromatography - mass spectrometry analysis to determine different biological active components. From crude methanol extracts of Barleria buxifolia and Barleria cuspidata the qualitative determination of different biological active compounds using gas chromatography - mass spectrometry revealed the presence of different types of high and low molecular weight chemical compound with different quantities, such as flavonoids, tannins, alkaloids, steroids and fatty acids from each plant extract. These chemical compounds are considered biologically and pharmacologically important.The study results will make a way for the isolation of active constituents and to examine their pharmacological aspects.
Keywords: *Barleria buxifolia* and *Barleria cuspidata*, Extraction and GC-MS.

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INTRODUCTION

Now a day's herbal medicines are gaining more importance because of their safety,easy availability & low cost [1].The medicinal activities of these plants is mainly due to the presence of bioactive phytochemical constituents such as alkaloids, steroids, tannins, proteins and amino acids, flavonoids, saponins, essential oils etc., that produce certain physiological actions [2].Nevertheless, people deter from using herbal medicines because of the difference in the concentration of active constituents in herbal drugs. The various factors that bring about inconsistency in the percentage of active constituents of herbal drugs are genetics, climatic conditions,bacteria& viral infections etc., [3].

Standardization and validation parameters are implemented to ensure that active constituents, moisture content, inorganic impurities or heavy metals, microbial limits, pesticides etc within the prescribed limits. Separation techniques viz high-performance liquid chromatography (HPLC), high performance thin layer chromatography (HPTLC), gas chromatography mass spectroscopy (GC-MS), Liquid chromatography mass spectrometry (LCMS) and capillary electrophoresis provide a new dimension for herbal drug analysis [4]. GC-MS chromatogram provides data regarding the retention time, peak area and mass spectra of phytoconstituents present in plant extract. GC-MS analysis revealed the existence of major phytoconstituents such as esters, fatty acids, terpenes, phenols, sterols etc in several plant extracts [5 & 6].

Genus *Barleria* belongs to the family Acanthaceae. Whole-plant extract *Barleria* contains a number of active compounds such as alkaloids, terpenes, flavonoids, glycosides, lignins, and phenolics, which have shown potent therapeutic activities against several diseases [7, 8, 9 & 10]. Barleria also shows various pharmacological effects such as antimicrobial, anti-helminthics, anti-fertility, antioxidant, anti-diabetic, anti-arthritic, hepatoprotective, diuretic, cytoprotective, anti-diarrheal, analgesic, anti-leukemic, anti-inflammatory, and hypoglycaemic properties without any toxic effects [11 & 12].The current examination

EVALUATION OF FACTORS INFLUENCING SUBSTANCE ABUSE AMONG YOUTH

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ABSTRACT

Introduction:

Drug addiction is a serious public health problem across the world and is among the preventable causes of current sickness and fatalities. Since there are numerous dangers that can influence teenage substance use, understanding the risk factors is essential to prevention. The study's goal was to evaluate the prevalence and seriousness of substance usage among young people.

Methodology:

At the government general hospital, RIMS, Kadapa, a cross-sectional observation research on the factors influencing substance addiction among 200 adolescent patients was conducted over the course of six months. cross-sectional

Results:

In the evaluation of substance abuse among 200 patients, a gender disparity was evident, with 81% (162) being male and 19% (38) female. Age of initiation revealed that 50% (100) of males began substance abuse between 15-20 years, with 16.5% (33) initiating above 20 years. Females displayed initiation patterns, with 10% (20) between 15-20 years, and 4.5% (9) each below 15 years and above 20 years. Factors contributing to initiation included curiosity (35.5%) and academic failure (5%) for males, while peer pressure (6.5%) and family discord (0.5%) influenced females.

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Original Research Article

Clinical practice for the management of atopic dermatitis (eczema) patients attending dermatology outpatient department at a tertiary health care centre

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ABSTRACT

Background: Atopic dermatitis (AD) is a chronic pruritic inflammatory skin condition that affects all age groups. It is one of the most common skin disorders in developed countries. Symptoms are eczematous papules, itch and associated consequences, like sleep disturbances that significantly have an impact on quality of life of the patients. The standard therapies for AD consist of the use of topical corticosteroids, topical applications of emollients, and oral formulations. The present study was undertaken with a view to find out the treatment patterns for AD in patients visited dermatology outpatient department (OPD) in a tertiary care teaching hospital.
Methods: A prospective observational study conducted for a period of three months at OPD of dermatology in tertiary care hospital (GGH-RIMS), Kadapa. A total of 45 prescriptions were collected after obtaining a proper informed consent from recruited patients.
Results: In a total of 45 prescriptions analysis, it was found that there was a female predominance with a female to male ratio of 2:1. AD was more prevalent in the age group of 20-29 years. Topical preparations were highly prescribed i.e., 90 utilizations when compared to oral formulations having 60 utilizations. Levocetirizine was the most commonly prescribed drug.
Conclusions: This study provides prescription patterns of AD in a tertiary care hospital. Cost can be minimized by generic prescribing. Treatment strategies to be individualized having strong emphasis on patient education. Self-management strategies also optimize outcomes and reduces unnecessary costs associated with management of AD.

Keywords: Atopic dermatitis, Predominance, Prescription patterns, Antihistamines, Emollients

INTRODUCTION

Atopic dermatitis or atopic eczema is a common, chronic relapsing inflammatory, multifactorial skin disease which is characterized by intense pruritis, that occurs most frequently in children up to 20% but can also affect adults of about 1-3%. AD is often associated with elevated serum immunoglobulin (IgE) levels and a personal or family history of type 1 allergies, allergic rhinitis and asthma. AD has complex pathogenesis involving genetic, immunologic and environmental factors, which lead to a dysfunctional skin barrier and dysregulation of the immune system. Pruritis is a hallmark of the condition that is responsible for much of the disease burden borne by patients and their family.[1] AD affects about one-fifth of all individuals during their life time but the prevalence of the disease varies greatly through the world. The risk of developing

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EVALUATION OF ANTI-UROLITHIATIC ACTIVITY OF ETHANOLIC EXTRACT OF POLY HERBS IN ETHYLENE GLYCOL INDUCED UROLITHIASIS IN RATS

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ABSTRACT

Urolithiasis is one of the most frequent diseases of the urinary tract in the world, displaying an increase in incidence and prevalence in all age groups and genders in the last decades. The aim of the present study is to evaluate the anti-urolithiatic activity of ethanolic extract of poly herbs in ethylene glycol induced urolithiasis in rats. Antiurolithiatic activity is assessed by ethylene glycol induced urolithiasis in rats. Healthy Male Wistar rats were selected and divided into five groups having six animals in each. Group-I served as normal, Group-II as control, Group-III as standard, Group-VI and Group- V as test. In the present study the ethanolic extract of seeds of polyherbs was evaluated for antiurolithiatic activity against 0.75% ethylene glycol and 1% ammonium chloride for induction of renal calculi by using cystone (750 mg/kg) as a standard drug for 28 days. There is a significant restoration of urine and serum parameters exhibiting antiurolithiatic activity of these plants.

INTRODUCTION

Urolithiasis is defined as formation of stone in the urinary system i.e. in the kidney, ureter, and urinary bladder or in the urethra. Urolithiasis is one of the most frequent diseases of the urinary tract in the world, displaying an increase in incidence and prevalence in all age groups and genders in the last decades, especially in industrialized countries. (1)It determines large costs for the health care systems in the world. Conventional drugs used in the treatment of urolithiasis are often inadequate. Therefore, it is necessary to search alternative drugs for treatment of urolithiasis and to replace the currently used drugs which are doubtful of its efficacy and safety (2)It causes severe acuteback pain and occasionally leads to more severe complications, such as pyelonephritis Or acute renal failure. Kidney stone formation is a common urological problem with a lifetime prevalence of approximately 10% in men and 6% in women.(3)

MATERIALS AND METHODS:

Preparation of extract:Seeds of *Macrotyloma uniflorum* , *Ocimum basilicum, hordeum vulgare* was taken, powdered in a grinder-mixer to obtain a coarse powder and then passed through 40 mesh sieves. About 200 gms of powder was extracted by using methanol by Soxhlet apparatus process up to 24hrs. The solution was filtered through Whatman filter paper and the resultant filtrate was distilled under reduced pressure for recovery of solvent. The dried extract thus obtained was kept in desiccators and used for further experiments.(4)

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PREPARATION AND EVALUATION OF HERBAL ANTI ACNE CREAM FROM THE EXTRACT OF *''RUBIA CORDIFOLIA''*

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ABSTRACT

Herbal medications are considered safer than allopathic medicines because allopathic medications are associated with different side-effects such as allergy, local irritation, scaling, photosensitivity reaction, itching, peeling, redness etc. acne is a skin condition characterized by red pimples on the skin , especially on the face due to inflamed or infected sebaceous glands and prevalent chiefly among adolescents. The study includes macroscopical and microscopical evaluation of rubia cordifolia". The prepared formulation was optimized on the basis of in vitro release study. The optimized formulation was evaluated on the basis of greasiness, spreadability, after feel, skin irritancy, viscosity, pH and release kinetics. The study revealed that ethanol extract of Rubia cordifolia", possessed the potential for inhibiting acne. It was observed that the optimal formula of anti-acne moisturizer was satisfactorily effective to control acne inducing bacteria i.e., E.coli and Pseudomonas.

INTRODUCTION

Cosmetics are defined as items with mild action on the human body for the purpose of cleaning, beautifying, and adding the attractiveness, altering the appearance, or keeping or promoting the skin or hair in good condition. Cosmetic products are used to protect skin against exogenous and endogenous harmful agents and improve the beauty and attractiveness of skin. Cosmetics are not only developing an attractive external appearance, but towards achieving long life of good health by reducing skin disorders.

COSMECEUTICALS

A cosmeceutical is an ingredient with medicinal properties which manifests beneficial topical actions.The herbal ingredients present in skin care products that supports the strength to the skin, integrity of Skin and texture, moisturizing, maintaining elasticity of skin by reduction of collagen and photo protection etc. This character of cosmetic is due to presence of ingredients in skin care formulation, because it helps to reduce the production of free radicals in skin and manage the skin properties for long time.

Formulation of Anti-Acne Cream

The composition of anti-acne cream was shown in Table.1 The oil phase consists of stearic acid and other oil soluble component such as acetylalcohol and liquid paraffin were dissolved in the oil phase. The oil phase was placed inside the beaker in the water bath. The temperature of water bath was set to 75°C during the heating time. The water soluble components and preservatives (glycerine, methyl paraben and

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RESEARCH ARTICLE

Standardization and Preliminary Phytochemical Screening of *Barleria buxifolia* Linn and *Barleria cuspidata* Heyne Ex Nees

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ABSTRACT:
Standardization of herbal drugs is a significant for staying away from of adulteration and in recognizable proof of unadulterated herbal drugs. World Health Organization determined explicit rules for the assessment of the wellbeing, adequacy and caliber of herbal drugs. The current examination was attempted to the standardization of entire plant of *Barleria buxifolia* Linn and *Barleria cuspidata* Heyne Ex Nees and to assess the fundamental phytochemical investigation. Both the plants are shrub once in a while circulated in waste lands, helpless soil and along streets. In this investigation the dried entire plant of *Barleria buxifolia* and *Barleria cuspidata* were assessed for organoleptic characters, physicochemical boundaries of pH, loss on drying, ash values and fundamental phytochemical examination for distinguishing of chemical constituents. The information acquired by the current examination shows all the qualities with in the determination of WHO and all these may be accommodating in distinguishing of this therapeutic plant and may likewise supportive in forestalling its debasement.

KEYWORDS: Whole plant, *Barleria buxifolia* Linn, *Barleria cuspidata* Heyne Ex Nees, Preliminary phytochemical screening, Standardization.

INTRODUCTION:
For the most part for relieving the illnesses the medications utilized are either synthetic or of plant beginning. The utilization of manufactured medications in treatment of diseases brings out unsafe reactions[1]. Henceforth so as to invalidate the ascending of destructive reactions, the humanity centers around significance of herbal drugs in the traditional health care systems, for example, Ayurveda, Unani, Homeopathy and so forth, to figure out human services issues[2]. The significant source of about drugs in restoring all infirmities of humankind is nature[3]. From old chance to introduce days people are utilizing nature assets, for example, plants, creatures, microorganisms and marine starting points as medications to reduce and to treat intense and incessant infections[4].

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Still these people groups are relied upon the assortment of plant assets for food, shelter, dress and medication to fix immense of illnesses[5]. By experimentation techniques the crude individuals select the helpful plants with advantageous impacts from those plants with poisonous or latent nature. Indeed, even in old societies, innate individuals deliberately gathered entropy on herbs and develop all around characterized home grown pharmacopeias. On progressive improvement over the information on plant-based medications represent the establishment for some frameworks of customary medication everywhere throughout the world. Accordingly, herbal medicine has manual for the disclosure of various new medications, and non-drug substances[6].

According to the meaning of World Health Organization (WHO), herbal medicines incorporate not just the herbs, herbal materials, herbal arrangements and completed herbal items in certain nations it likewise incorporates normal natural or inorganic dynamic fixings that are

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Open Access Research Article

Diabetes Mellitus and the Possibility of Developing Dementia

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A B S T R A C T

Background: Dementia and cognitive dysfunction have many causes. There is strong evidence that diabetes mellitus (DM) increases the risk of cognitive impairment and dementia. A prophylactic approach, optimal glycaemic control, and identification of diabetic risk factors are essential to preventing cognitive complications.

Objective: The main objectives of this study are to assess the severity of dementia by using the Clinical Dementia Rating scale (CDR), and the effect of longevity of diabetes mellitus on the severity of dementia.

Method: It is a Hospital-based prospective observational study, in which the patients were enrolled into the study after taking an informed consent form from them based on the inclusion and exclusion criteria.

Results: Out of 80 patients, 62(77.5%) were suffering with dementia and 18(22.5%) were found to be normal. The diabetes patients included in this study had a duration of diabetes ranges from 6 to 30 years. Using the CDR scale, 24 of them (30%) were diagnosed with moderate dementia.

Conclusion: According to our findings, we emphasize the need to consider DM as a potential risk factor for dementia.

Keywords: Dementia, Clinical dementia rating scale, Diabetes mellitus.

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INTRODUCTION

Diabetes mellitus (DM) is a chronic progressive metabolic disease and a global threat to health. It currently afflicts quite 463 million people worldwide, a minimum of 90% of which are type 2 DM (T2DM) cases [1]. DM is the 15th leading cause of total years of life lost in 2017 [2] and its economic impact is approximately 2% of the global gross domestic product [3]. As the burden of this disease continues to worsen, developing and implementing integrative strategies for its prevention and control is thus a matter of urgency at altogether levels of care.

DM is related to cognitive impairment and dementia, and various epidemiological studies have demonstrated that T2DM patients have a significantly higher risk of developing dementia [4]. The number of cases of T2DM patients with cognitive impairment or dementia is predicted to extend due to the diabetes pandemic and therefore the concomitant rise in aging populations worldwide [5]. The main objective of our study was to measure the severity of dementia in diabetes mellitus patients, it is measured by using the clinical dementia rating scale (CDR).

MATERIALS AND METHODS

Study Design and Study setting

A hospital-based prospective observational study was conducted for a period of six months from February 2020 to July 2021 at General medicine and Psychiatry

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RESEARCH ARTICLE

Neuroprotective Activity of the Methanolic Extract of *Indigofera aspalathoides* against Scopalamine induced Alzheimer's Disease in Experimental Rats

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ABSTRACT:
The plant *Indigofera aspalathoides* is a traditional medicine with tremendous therapeutic potential which finds it use in treatment of various ailments such as antibacterial, antioxidant, anti-inflammatory, antidiabetic, and anticancer activities. There are no reports that related to the use of this plant in treating patients with Alzheimer's disease (AD). Hence present study was aimed to scientifically evaluate the neuroprotective effect of the methanolic extract of *Indigofera aspalathoides* against scopalamine induced Alzheimer's disease in experimental rats using behavioral tests like elevated plus maze, Y-maze, and rota-rod tests. In addition to this, biochemical evaluation for acetylcholinesterase activity and histopathological evaluation of brain were done. The results suggests that methanolic extract *Indigofera aspalathoides* (200mg/kg B.wt and 400mg/kg B.wt) used in this study shows significant improvement of various behavioral parameters like locomotion, anxiety, memory, motor integrity and coordination etc when compared to control group. MEIA inhibited brain AChE enzyme, thereby elevating Ach concentration in brain homogenate and ultimately improved memory of rats. Further, more or less normal histological structure of the hippocampus and all amyloid plaques and neurofibrillary tangles that are formed under the influence of scopolamine disappeared in the rats pretreated with MEIA (200mg/kg B.wt and 400mg/kg B.wt). It can be concluded that our results strongly support the anti-Alzheimer's potential of the methanolic extract of the plant *I.aspalathoides* and its use in traditional medicine.

KEYWORDS: *Indigofera aspalathoides,* scopolamine, methanolic extract, Alzheimer's, anti-oxidant.

INTRODUCTION:
Alzheimer's disease is considered a progressive, unavoidable, degenerative disease of the brain which is considered as the most common cause of dementia[1]. AD is characterized clinically by an insidious onset of memory and cognition impairment, emergence of psychiatric symptoms and behavioral disorder, and impairment of activities of daily living. It is the most frequent form of dementia found in the elderly[2].

AD is associated with the accumulation of an abnormal form of protein tau tangles and amyloid protein fragments inside and outside the neurons respectively, which contributes to the death of neurons and finally causing damage to brain tissue[3]. The pathological condition is also may be due to failures in cholinergic neurotransmission, mitochondrial dysfunction, etc. Neuronal calcium dyshomeostasis, age-dependent oxidative imbalance[4], and the subsequent increase of reactive oxygen species (ROS) are accepted as key factors in the development and progression of AD[5].

On the other hand, cognitive impairment associated with AD is mainly due to a deficit of acetylcholine (ACh), and the progressive collapse of cholinergic neurotransmission[6]. In healthy brains, ACh is mainly hydrolyzed by the enzyme acetylcholinesterase (AChE)

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RESEARCH ARTICLE

Anti-Urolithiatic Activity of the Ethanolic Extract of *Cassia auriculata* against Ethylene Glycol Induced Urolithiasis in Experimental Rats

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ABSTRACT:
The objective was to investigate the anti-urolithiatic effect of ethanolic extract of *Cassia auriculate* on ethylene glycol (EG) induced urolithiasis in experimental rats. The animals were divided into five groups of six animals each. Except the normal group all the other groups received ethylene glycol 0.75% and Ammonium chloride 1% v/v in water induce orally for 28 days. Normal groups received plain water orally. The standard group received cystone 750mg/kg b.w orally. Test groups received EECA 200mg/kg and 400mg/kg b.w orally. On the 28th day, blood and urine samples were collected and used for estimation of biochemical parameters such as calcium, phosphates, oxalates, creatinine, uric acid, SOD, and CAT followed by histopathological studies. Treatment with EECA was found to exert dose dependent anti urolithiatic action. Increased urine volume in EECA treated groups as compared to diseased group was indicative of diuretic property. Elevated calcium, phosphate and oxalate levels in diseased group animals were found to be decreased in animals treated with EECA. Increased levels of serum calcium, creatinine and uric acid were considerably brought down towards normal values in proportion to EECA doses administered. Antioxidant parameters like SOD and CAT were decreased along with significant increase in MDA levels which is the main product of lipid peroxidation in EG treated rats. However the rats treated with EECA showed significant improvement in these parameters. Hence it is concluded that the ethanolic extract of *Cassia auriculata* possess anti-urolithiatic activity.

KEYWORDS: *Cassia auriculata,* ethylene glycol, antioxidant, antiurolithiatic activity.

INTRODUCTION:
Urolithiasis, one of the oldest and wide spread painful urological disorder. It is the third most prevalent disorder in urinary system. Urolithiasis is referred to as the process of formation of calculi (singular calculus) in the urinary system includes Nephrolithiasis (Renal Calculi or Kidney Stones), Ureterolithiasis (Ureter Calculi) and Cystolithiasis (Bladder Calculi). It is a multifactorial disease due to multiple genetic or environmental factors that regulates calcium salt precipitation within the urogenital system[1].

The physical process of stone formation may be a complex cascade of events. Kidney stones result from the growth of crystals into stones[2]. The process of stone formation depends on urinary volume, concentrations of calcium, phosphate, oxalate and sodium ions; concentrations of natural calculus inhibitors and urinary pH[3,4].

Conventional drugs used in the treatment of urolithiasis are often inadequate. Therefore it is necessary to search alternative drugs for treatment of urolithiasis and to replace the currently used drugs which are doubtful of its efficacy and safety[5].

Cassia auriculata is a perinneal plant belonging to the family Caesalpiniaceae. It is commonly called as Senna auriculata and Tanner's cassia[6]. In telugu it is known as Tangedu. In Tamil and Sanskrit it is called Aavaarai and Aaavartaki respectively. This plant has showed

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Research Article

Assessment of Disease Knowledge, Medication Adherence, HRQOL in COPD Patients at a South Indian Tertiary Care Hospital

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Abstract

Introduction: Chronic obstructive pulmonary disease (COPD) is a progressive, life-threatening disease of the lungs, gradually causes breathlessness and predisposes to exacerbations and serious illness. The main objectives of the study are to evaluate disease knowledge, medication adherence, and health-related quality of life among COPD patients.

Methodology: A Hospital-based, single-entered prospective observational study was conducted at a government general hospital, Andhra Pradesh. India after ethical committee approval. This study was conducted for 6 months with a sample size of 80 patients.

Results: According to our study, the majority of the patients 36 (45%) don't have disease knowledge, where a few numbers of patients 7 (8.75%) is having disease knowledge as per BCKQ score values. 11.25% of patients have the lowest MMAS scores whereas 58.75% were found to have higher MMAS scores and 37.5% of total patients have higher CAT scores, and 12.5% of patients have lower CAT scores.

Conclusion: We found that majority of the patients have poor disease knowledge, lower adherence to medication regimens, and substandard HRQOL.

Keywords: COPD knowledge, medication adherence, and HRQOL.

INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a progressive airflow limitation in the lungs, which is not fully reversible by medication. Management of COPD is a 10% medication and 90% education program. COPD leads to physical disability, hospitalization, loss of productivity, and high cost to patients and society. COPD shows marked impairment in health-related quality of life (HRQOL). Acute exacerbation COPD (AECOPD) associated with physical disability limits daily activities thereby, negatively affecting HRQOL. Patients' awareness and knowledge about the disease are important in leading a normal life[1-4]. Adherence is defined as "the extent to which a person's behavior (in terms of taking medications, following diets, or executing lifestyle changes) coincides with medical or health advice" [5]. Patient non-adherence is one of the best recorded but least understood health-related actions[6]. COPD patients are non-adherent with their treatment recommendations both intentionally and unintentionally[7]. However, better medication adherence was associated with a decrease in the number of emergency department visits and length of hospital stay among patients with chronic respiratory diseases[8].

METHODOLOGY

Study design and setting:

A hospital-based, single - centered prospective observational study was conducted at a government general hospital (RIMS) Kadapa, which is a tertiary care hospital providing free inpatient and outpatient care under the control of the government of Andhra Pradesh India. The study duration was for 6 months conducted in the department of general medicine between November 2020 to May 2021.

Study population:

80 COPD patients were enrolled in the study based on GOLD inclusion criteria. The recruited patients were above 18 years old irrespective of gender. Severe unconscious patients were excluded from the study.

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Research Article

A RANDOMIZED CONTROL TRIAL ON CEREBROVASCULAR ACCIDENT PATIENTS WITH REFERENCE TO ETIOLOGY AND MANAGEMENT: A 24-WEEK, SINGLE-CENTER, PROSPECTIVE OBSERVATIONAL PILOT STUDY

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ABSTRACT

Objectives: Stroke is one of the leading causes of death and long-term disability in world. Stroke is an important cause of premature death and disability in low-income and middle-income countries like India, largely driven by demographic changes and enhanced by the increasing prevalence of key modifiable risk factors. The main aim of our study was to assess the clinical profile with special reference to the etiology of the condition, the management, and drug utilization review.

Methods: This is a hospital-based prospective observational randomized control trial which was conducted for a period of 6 months at Government General Hospital, Rajiv Gandhi Institute of Medical Sciences, Kadapa. Seventy-five patients were recruited based on study criteria. The data were analyzed and summarized as frequency and percentage by GraphPad Prism software using Microsoft Excel.

Results: In a total of 75 patients, it was found that 45 and 30 patients were female. Maximum number of patients (i.e. 36 patients) belonged to 51–60 years age group. We observed that 52 patients were suffering from ischemic stroke, 21 patients were suffering from transient ischemic stroke, and only 2 patients were suffering from ischemic stroke and transient ischemic stroke. Among 75 patients studied, hypertension (62%), diabetes mellitus (28%), smoking (33%), and alcohol (33%) were the risk factors.

Conclusion: In this study, ischemic stroke was most prevalent. Hypertension, that is, increase of blood pressure considered as one of the important and major risk factors for stroke occurrence and recurrence. Proper management includes non-pharmacological (physiotherapy) along with pharmacological treatment that included cardiovascular system drugs such as hypolipidemics, cognition enhancers, anticoagulants, and antihypertensive therapy.

Keywords: Cerebrovascular accident patients, Risk factors, Neuronal death, Multidisciplinary treatment.

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INTRODUCTION

A stroke occurs when a blood vessel in the brain ruptures and bleeds, or when there is a blockage in the blood supply to the brain. The rupture or blockage prevents blood and oxygen from reaching the brain's tissue. This loss of blood flow to the brain results to damage of tissues within the brain [1]. Symptoms of a stroke will be experienced in almost all the body parts in which brain plays a significant role for monitoring. The five warning signs of stroke are sudden onset of weakness or numbness on one side of the body, sudden speech difficulty or confusion, sudden difficulty seeing in one or both eyes, sudden onset of dizziness, trouble walking or loss of balance and sudden, severe headache with no known cause [2,3]. Three types of stroke, that is, transient ischemic attack, ischemic stroke, and hemorrhagic stroke are experienced by majority of the patients suffering from cerebrovascular accident (CVA) [4]. Risk factors of stroke include an unhealthy diet, inactivity, or lack of exercise, alcohol consumption, tobacco use, family history, sex, age, race, and ethnicity [5,6]. High blood pressure is the leading cause of stroke and is the main cause for increased risk of stroke among people with diabetes. Lifestyle factors that increase your risk of stroke include high blood pressure, smoking, diabetes, high blood cholesterol levels, heavy drinking, high salt and high fat diet and lack of exercise [7]. Proposed pathophysiology is etiological factors presses on nearby cranial nerves or brain tissue causing subarachnoid hemorrhage leads to increases in ICP resulting from the sudden entry of blood into the subarachnoid space that results to injuries brain tissue or by secondary ischemia of the brain resulting from the reduced perfusion pressure [8]. Diagnosis of stroke is taking medical history, physical examination, blood test, magnetic resonance imaging and computed tomography scan, EKG, cerebral angiogram, carotid ultrasound, and echocardiogram [9]. The most common stroke medications include tissue plasminogen activator is the only medication currently available and it must be given within 3–4.5 h after symptoms of a stroke begin [10,11]. Anticoagulant drugs reduce blood's ability to clot. The most common anticoagulant is warfarin [12]. Antiplatelet drugs prevent blood clot by making it more difficult for the blood platelets to stick together. Common drugs are aspirin and clopidogrel [13]. Statins helps in lowering high blood cholesterol levels. The most common statins include rosuvastatin, simvastatin, and atorvastatin [14,15]. Blood pressure lowering drugs cause break off pieces of plaque that buildup in arteries [16,17]. Mechanical thrombectomy is the procedure in which the doctor inserts a catheter into a large blood vessel inside head. Then, they use a device to pull the clot out of the vessel [18]. Stents may be performed to inflate the narrowed artery and support the walls of the artery with a stent. It is done when an artery wall gets weakened. In the rare instances, if other treatments do not work, doctor may perform surgery to remove a blood clot and plaques from arteries [19]. Stroke recovery focuses on four main areas such as speech therapy, cognitive therapy, relearning sensory skills, and physical therapy [20-22].

METHODS

Study design and ethical considerations

A hospital-based prospective observational pilot study on cerebrovascular accident patients with reference to etiology and

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EVALUATION OF ANTI - INFLAMMATORY AND ANALGESIC ACTIVITY OF POLYHERBAL FORMULATION

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ABSTRACT

Currently used analgesic agents are opioids & NSAID. All of these are associated with certain adverse effects, so research in new potent herbal formulations is urgently needed. Therefore, a polyherbal formulation from four well-known herbs that had been already individually tested for its analgesic & anti-inflammatory property was prepared, thinking that synergistically it would act better. ***Aims & objective:*** To evaluate the analgesic & anti-inflammatory properties of Ethanolic extract of polyherbal formulation (EEPHF) in Wister rats. ***Materials and Methods:*** Analgesic activity was evaluated by using Eddy's hot plate method. Anti-inflammatory activity was tested by using inj. carrageenan-induced hind paw oedema test. Rats were divided into 6 groups, viz. I to VI. Group I served as the Normal, B serves as control, III serves as Standard and IV, V, VI as drug group. ***Results:*** EEPHF had also shown a significant reduction in hind paw edema induced by carrageenan injection, indicating anti-inflammatory action. EEPHF had shown a significant increase in the hotplate latency period ($p<0.01$) in dose dependent manner indicating central analgesic activity. ***Conclusion:*** PHZ has potent analgesic & anti-inflammatory action, which supports its clinical use.

INTRODUCTION

Inflammation is a local response of living mammalian tissues to injury. It is a body defense reaction in order to eliminate or limit the spread of injurious agent. There are various components to an inflammatory reaction that can contribute to the associated symptoms and tissue injury.[1] The mechanisms of inflammation involve a series of events in which the metabolism of arachidonic acid plays an important role. It can be metabolized by the Cyclooxygenase (COX) pathway to prostaglandins and thromboxane A2, or by the 5-lipoxygenase (5-LOX) pathway to hydroperoxy-Eicosatetraenoic acids (HPETE's) and leukotrienes (LT's), which are important biologically active mediators in a variety of inflammatory events.[2] Inflammation is a complex biological response of vascular tissue to harmful stimuli, pathogens, irritants characterized by redness, warmth, swelling and pain. Prolonged inflammation leads to the rheumatoid arthritis. Anti-inflammatory drugs like NSAIDs used to reduce the swelling and pain of inflammation. But these agents carry the risk of gastro-intestinal toxicity, cardiovascular and other side effects for prolonged use. Therefore, to overcome this problem, there is a need for prepared safe and potent therapeutic activity herbal drug.

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PREPARATION AND EVALUATION OF HERBAL SHAMPOO FROM ETHANOLIC EXTRACT OF LEAVES AND FLOWERS OF COUROUPITA GUIANENSIS

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Couroupitaguianensis, hair vitalizer ,Lecythidaceae

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ABSTRACT

*Couroupitaguianensis*is commonly known as Naagamalli,Naagalingam or Cannon ball tree. Its family is Lecythidaceae. It is found throughout the plains in india. The flowers and leaves are used as a hair vitalizer, it is used to treat inflammation, skin disorders, tooth ache, antiseptic, immune booster, snuff cold skin infections, anti fungal, and treat skin disorders. The medicinal plants have been used since ancient times. The earliest historical records of herbs were found in Sumerian civilization, where hundreds of medicinal plants including opium were listed on clay tablets. Ayurveda is the most ancient and Indian systems of medicine and it are the branch of adharvanaveda.

INTRODUCTION

The medicinal plants have been in use since ancient times. The discovery and use of medicinal plants in traditional medicine provide that our ancestors were well known with the importance of herbs in human health. The earliest historical records of herbs were listed on clay tablet. In indiaRIG-veda and Atharvanaveda described the important medicinal properties of plants in curing various ailments . ayurveda is the most ancient an Indian system of medicine and a branch of Atharvanaveda. The Indian material medica,were of Indian have emphasized the use of medicinal plants in the human health . In china many medicinal plants have been in use since 5000BC. By 19thcentaury the role of plants in medicine was substantially altered by the application Of chemical analysis. The detection of many potent drugs in plants led to the isolation drugs by using appropriate method. For ex:alkaloid were isolated from a succession of medicinal plants ,starting with morphine 1806,and soon followed by ipecacuanha and strychnous in 1817,quinine from the cinchona tree and then many others. A plant , leaves , flowers, stems ,berries , seeds, fruits, bark,roots,or any other part may be used for medicinal purpose .Most herbal remedies are used to treat minor health problems ,such as nausea ,cold ,cough,flu, headache, aches, and pains , stomach and intestinal disorder , menstrual cramps , insomnia ,skin disorder and dandruff. Some herbalists have reports success in treating certain chronic conditions including peptic ulcers inflammation on colon, rheumatoid

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SAFETY AND TOLERABILITY OF VILDAGLIPTIN IN CLINICAL PRACTICE: NEWER PROMISING GLIPTIN FOR TYPE 2 DIABETES MELLITUS

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ABSTRACT

The prevalence of type 2 diabetes (T2DM) increases with age. Older patients have an increased likelihood for T2DM-related morbidity and mortality. The dipeptidyl peptidase-4 inhibitor vildagliptin is approved for use as monotherapy and combination therapy in type 2 diabetes mellitus. This article reviews the clinical efficacy and tolerability of vildagliptin in the treatment of type 2 diabetes, as well as summarizing its pharmacological properties. Improvements in glycaemic control were also seen with vildagliptin in elderly patients with type 2 diabetes and in patients with type 2 diabetes and moderate or severe renal impairment. Vildagliptin was generally well tolerated in patients with type 2 diabetes, was weight neutral and was associated with a low risk of hypoglycemia, reflecting its glucose-dependent mechanism of action. The elderly population with T2DM poses unique treatment challenges and have not been particularly well-represented in clinical trials, highlighting the need for additional studies to better define appropriate glucose targets and to ascertain the best strategies for achieving and maintaining appropriate glycaemic levels. In conclusion, vildagliptin is an important option for use in combination with metformin, a sulfonylurea or a thiazolidinedione in patients with type 2 diabetes who require combination therapy.

Keywords: DPP-4 inhibitors, Elderly, Oral hypoglycemic agents, Type 2 diabetes, Vildagliptin

Introduction

Diabetes mellitus is a disorder in which blood sugar (glucose) levels are abnormally high as the body does not produce enough insulin. Type 2 diabetes mellitus (T2DM) affects over 300 million people worldwide. The global prevalence of T2DM was estimated to be 9 % in adults aged over 18 years. Diabetes is the fifth cause of death for women and the fourth for men in the USA. Inadequate control of blood glucose in patients correlates with a higher risk for diabetes-related micro and macro vascular complications[1]. Type 1 diabetes results from the pancreas's failure to produce enough insulin due to loss of beta cells, previously referred as "insulin-dependent diabetes mellitus" (IDDM) or "juvenile diabetes". The loss of beta cells is caused by an autoimmune response. The cause of this autoimmune response is unknown. Type 2 diabetes begins with insulin resistance, a condition in which cells fail to respond to insulin properly. As the disease progresses, a lack of insulin may also develop, previously referred as "noninsulin-dependent diabetes mellitus" (NIDDM) or "adult-onset diabetes". The most common cause is a combination of excessive body weight and insufficient exercise. Gestational diabetes occurs due to presence of high blood glucose level during pregnancy. As pregnancy progresses, the developing baby will have a greater need for glucose. Hormone changes during pregnancy also affect the action of insulin that leads to hyperglycemia. Maturity onset diabetes of the young is a rare autosomal dominant inherited form of diabetes, due to single-gene mutations, causing defects in insulin production. It is significantly less common constituting only 1% to 2% of all cases[2].

Following risk factors may increase chance of getting diabetes:

1) Family history of diabetes.
2) Personal history of gestational diabetes (for females).
3) African, Hispanic, American, or Pacific Islander.
4) Injury to the pancreas (infection, tumor, surgery or accident).
5) Autoimmune diseases.
6) Age (risk increases with age).
7) Physical stress (such as surgery or illness).

Other risk factors that might be controlled:

1) High blood pressure.
2) Abnormal blood cholesterol or triglyceride levels.
3) Smoking.
4) Being overweight.
5) Use of certain medications like steroids.

ORIGINAL ARTICLE

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Formulation and Evaluation of Lawsone Loaded Nanosponge Gel for Topical Delivery

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ABSTRACT

The target of the current report considers producing controlled-release lawsone-loaded nanosponge gel for topical delivery. Lawsone is also known as hennotannic acid, is an active pharmaceutical agent found in the general leaves of the henna plant responsible for an antifungal agent to treat cutaneous candidiasis. The current nanosponge formulation is carried out using ethyl cellulose as polymer, polyvinyl alcohol as co-polymer dichloromethane as a cross-linker & propylene glycol as a permeation enhancer. The formulation was prepared through emulsion solvent diffusion approach as well as the prepared nanosponge gels were evaluated by physical appearance, determination of PH, spreadability, extrudability, skin irritation test, drug content, entrapment efficiency, and *in-vitro* diffusion studies. The physical appearance of the LNS1 & LNS7 formulation was watery and the remaining formulations were found to have smooth, transparent, homogenous with a gel-like consistency. The PH of formulated nanosponge gel formulation was found to be in the range between 4.5-5.5. It was concluded that all the PH values within the range of skin PH. The spreadability values ranging from 7.2-8.5. In the formulations (LNS1 & LNS8) far more than 90% going from contents had been extrudable indicating they need perfect extrudability with the except for LNS1 & LNS7 as 80% of the contents were extrudable. The skin irritation test of lawsone loaded nanosponge gels (LNS1-LSN5) had been strain irritation at a site of application. The drug content ranging from 79-92.2% & entrapment efficiency ranging from 66-80% was obtained. *In-vitro* drug diffusion research had been performed by diffusion apparatus containing 100ml PH 5.0 phosphate buffer maintained at 37 ^{o}C. LNS6 was found to show a drug release of 68.8%. Therefore LNS6 formulation sustained the drug release and was considered as optimized formulation over LNS4-LSN7. The 'n' value of formulation LNS6 was 0.899and suggesting drug was released by Zero-order kinetics.

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INTRODUCTION

The main objective of the current report to provide a controlled release dosage form and target the drug to the specific site. To enhance the solubility containing poorly water-soluble drugs. It's useful to sustain the drug in the body for a prolonged period. Nanosponges will be porous polymeric delivery systems that will be small spherical particles having a big porous surface [1]. Such will be utilized passive focused on consisting of cosmetic agents to the skin so that completing major

ORIGINAL ARTICLE

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Antidiabetic and antihyperlipidemic activities of extracts of *Barleria cuspidata* Heyne ex Nees on streptozotocin induced diabetic rats

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Antidiabetic activity, Barleria cuspidata Heyne ex Nees, Biochemical parameters, Histopathology

ABSTRACT

Traditionally, *Barleria cuspidata* Heyne ex Nees is utilized for antidiabetic action with the absence of logical investigation. Thus, the current examination was attempted to explore for its antidiabetic and antihyperlipidemic movement in streptozotocin instigated diabetic animal models. Blood glucose levels were estimated in normoglycemic rats at initial, 60^{th} and 120^{th} minutes intervals and in glucose feed hyperglycemic rats at initial, 30, 60, 90 and 120 minutes after a solitary portion of streptozotocin at 55 mg/kg body weight intraperitoneal were made diabetic in albino rats. Blood glucose levels were estimated at week by week spans after everyday administration of chloroform and methanol extracts of *Barleria cuspidata* at dosages of 250 and 500 mg/kg body weight. Other biochemical boundaries of serum triglycerides, cholesterol, HDL-cholesterol, LDL-cholesterol, VLDL-cholesterol, total protein, albumin, globulin, uric acid, creatinine, urea, transaminases, alkaline phosphatase, alanine aminotransaminase, insulin and glycosylated hemoglobin were likewise estimated toward the finish of the investigation. Chloroform and methanol extracts of *Barleria cuspidata* by an oral organization for 21 days altogether ($P<0.001$) decreases the elevated blood glucose extents in diabetic rats whereas in normoglycemic rats it doesn't adjust the blood glucose amounts altogether and in glucose feed hyperglycemic rats significantly decreases the raised blood glucose levels. Likewise, the chloroform and methanol extracts of *Barleria cuspidata* improved other biochemical boundaries related to diabetes. Moreover, the extracts of *Barleria cuspidata* favourable affect the histopathological changes of pancreas in streptozotocin initiated diabetic rats.

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INTRODUCTION

Diabetes Mellitus (DM) is a complex and multifarious gathering of a metabolic issue with chronic hyperglycaemia that disturbs the metabolism of carbohydrates, lipids and proteins. The starting point and etiology of DM can differ enormously yet consistently remember deserts for either insulin discharge or response of target tissues or in both (Baynest, 2015). The signs of DM are excessive urine creation (polyuria), extreme thirst (polydipsia) and over the top eating (polyphagia). It is extended to

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ORIGINAL ARTICLE

In vitro Antioxidant and Antidiabetic activities of *Barleria buxifolia* Linn

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ABSTRACT
Diabetes Mellitus is an unpredictable and diverse social occasion of metabolic issue with constant hyperglycaemia that upsets the digestion of sugars, lipids and proteins. Traditionally, Barleria buxifolia Linn is used for antidiabetic activity with nonappearance of sensible examination. Subsequently, the current assessment was endeavored to investigate for its in vitro antioxidant and antidiabetic exercises by different standard models. In this endeavour the chloroform and methanol concentrate of Barleria buxifolia were assessed for its in vitro antioxidant exercises like DPPH radical scavenging activity, nitric oxide (NO) radical inhibition assay, lipid per oxidation test, superoxide anion radical scavenging activity andhydroxyl radical scavenging activity.Further, in vitro antidiabetic exercises were carried out by various parameterssuch as alpha amylase inhibitory action, alpha glucosidase inhibitory action, glucose diffusion inhibitory examination and glucose uptake capacity by yeast cells. The outcomes uncovered that the extracts of Barleria buxifolia shows the better radical scavenging limit with respect to its antioxidant activity on contrasted and that of standard antioxidant agents. Similarly, the extracts of Barleria buxifolia shows the in vitro antidiabetic action by inhibiting alpha amylase, glucosidase enzymes, inhibiting the glucose diffusion through biological membrane along with increasing the uptake of glucose by yeast cells. From the outcomes it was presumed that chloroform and methanol extracts of Barleria buxifolia have great antioxidant and antidiabetic properties as appeared by in vitro test.
Key words: *Barleria buxifolia* Linn, *in vitro* assays, antioxidant activity, antidiabetic activity.

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INTRODUCTION

Diabetes mellitus described as a metabolic disorder of multiple etiologies which is characterized by chronic hyperglycaemia with disturbances of carbohydrate, fat and protein metabolism resulting from defects in insulin secretion, insulin action, or both [1]. The hallmarks of DM are polyuria, polydipsia and polyphagia. The two principal types of DM are insulin dependent diabetes mellitus (IDDM or Type 1 DM) and non-insulin dependent diabetes mellitus (NIDDM or Type 2 DM). Type 1 DM are fundamentally managed with dietary limitation, exercise and insulin treatment while Type 2 DM are managed with weight decrease, dietary limitation, exercise and medication like oral hypoglycaemics and antihyperglycaemics [2].

In both type 1 and type 2 DM there is an increased oxidative stress [3], which results from an imbalance between the generation of oxygen derived free radicals and the organism's natural antioxidant potential [4]. In DM the imbalance is associated with increased formation of free radicals and decreased in antioxidant potential [3]. It further leads to oxidative disorder of cell components such as protein, lipid and nucleic acid which plays role in the development and progression of DM as well as their complications [5].

A study revealed that urbanization of rural India has doubled the rate of diabetes [6].In India, between 1995 and 2025, the number of people with diabetes is projected to rise from 19 to 57 million. As per the

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Research Article

EVALUATION OF THE ACUTE AND SUBCHRONIC TOXICITY STUDIES OF *BARLERIA BUXIFOLIA* LINN. IN ALBINO RATS

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ABSTRACT

Objective: The fundamental reason for this examination was to look at the acute and subchronic toxicity studies of chloroform and methanol extracts of *Barleria buxifolia* Linn. (Acanthaceae) on creature models according to the OECD rules 407 and 425, respectively.

Methods: In acute oral toxicity, study a single oral dosages of 5000 mg/kg body weight of chloroform and methanol extracts was given individually to rats and watched them for 2 weeks for the discovery of acute changes and for its mortality any. During acute oral toxicity study period, no mortality was seen without any signs of intense changes. Further, it was executed the subchronic toxicity of extracts. *Barleria buxifolia* extracts (chloroform and methanol) were independently given every day at dosages of 250 and 500 mg/kg body weight for 90 days to recognize the progressions any at subchronic poisonousness levels. Towards the finish of the experimentation the serum tests of trail creatures were gathered and watched for any progressions in haematological, biochemical and histopathological boundaries

Results: All parameters of treated group were shown unaltered changes throughout the study period when compared with that of normal group. The outcomes propose that the oral organization of chloroform and methanol extracts of *Barleria buxifolia* did not raise any huge poisonous impacts when contrasted with that of control animals.

Conclusion: Hence, the extracts may be safe for therapeutic use and as an alternative system of medicine.

Keywords: Acute toxicity study, *Barleria buxifolia* Linn., Biochemical parameters, Histopathology, Subchronic toxicity study.

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INTRODUCTION

Recently created drugs before going to use on people for restoring infections, it must be assessed for its toxicity studies. The significance in leading the toxicity studies is not just to assess for its well-being yet additionally to realize the conceivable poisonous impacts delivered by the utilization of the created drugs [1]. Toxicity studies are fundamentally done as acute toxicity study, subacute toxicity study, and chronic toxicity study according to the organization for economic corporation and development (OECD) rules.

The OECD board of specialists characterizes acute toxicity as "the unfavorable impact happening inside a brief time frame of (oral) organization of a solitary portion of a substance or different dosages given inside 24 h." Furthermore, subchronic toxicity studies as "the antagonistic impacts happening as consequence of the rehashed every day (oral) dosing of a synthetic to test for the most part for 1–3 months." Subchronic toxicity testing gives the important data on the total harmfulness of a compound at low portion delayed introduction and wide assortment of unfriendly impact can be distinguished. The outcome from such examinations can give data which will help in choosing dose level. Normally, the toxicity studies are completed in shorter live animals, for example, rodents and 1 year concentrates in longer lived animals of dogs and monkeys. The normal courses of administration used in acute toxicity studies are oral and in subacute and chronic toxicity examines are oral, dermal, and respiratory courses [2].

The class *Barleria* is under bush topographically generally disseminated in tropical nations. It is the third biggest variety in the family Acanthaceae with 300 species among that 32 species are accounted for from India. As of late, the entire plant of family *Barleria* picked up the significance for the treatment of different diseases such as liver issues, diabetes, neurological issues, immunodeficiency, inflammation, ulcers, HSV-2 viral infections, and so on [3].

Among the genus *Barleria*, *Barleria cristata* is proved for antioxidant activity, thrombolytic activity, membrane stabilizing activity, antimicrobial activity [4], and antidiabetic activity [5]. *Barleria gibsoni* is proved for anti-inflammatory activity, antioxidant, antiulcer activity, and anthelmintic activity [6,7]. *Barleria montana* is proved for antibacterial activity [8], hepatoprotective activity [9], and antidiabetic activity [5]. Experimentally, *Barleria cuspidate* Heyne ex Nees has proved for wound healing property [9] and hepatoprotective activity [10].

Barleria buxifolia Linn. is one of the important species in *Barleria* belongs to the family Acanthaceae. It is a shrub found in waste places, poor soils. and along road ways [11]. *Barleria buxifolia* is proved for anthelmintic activity [12], antifeedant activity [13], anxiolytic activity, antidepressant activity [14], and prophylactic and curative activities [15]. Due to the adverse effects and also with the development of resistance with the use of synthetic drugs, nowadays, the usage of plant-derived drugs is become popular in the world. Latest survey reveals that chronic usage of medicinal plants shows potential toxic effects and makes the step to evaluate the toxicological effects of any medicinal plant extracts intended to be used clinically or pre-clinically [16]. The present study was aimed to investigate the toxicity study of *Barleria buxifolia* Linn. to increase the assurance in their safety to humans to treat versatile ailments.

METHODS

Collection of plant material

Fresh whole plant of *Barleria buxifolia* Linn. (Acanthaceae) was pull together from Chittoor districts in the areas of Tirumala Hills and Tirupati surroundings and authentified by Dr. K. Madava Chetty,

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Research Article

Assessment of Risk Factors and Management Associated with Preterm Deliveries and their Outcomes in Tertiary Care Teaching Hospital

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Abstract

Background: Preterm is a major obstetrical challenge of health care. It is the top most cause of perinatal morbidity and mortality of neonatal deaths. The births of these neonates are at a greater risk of developmental disabilities, health and growth problems than neonates of full term.

Aim and objective: To assess the risk factors and management associated with preterm deliveries and their outcomes.

Materials & Methods: "A prospective observational cohort study" was conducted over a period of 6 months on 80 Preterm subjects, who were enrolled based on inclusion and exclusion criteria. A detailed questionnaire was used to record socio-demographic, clinical profile and prescribing management. Statistical analysis was performed by percentage method using parameters like mean, standard deviation.

Results: The impact of incidence range in the present study was 31.52%. Maximum preterm deliveries were observed in the age group of 18-23 years (44%). Multiparous woman was at more risk for preterm i.e., about 51%. The commonest risk factor for preterm was Anemia (45%) followed by Pre-eclampsia (24%). The treatment prescribed for preterm was Betamethasone, Tidilon, Magnesium sulphate, Progesterone. The commonest neonatal outcome was found to be low birth weight with KMC and supplements of vitamins, iron, calcium as a therapy for their better recovery.

Conclusion: The study suggests an urgent need for strengthening effective guidelines and appropriate counselling for prevention of preterm. Maintenance of good hygiene, adequate bed rest and proper antenatal care visits for the better outcomes.

Keywords: preterm, multiparous, risk factors, neonatal outcomes, antenatal care, cohort.

INTRODUCTION:

Preterm birth additionally referred to as premature birth that states as "Babies born prematurely at intervals 24 weeks of gestation and before the 37 weeks of gestation (<259 days) reckoning from morbidity the primary day of the last menstrual period"[1]. Preterm birth is the vital reason behind 75% perinatal and >70% mortality[2]. Adolescents have a higher risk of preterm birth with 19.0 and 12.7 % of all births being preterm in <15-years old and 15 to 19-years old respectively compared with slightly below 11 % among women in their twenties[3]. India has the highest range of deaths due to PTDs accounting for 35% of neonatal deaths[4]. Moreover, the economic and social value of PTB is high as it may cause short-term and long-term consequences[5,6]. In concerning 50%, the explanation for preterm labor isn't renowned. Hormone metabolism disorders or uteroplacental ischemia, predisposing genetic attributes[7], preterm premature rupture of the membrane (PPROM)[7,8], placental Previa, a previous history of preterm birth[6], placental abruption[9,10], recurrent UTI[9,11], anemia[6,8], gestational diabetes[8], pre-eclampsia and eclampsia[7,10], multiparity[7,11], previous cervical surgery[8], oligo/polyhydramnios[8], advanced maternal age[10], previous history of miscarriage and abortions[12] and lifestyle habits such as smoking[4], alcohol, illicit drug use are the precise risk factors of preterm births[7]. Birth canal infections appear to play a key role within the etiopathogenesis of premature delivery[13]. Maternal, fetal, or placental such as premature rupture of membranes, oligohydramnios or hydramnios, cervical incompetence, and malformation of the uterus are the complications that will occur due to preterm births[7,1]. Diagnosis of preterm labor relies on signs of labor, the length of the pregnancy, biochemical predictors, and ultrasound scan[1]. Bed rest, Adequate hydration suggested for preventing preterm birth [1,14]. Tocolytics: Isoxsuprine hydrochloride, Nifedipine, Nitroglycerine, Oxytocin, Cervical cerclage, antenatal corticosteroids, antibiotics for PPROM, magnesium sulfate, progesterone therapy and Kangaroo Mother Care are

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Research Article

Drug Utilization Evaluation of High Alert Medications in Intensive Care Units of Tertiary Care Teaching Hospital

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Abstract

Introduction: The utilization of HAMs is crucial in emergency and intensive care departments, as they can cause a significant amount of damage to the patient and health care members if we could not follow the standard treatment guidelines. Drug utilization evaluation/review involves a comprehensive review of the patient's prescription and medication data before, during, and after dispensing to ensure appropriate medication decision making and positive patient outcomes.

Objective: This study was taken up given finding the utilization patterns and rectifying the issues with the usage of high alert medications (HAMs) and improving their utilization.

Methodology: A cross-sectional study was conducted for 6 months at a south Indian tertiary care hospital. Treatment guidelines were prepared to compare the actual drug use. Data were collected both retrospectively and prospectively by patients and care taker's interview, medication chart review, and discussion with prescribers and applied WHO DUE indicators to evaluate utilization patterns.

Results: Of 362 cases, 57.73 % were males/ and the majority geriatrics. Among all HAMs Insulin is frequently prescribed (34.5 %) and the costly drug is Enoxaparin. Generic names were used in writing prescriptions and parenteral formulations were mostly used. Around 9 ADRs were identified and managed, and a total of 133 moderate to severe Drug-Drug Interactions were found, of them, only 2 were actual.

Conclusion: With this study, we conclude that the use of HAMs was found to be appropriate as per the guidelines as we observed very few DRPs with the study drugs.

Keywords: HAM, DRP's, DUE, ICU, DDD

1. INTRODUCTION

High-alert medications are drugs that bear a heightened risk of causing significant patient harm while they are used in error. Although mistakes may or may not be more common with these drugs, the consequences of error are more devastating to patients[1,2]. When any medication can potentially cause harm, a select group of drugs "high-alert medications (HAMs)" carries a higher risk of patient injury. According to The Joint Commission (TJC), HAMs frequently are associated with harm, the harm they cause is serious, and when they're misused, the risk of serious injury or death is high[3].

Based on the previous reports submitted to the ISMP National Medication errors Reporting Program (ISMP MERP), ISMP created an updated list of HAM's[4]. HAM's are commonly used in the emergency room (ER), intensive care unit (ICU), Because HAMs are used in emergencies, they bear a heightened risk of causing patient harm when used incorrectly[5]. Patients who are admitted to ICUs (Intensive Care Unit) are usually seriously ill, often suffer from multiple chronic illnesses and drug usage is also quite extensive. Thus the ICU represents an important platform for performing drug utilization studies. Drug utilization (DU) is defined by the World Health Organization (WHO) as the marketing, distribution, prescription, and use of drugs in society, with special emphasis on the resulting medical, social, and economic consequences[6]. DU involves a wide range of review of the patient's prescription and medication data before, during, and after dispensing to ensure appropriate medication decision making and positive patient outcomes. DU programs play a key role in helping managed health care systems understand, interpret, and improve the prescribing, administration, and use of medications. Drug utilization reviews (DUR) are categorized into three classes: Prospective - evaluation of a patient's treatment before medication is dispensed, Concurrent - ongoing monitoring of drug therapy throughout treatment, Retrospective - review of therapy after the patient has received the medication[7].

The ultimate purposes of drug utilization studies are to contribute to the optimal quality of drug therapy by

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ORIGINAL ARTICLE **OPEN ACCESS**

In vitro antioxidant and antidiabetic activities of *Barleria cuspidata* Heyne ex Nees

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ABSTRACT
Free radicals produced endogenously by oxidation reaction initiate the chain reactions that causes chronic diseases of cancer, diabetes, hepatotoxicity etc. Diabetes Mellitus is a complex and multifarious gathering of metabolic issue with chronic hyperglycaemia that disturbs the metabolism of carbohydrates, lipids and proteins. Traditionally, Barleria cuspidata Heyne ex Nees is utilized for antidiabetic action with absence of logical investigation. Thus, the current examination was attempted to explore for its in vitro antioxidant and antidiabetic activities by various standard models. In this attempt the chloroform and methanol extracts of Barleria cuspidata were evaluated for its in vitro antioxidant activities like DPPH radical scavenging activity, nitric oxide (NO) radical inhibition assay, lipid per oxidation assay, superoxide anion radical scavenging activity, hydroxyl radical scavenging. Further, in vitro antidiabetic activity was carried out by different parameters such as alpha amylase inhibitory activity, alpha glucosidase inhibitory activity, glucose diffusion inhibitory study and glucose uptake capacity by yeast cells. The results revealed that the extracts of Barleria cuspidata shows the better radical scavenging capacity for its antioxidant activity on compared with that of standard antioxidants. Likewise, the extracts of Barleria cuspidata shows the in vitro antidiabetic activity by inhibiting alpha amylase, glucosidase enzymes, inhibiting the glucose diffusion through biological membrane along with increasing the uptake of glucose by yeast cells.From the results it is concluded that chloroform and methanol extracts of Barleria cuspidata possess good antioxidant and antidiabetic properties as shown by in vitro assay.
Key words: *Barleria cuspidata* Heyne ex Nees, *in vitro* assays, antioxidant activity, antidiabetic activity.

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INTRODUCTION

Diabetes Mellitus (DM) is a complex and multifarious group of metabolic disorder with chronic hyperglycaemia that disturbs the metabolism of carbohydrates, lipids and proteins. The starting point and etiology of DM can differ enormously yet consistently remember deserts for either insulin discharge or response of target tissues or in both [1]. The hallmarks of DM are polyuria(excessive urine production), polydipsia (excessive thirst) and polyphagia (excessive eating).The two principal types of DM are insulin dependent diabetes mellitus (IDDM or Type 1 DM) and non-insulin dependent diabetes mellitus (NIDDM or Type 2 DM).Type 1 DM are fundamentally managed with dietary limitation, exercise and insulin treatment while Type 2 DM are managed with weight decrease, dietary limitation, exercise and medication like oral hypoglycaemics and antihyperglycaemics [2].

In both type 1 and type 2 DM there is an increased oxidative stress [3], which results from an imbalance between the generation of oxygen derived free radicals and the organism's natural antioxidant potential [4]. In DM the imbalance is associated with increased formation of free radicals and decreased in antioxidant potential [3]. It further leads to oxidative disorder of cell components such as protein, lipid and nucleic acid which plays role in the development and progression of DM as well as their complications [5].

Constant utilization of oral hypoglycaemics and antihyperglycaemics in Type 2 DM causes hematological impacts and influences the elements of significant organs of liver, kidney and so on., Worldwide now

Review Article

Nano Oncology - Applications of Nanotechnology in Cancer Diagnosis

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ABSTRACT

Nanotechnology plays a significant role in advances in oncology and nanooncology is perhaps the most important chapter of nanomedicine. Nanotechnology is the study and application of scale structures ranging from 1 to 100 nanometres. Cancer is the number one cause of death for people under the age of 85. Nanoparticles which provide directly with chemotherapy to the cancer cells being created. Nanomedicine device fields include prescription distribution, diagnosis, longitudinal, Imaging and techniques of the antimicrobials. Fears have started to increase over the possible dangers of certain nanotechnologies. This article aims to provide an overview of nanotechnologies present role in cancer therapy.

Keywords: Cancer, Nanoparticles, Chemotherapy, Nanocarriers, Nanomedicine.

INTRODUCTION

Cancer is a disease characterized by uncontrolled growth and irregular cell distribution. This is an uncontrolled cell proliferation, where apoptosis has largely vanished and needs a very complicated treatment process. Cancer is one of the world's most serious deadly diseases today, more than 10 million people are diagnosed with this disease every year and it is the world's second most common cause of death. Many factors, such as age, gender, local environmental factors, diet and genetics influence the incidence of cancer and cancer types.

Cancer is a common illness which has been researched extensively. Traditional chemotherapy treatments cause many toxicity problems for patients because they are not selective for tumour cells. The goal is to find a way to avoid the problem, i.e. to develop a system that can use therapy to target cancer cells, avoiding healthy ones.

How Cancer Arises

Cancer is caused by gene damage which regulates the growth and division of cells. Genes carry the essential cell function instructions. Cancerous cells need a blood supply for development. To supply oxygen and essential nutrients a molecule causes the surrounding blood vessel to expand towards the cell [4].

Cancer may be treated by changing the damaging gene process or preventing the flow of blood to the cells. Genetic changes which cause cancer can be inherited from parents to their children. These can also occur over the lifespan of a individual as a result of errors that occur when cells divide or as a result of damage to the DNA system caused by other chemical exposures. Cancers that cause environmental exposure include chemicals and radiation, such as ultraviolet sunlight, such as cigarette smoke. Cancer cells generally experience more genetic changes than normal cells, such as mutations in DNA.

Spread of Cancer

A cancer that spreads from the place it started to spread to a different location in the body is called metastatic cancer. The process which spreads cancer cells to other parts of the body is called metastases. Metastatic cancer has the same name and cell count as the original cancer. For example, Breast cancer which grows into and forms a metastatic tumor in the lung is metastatic breast cancer but not lung cancer.

Current treatment for cancer includes surgery, radiation, hormone therapy, and chemotherapy. Chemotherapy is an essential strategy to treat the disease. In treating cancer cells traditional chemotherapy is especially unspecific, leaving normal healthy cells susceptible to adverse drug reactions. Clinical variability and therapeutic resistance were demonstrated by the nature of the genetic and phenotypic stages. In recent years, major efforts have been made to develop nanotechnology to enhance the delivery of anticancer drugs to tumor tissue, thus reducing their dissemination and toxicity in healthy tissues.

NANOTECHNOLOGY

Nanotechnology is the creation of useful materials, devices and structures used between 1 and 100 nanometers to manipulate matter on an extremely small scale.

A nanometer is one billionth of a meter—80,000 the width of a human hair, or about ten times a hydrogen atom's diameter. As for in vivo imaging and therapeutics, nanotechnology is also making rapid progress.

Such technology would most likely have major consequences in the near future for the treatment of cancer patients. Recent advances in nanoscale engineering have resulted in the development of a broad variety of new technologies, including nanoscale devices (quantum dots,

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Original Article

DESIGN, DEVELOPMENT AND EVALUATION OF DILTIAZEM HYDROCHLORIDE LOADED NANOSPONGES FOR ORAL DELIVERY

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ABSTRACT

Objective: In the current investigation,nanosponges were set up by emulsion solvent diffusion technique utilizing ethyl cellulose and β-cyclodextrin as polymers.

Methods: Diltiazem hydrochloride is taken as model medication for considering different nanosponge formulations. The similarity of different formulation segments was set up by Fourier Transform Infra-Red (FTIR) spectroscopy. Molecular size, surface morphology, entrapment efficiency and drug content of nanosponges were analyzed. Shape and surface morphology of the nanosponges were inspected utilizing scanning electron microscopy.

Results: Molecule size of formulated nanosponges was seen in the scope of 186 to 476 nm. Scanning electron microscopy uncovered the permeable, round nature of the nanosponges. The drug content of nanosponges for ethyl cellulose containing formulations was seen as in the scope of 62.25 to 85.11% and for the β-cyclodextrin containing details were seen as in the scope of 65.18-89.67%. The percentage entrapment effectiveness of nanosponges for ethyl cellulose containing formulations were seen as in the scope of 54.18 to 79.49% and for the β-cyclodextrin containing details were seen as in the scope of 58.21-83.45%. *In vitro* drugreleasefindings demonstrated that at 12 h ethyl cellulose containing formulations discharged the drug in the scope of 57.27-89.09% and for the β-cyclodextrin containing formulations discharged in the scope of 73.94-93.26%.

Conclusion: Sustained drugreleasefrom formulations is supported if there is an occurrence of ethyl cellulose in the formulations rather with plans containing β-cyclodextrin.

Keywords: Diltiazem hydrochloride, β-Cyclodextrin, Ethyl cellulose, Poly vinyl alcohol, Scanning Electron Microscopy, UV Spectroscopy

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INTRODUCTION

The drug delivery technology has unquestionably another concern for drugs by giving them new life through their therapeutic targets. Target oriented drug administration with upgrades in therapeutic efficacy, decrease in side-effects and enhanced dosing routine, will be the main patterns in the region of therapeutics [1]. Targeted drug delivery suggests for specific and compelling confinement of pharmacologically active moiety at pre recognized objective in therapeutic concentration, while limiting its entrance to non-target typical cell linings and in this manner limiting harmful impacts and augmenting therapeutic index of the drug [2-5].

Nanospongesare permeable polymeric delivery systems that are little round particles with enormous permeable surface [6]. Nanosponges (NSs) are a significant part to control the pace of delivery of active agent to the predetermined site by little size and productive carrier attributes. NSs are nonmutagenic, nonallergenic, nonirritant, and nontoxic [7, 8].

The expression "Nanosponge" signifies the nanoparticles with permeable structures. Nanosponges are little sponges almost equal to the size of virus with a normal breadth under 1μm [9]. Owing to their little size and penetrable nature they can tie poorly soluble drugs inside the framework and enhance their bioavailability by altering the pharmacokinetic limits of actives [10, 11].

The nanosponges are a three-dimensional framework (backbone) or system of polyester that are fit for degrading normally. These polyesters are blended in with a crosslinker in a solutionto form nanosponges [12]. Here, the polyester is commonly biodegradable, so it breaks down in the body decently. When the scaffold of nanospongesbreaks down, it discharges the medication particles which are stacked, in an injurious fashion [13].

Nanosponges are smaller in nature and are little particles with penetrable surface can be considered as oral, parenteral and topical dosage forms. Nanosponges meant for oral administration, might be scattered in a framework of excipients, diluents, anticaking agents and lubricants to build up appropriatetablets or capsules of them and the significant advantages of these dosage forms are reduced drug dose, decrease in toxicity and improving patient consistence by delayed release [14-16]. For parenteral administration, these can be essentially blended in with sterile water, saline or different watery solutions. Further, nanosponges can be successfully added to topical hydrogel for topical application [17, 18].

MATERIALS AND METHODS

Diltiazem hydrochloride, β-Cyclodextrin and Ethyl cellulose obtained from Yarrow chemicals limited, Mumbai. Polyvinyl alcohol and Dichloromethane procured from SD fine chemicals, India.

Preparationof diltiazem HCl nanosponges

Diltiazem HCl nanosponges were set up by the emulsion solvent diffusion strategy. DTZ and EC/β-Cyclodextrin were disintegrated in DCM (Phase 1), while Phase 2 was set up by adding PVA to refined water. Stage 1 and Phase 2 were put independently on an magnetic stirrer for 15 min. Stage 1 was added gradually to Phase 2 with mixing and afterward left them for 15 min on the stirrer at room temperature. The blend was homogenized at various velocities for 2 h. From that point onward, it was sifted. The shaped nanosponges were dried at 40 °C for 12 h.

Preformulation studies

i) Identification of drug

The got sample drug was inspected by Infrared absorption spectral investigation and was contrasted with the reference standard IR

A Hyphenated Technique On Inductively Coupled Plasma Mass Spectrometry

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Abstract: **Accurate determination of elements in various kinds of samples is essential for many areas, including environmental science, medicine, as well as industry. Inductively coupled plasma mass spectrometry that is highly sensitive and capable of the determination of a range of metals. In trace elemental analysis, the method has advantages of high speed, precision, and sensitivity compared to other elemental analytical techniques. The next generation of ICP-MS is Next ION 300 ICP-MS instrument are 3 modes of operations (standard, collision, & reaction) various calibration approaches can be used to perform accurate quantitative measurements by ICP-MS. It is important to give an overview of the most common applications currently being carried out by ICP-MS and its sampling accessories, to give a flavour of the different industries and markets that are benefiting from the techniques enormous potential.**

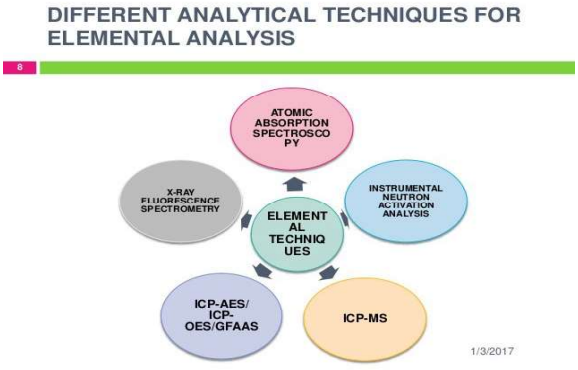
Keywords: **ICP-MS, Quantitative, Sensitive, Analytical techniques, Elemental Mass Spectrometry.**

I. INTRODUCTION

Since its commercial introduction in 1983, inductively coupled plasma-mass spectrometry (ICP-MS) evolved as one of the techniques in the field of elemental (ultra) trace analysis of metals & metalloids in numerous matrices. Give its unique properties such as,

1. High Sensitivity
2. Multi-element capabilities
3. A wide linear range and
4. The possibility to obtain isotopic information

The purpose of elemental analysis is to determine quantity of particular element within a molecule or material.



Inductively coupled plasma mass spectrometry is a powerful tool enabling multi-elemental analysis of numerous matrices with sensitivity and good precision.

Today, ICP-MS is routinely developed in diverse fields such as geochemistry, environmental, and life sciences, industries, forensic science & archaeology.

For nearly, 30 years ICP-MS has been gaining favour with laboratories around the world as the instrument of choice for performing trace metal analysis.

ICP-MS is an efficient and highly sensitive tool for target element oriented discoveries of relevant and unknown compounds.

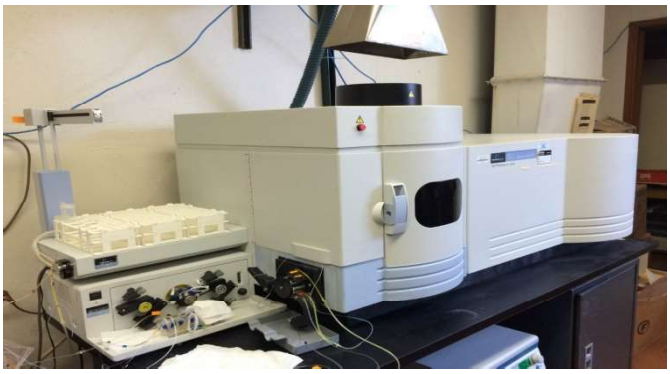
ICP-MS is a hyphenated to separation techniques for species – specific detection & identification.

It is important to emphasize that because of the enormous interest in the technique, Most of the ICP-MS instrument companies have very active R&D programs in place, in order to get an edge in a very competitive place.

Inductively coupled plasma mass spectrometry (ICP-MS) not only offers extremely low detection limits in the sub parts per trillion (ppt) ranges, but also enables quantification at the high parts per million (ppm) level.

This technique capability makes the technique very alternative compared to other price material technique electro thermal atomization (ETA) which is limited to determination at the trace level, or flame atomic absorption (FAA) and inductively coupled plasma mass optical emission spectroscopy (ICP-OES), which are traditionally used for the detection higher concentrations.

ICP-MS is undoubtedly the fast growing trace element technique available today. Since its commercialization in 1983, approximately 5000 systems have been installed world-wide carrying out many varied & diverse applications.



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AQUASOMES –A NOVELVESICULAR DRUG DELIVERY SYSTEM

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ABSTRACT:

Aquasomes are one of the most recently developed delivery mechanism to different sites for bioactive molecules such as peptides, proteins, hormones, antigens, and genes. Aquasomes are circular, with particle size of 60300 nm. Aquasomes are spherical particles formed from calcium phosphate or ceramic diamond coated with a polyhydroxy oligomeric film and acting as a network of nanoparticulate carriers, but rather than a pure nanoparticle. There are three layers of self-assembled structures consisting of a solid phase nanocrystalline core coated with oligomeric film adsorbing biochemically active molecules with or without modification... It is commonly used in implant preparation. Aquasomes used as RBC replacements, vaccines for viral antigen delivery and as a targeted method for intracellular gene therapy. The behavior and responsiveness of enzymes to molecular conformation made aquasomes a novel carrier of enzymes such as DNAs and pigments. This article discusses the concepts of self-assembly, the difficulties of preserving pairs of immobilized surfaces with both conformational integrity and biochemical operation. Successfully the delivery system was used to distribute insulin, hemoglobin, and enzymes such as serrati peptidaseetc.

KEYWORDS: Nanoparticulate, Nanocrystalline

INTRODUCTION:

Novel techniques have developed in the last few years to obtain nanoparticles with complex functionalized characteristics with drugs that have changed the direction of drug delivery. Aquasomes are nanoparticulate carrier systems that are coated with oligomeric film instead of simple core nanoparticles on which biochemically active molecules are adsorbed with or without alterations.

Aquasomes are near to water bodies and their associated properties protect and maintain fragile biological molecules and use this capacity to retain conformational integrity and high surface exposure to target bioactive molecules such as peptide and protein hormones, enzymes, antigens genes at different locations, and face problems such as solvent compatibility.

Macromolecule's key self-assembly molecule is regulated by three physicochemical processes, i.e.

- Interaction between charged group the interaction of charged group facilities long-range self-assembly sub group charge group approach.
- Hydrogen bonding and dehydration effect, hydrogen bonding helps to suit and stabilize secondary protein structure like alpha helices and beta sheets in base pairs.
- Protein structural stability in biological system, defined by the interaction of charged group and hydrogen bonds.

International Journal of Research in Pharmaceutical Chemistry and Analysis

A photo stability indicating HPLC technique for validation of Netupitant and Palonosetron in bulk and formulations

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ABSTRACT

Analytical chemistry is the science that seeks ever improved means of measuring the chemical composition of natural and artificial materials. Netupitant Delayed emesis has been largely associated with the activation of tachykinin family neurokinin 1 receptors. Palonosetron is a selective serotonin 5-HT3 receptor antagonist. The antiemetic activity of the drug is brought about through the inhibition of 5-HT3 receptors present both centrally and peripherally in turn inhibits the visceral afferent stimulation of the vomiting center. The mobile phase used was orthophosphoric and acetate 70% buffer pH 3 and 30% methanol. The assay of Netupitant and Palanosetron was performed with tablets and the % assay was found to be 100.08 and 100.04, The linearity was found to be linear with a correlation coefficient of 0.999, the precision 0.8 and 0.3 for Netupitant and Palanosetron which shows that the method is precise. The validation of developed method shows that the accuracy is well within the limit, which shows that the method is capable of showing good accuracy and reproducibility. The LOD and LOQ for Netupitant were found to be 3.02 and 9.98 and LOD and LOQ for Palanosetron was found to be 3.00 and 10.00. Thus, it shows that the method is stability indicating, sensitive, accurate, robust and precise. Hence, the developed HPLC method can be successfully applied to the pharmaceutical dosage form and can be used for routine analysis.

Keywords: Netupitant, Tachykinin, Palonosetron, Neurokinin, 5-HT3 receptor, HPLC.

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INTRODUCTION

Analytical chemistry is the science that seeks ever improved means of measuring the chemical composition of natural and artificial materials [1]. The principle advantage of HPLC compared to classical column chromatography is improved resolution of the separated substance, faster separation times and the increased accuracy, precision and sensitivity [2]. Netupitant is a neurokinin 1 receptor antagonist. Delayed emesis (vomiting) has been largely associated with the activation of tachykinin family neurokinin 1 (NK1) receptors (broadly distributed in the central and peripheral nervous systems) by substance. As shown in vitro and in vivo studies, netupitant inhibits substance P mediated responses [3]. Palonosetron acts as Antiemetic and anti nauseants. Palonosetron is a selective serotonin 5-HT3 receptor antagonist. The antiemetic activity of the drug is brought about through the inhibition of 5-HT3 receptors present both centrally and peripherally (GI tract).

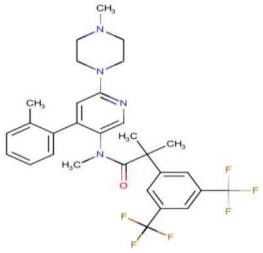

Figure 1: Structure of Netupitant

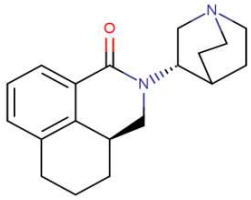

Figure 2: Structure of Glecaprevir

ORIGINAL ARTICLE

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Evaluation of acute and sub-chronic toxicity studies of *Barleria cuspidata* Heyne ex Nees

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Acute toxicity study, Barleria cuspidate Heyne ex Nees, Biochemical parameters, Histopathology, Sub-chronic toxicity study

ABSTRACT

The fundamental reason for this examination was to look at the acute and sub-chronic harmfulness investigations of chloroform and methanol extracts of *Barleria cuspidata* Heyne ex Nees (Acanthaceae) on creature models according to the OECD rules 407 and 425 respectively. In acute oral toxicity study a solitary oral dosages of 5000 mg/kg body weight of the individual chloroform and methanol extracts was given to rodents and watched them for two weeks for the discovery of acute changes and for its mortality any. During acute oral toxicity study period no mortality were seen without any denotation of intense changes. Further, it was executed the sub-chronic toxicity of extracts. *Barleria cuspidata* extracts (chloroform and methanol) were independently given every day at dosages of 250 and 500 mg/kg body weight for 90 days to recognize the progressions any at sub-chronic poisonousness levels. Toward the finish of the experimentation by gathering the serum tests of trial creatures and watched for any progressions in hematological, biochemical and histopathological boundaries. All parameters of treated group were shown unaltered changes throughout the study period when compared with that of normal group. The outcomes propose that the oral organization of chloroform and methanol extracts of *Barleria cuspidata* didn't raise any huge poisonous impacts when contrasted with that of control animals. Hence the extracts may be safe for therapeutic use and as an alternative system of medicine.

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INTRODUCTION

The genus *Barleria* is a pantropical yet prevalently an old World class, with its most noteworthy focal point of species assortment in tropical East Africa, trailed by South Africa and Asia (Balkwill and Balkwill, 1998). It is the third biggest class in the family Acanthaceae with 300 species among that 32 species are accounted for from India (Balkwill and Balkwill, 1997). The genus *Barleria* is under shrub disseminate in hot areas of the world. Lately the entire plant of genus *Barleria* picked up the significance for treatment of different sicknesses like diabetes, liver issues, neurological issues, immunodeficiency, aggravation, ulcers, HSV-2 viral illnesses, and so on (Preet *et al.*, 2014). Traditionally the

Review Article

Evaluation of Hepatoprotective Activity of the Ethanolic Extract of *Limonia acidisiima* against Paracetamol induced Hepatotoxicity in Experimental Rats

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ABSTRACT

Plant is an important medicinal source, and plays a key role in world health. *Limonia acidissima* have been known to be an important potential source of therapeutics and curative aids. In previous studies it has been reported *Limonia acidissima* showed antibacterial activity, antidiarrhoeal activity, anticancer activity and wound healing potential. There are no reports on hepatoprotective activity of this plant. The present study was planned to scientifically investigate the hepatoprotective activity of ethanolic extract of *Limonia acidissima* against paracetamol (PCM) induced hepatotoxicity model. The animals were grouped into five groups of six animals each. Except the normal group all the other groups received PCM at a dose of 1.5 ml/kg b.w orally for 14 days. Normal groups received distilled water orally. The standard group received silymarin 100 mg/kg orally. Test groups received EELA 200 mg/kg and 400mg/kg b.w orally. On the 14th day, blood samples were collected and serum was separated which is in turn used to analyze liver function tests such as SGOT, SGPT, ALP, Total bilirubin, Total cholesterol, Total protein levels. The results thus obtained showed significant improvement in these parameters. Thus, concluding that the ethanolic extract of *Limonia acidissima* possesses hepatoprotective activity.

Keywords: *Limonia acidissima*, paracetamol, ethanolic extract, hepatoprotective activity.

INTRODUCTION

Liver is the most important organ, which plays a pivotal role in regulating various physiological processes in the body. It is involved in several vital functions, such as metabolism, secretion and storage. It has great capacity to detoxicate toxic substances and synthesize useful principles. Therefore, damage to the liver inflicted by hepatotoxic agents is of grave consequences[1]. Liver diseases are mainly caused by toxic chemicals, excess consumption of alcohol, infections and autoimmune disorders. Most of the hepatotoxic chemicals damage liver cells mainly by inducing lipid peroxidation and other oxidative damages[2].

Drug-induced hepatotoxicity is a major cause of iatrogenic diseases, accounting for one in 600 to one in 3500 of all hospital admissions[3]. Paracetamol being used as an analgesic and antipyretic it is highly used as OTC drug that has an adverse effect of hepatotoxicity on high usage and its over dose.

Limonia acidissima Linn syn *Feronia limonia* (Rutaceae) is a moderate sized deciduous tree grown throughout India. Its fruits are woody, rough and used as a substitute for bael in diarrhoea and dysentery while the bark and leaves are used for vitiated conditions of vata and pitta. The fruits are used for tumors, asthma, wounds, cardiac debility and hepatitis[4]. It has been reported that this part of the plant contains flavonoids, glycosides, saponins, tannins[5], coumarins[6], and tyramine derivatives[7]. Fruit shells of L. acidissima have been reported to have antifungal compounds namely psoralene, xanthotoxin, 2,6-dimethoxybenzoquinone and octenol[8]. While the leaves have hepatoprotective activity[9]. The stem bark of the plant contain (-) - (2S) - 5, 3' - dihydroxy4'-methoxy-6",6"-dimemethylchromeno-(7, 8, 2",3")-flavanone along with several known compounds including an alkaloid, five coumarins, a flavanone, a lignan, three sterols and a triterpene which were found to possess antimicrobial activity[10].

Yet, no systemic pharmacological studies were reported to support its use in hepatotoxicity. Hence present study attempts to study hepatoprotective potential of ethanolic extract of *Limonia acidissima* against paracetamol induced hepatotoxicity in rats.

MATERIALS AND METHODS

Collection and identification of Plant material

The stem bark of the plant *Limonia acidissima* was colleted from utukurkadapa district, Andhra Pradesh.

Preparation of extract

The dried stem bark of plant *Limonia acidissima* was taken, powdered in a grinder-mixer to obtain a coarse powder and then passed through 40 mesh sieve. About 200gms of powder was extracted by using methanol by maceration process up to 24hrs. The solution was filtered through Whatmann filter paper and the resultant filtrate was distilled under reduced pressure for recovery of solvent. The dried extract thus obtained was kept in desiccators and used for further experiments.

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RESEARCH ARTICLE

Evaluation of Hepatoprotective activity of the Methanolic Extract of *Barleria Cuspidata* against CCl_4 Induced Liver damage in Experimental Rats

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ABSTRACT:
Barleria cuspidata is considered as one of the medicinal plant which finds its use in traditional Indian medicine for treating various liver ailments. In previous studies it has been reported *Barleria cuspidata* showed antihelminthic activity, wound healing potential. There are no reports on hepatoprotective activity of this plant. The present study was planned to scientifically investigate the hepatoprotective activity of methanolic extract of *Barleria cuspidata* using CCl_4 induced hepatotoxicity model. The animals were grouped into five groups of six animals each. Except the normal group all the other groups received carbon tetrachloride (CCl_4) 50% v/v in coconut oil at a dose of 0.1 ml/kg b.w intraperitoneally for 28 days. Normal groups received plain coconut oil orally. The standard group received silymarin 50 mg/kg orally. Test groups received MEBC 200 mg/kg and 400mg/kg b.w orally. On the 28th day, blood samples were collected and serum was separated which is in turn used to analyze liver function tests such as SGOT, SGPT, ALP, Total bilirubin, total cholesterol, Alb, TP levels along with tests to check SOD, Catalase, GSH, MDA followed by histopathological studies. The results thus obtained showed significant improvement in these parameters and also in the cytoarchitecture of rat liver. Thus concluding that the methanolic extract of *Barleria cuspidata* possess hepatoprotective activity.

KEYWORDS: *Barleria cuspidata*, anti-oxidant, methanolic extract, hepatoprotective, CCl_4

INTRODUCTION:
Liver is the major organ which plays an important role in regulation of physiological processes, which includes vital functions like metabolism, secretion and storage, it also play a major role in detoxification and excretion of various exogenous and endogenous compounds like drugs xenobiotics etc. Any impairment of liver functions may lead to various implications on one's health[1],[2]. The diseases related to liver come under most serious ailments which may be classified as acute or chronic hepatitis (inflammatory liver diseases), cirrhosis (fibrosis of liver), and hepatosis (non-inflammatory diseases).

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Toxic chemicals, drugs like paracetamol, antitubercular, anticancer agents or alcohol mainly cause liver diseases. These hepatotoxic chemicals mainly damage liver cells by lipid peroxidation or other oxidative stress induced cell damage[3].

The drugs and xenobiotics in concentrated form arrives the liver through blood which is directly coming from gastrointestinal organs and spleen via portal vein. A number of mechanisms are responsible for inducing hepatic injury or worsening the damage process. Several chemicals damage mitochondria and intracellular organelle which release energy and its dysfunction produces excessive amount of oxidants, this in turn injure hepatic cells. Activation of certain enzymes like CYP2E1 in cytochrome P-450 system leads to oxidative stress and injury to hepatocyte, bile duct cells leading to accumulation of bile acid inside liver and this promotes further liver damage[4].

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Original Research Article

Antibiotic regimens utilization in treating community acquired pneumonia of a government practice setting: a prospective observational study in medical inpatients

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ABSTRACT

Background: Pneumonia is a lower respiratory tract infection characterized by inflammation of lung tissue accompanied by infiltration of alveoli and bronchioles. Most common type is community acquired pneumonia (CAP). Initial therapy is usually empirical that is designed to treat various pathogens. In CAP cases, antibiotic therapy should begin at the earliest. The objectives of the study include to identify most common causative micro-organisms, to assess risk of developing CAP in patients having co-morbidities, to identify most commonly prescribed antibiotic regimen.
Methods: A prospective observational study was conducted for period of 6 months at RIMS, Kadapa. 120 patients were recruited based on inclusion criteria. Treatment was given according to Infectious Diseases Society of America and American Thoracic Society guidelines.
Results: In a total of 120 patients, 77 were males and 43 were females. 69 patients belong to 46-55 & above age groups. 84 patients had social habits and 36 patients are without social habits. Patients with single lobe infiltrations are 105 and patients with multiple lobe infiltrations are 15. In our study, streptococcus pneumoniae and pseudomonas aeruginosa were the most common isolated organisms. Monotherapy was given for 7 patients, dual therapy for 97 patients and triple therapy for 16 patients. 33 patients received ceftriaxone (CEF) and augmentin (AUG), 29 patients received CEF and azithromycin (AZI), 7 patients received levofloxacin (LEV), 25 patients received CEF and LEV, 10 patients received CEF and ciprofloxacin (CIP) and 16 patients received CEF, AUG and AZI. 100 patients had less than 8 days of hospital stay.
Conclusions: Research study concluded that β lactum antibiotics were the most commonly prescribed class. CEF and AUG was highly recommended drug regimen.

Keywords: *Streptococcus pneumonia*, Empirical therapy, Inflammation, Bronchioles

INTRODUCTION

Pneumonia is a lower respiratory tract infection characterized by collection of pus and other fluids in the air sacs i.e., alveoli of the lungs. Lung air sacs are structures, play a significant role in the exchange of gases such as oxygen and carbon dioxide. Collection of pus in air sacs leads to shortness of breath i.e., dyspnea. Pneumonia is caused by bacteria such as *Streptococcus pneumoniae*, *Mycoplasma pneumoniae*,

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Risperidone versus quetiapine: risk of developing metabolic syndromes in patients suffering from psychiatry disorders of a health care center

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Keywords:

Psychiatric diseases, antipsychotics, metabolic syndromes, RCT trial.

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ABSTRACT

Second generation atypical antipsychotics (SGAAPs) have been used as first-line drugs in psychiatric practice for a wide range of psychotic disorders. These drugs effectively exert therapeutic effects of positive symptoms, negative symptoms, and cognitive impairments. Utilization of SGAAPs in this present scenario has raised questions with respect to their tolerability and adverse drug reactions such as obesity, cardiovascular disorders and other metabolic disorders. The aim of our research project is to compare the risk of metabolic disorders associated with the usage of drugs (Risperidone versus Quetiapine) in psychiatric patients. Our study objective is to assess prognosis reports, compare BMI, FBS, lipid profile and counsel psychiatric patients by providing patient information leaflets. This is a hospital based prospective observational randomized control trial was conducted for a period of 6 months at Government General Hospital (RIMS), Kadapa. 50 patients (25 patients prescribed with Risperidone & 25 patients prescribed with Quetiapine) were recruited based on study criteria. In a total of 50 patients, it was found that 15 patients were males and 35 patients were females. Maximum number of patients (i.e., 17 patients) belonged to 36-50 years' age group. Majority of patients (i.e., 20 patients) receiving SGAAPs had clinical diagnosis as schizophrenia. During 180 to 200 days of study, 3 follow ups were done, with time duration of 30 days between each follow up. The mean value of BMI was 23.46 for Risperidone patients & 22.01 for Quetiapine patients. The mean value of FBS was 90.52 for Risperidone patients & 89.40 for Quetiapine patients. The mean value of total cholesterol was 157.04 for Risperidone patients & 150.32 for Quetiapine patients. The mean value of triglycerides was 123.72 for Risperidone patients & 118.76 for Quetiapine patients. On assessing the above results, we have concluded that Risperidone has increased risk of developing metabolic syndromes when compared to Quetiapine.

INTRODUCTION

According to World Health Organization (WHO), Health is a state of complete physical, mental and social well-being, and not merely absence of disease or infirmity [1,2]. For better understanding, psychiatric disorder is defined as a disturbance of Thought, Action, Feeling or any imbalance among mentioned three domains. However, this definition does not have much significance in this era. Another way to describe psychiatric disorder or mental disorder is as a clinically significant psychological or behavioral syndrome that causes significant (subjective) distress, (objective) disability, or loss of freedom [3]. Mental status examination is a standardized format that depends on clinical records, signs and symptoms experienced by psychiatric patients. MSE describes relevant information about mental functioning at the time of interview

International Journal of Research in Pharmaceutical Chemistry and Analysis

A robust stability indicating HPLC technique for evaluation of Pibrentasvir and Glecaprevir in tablet dosage form

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ABSTRACT

When liver cells gets infected and vandalized, the condition is termed as Hepatitis. HCV therapy is performed with mixture of drugs. For the combined evaluation of Pibrentasvir and Glecaprevir in tablets, a rapid, selective and robust HPLC technique stability indicating was developed herein this work. Analysis was executed by Cosmicsil, with dimensions 250 mm by 4.6 mm column and mobile phase possessing KH_2PO_4 with 0.1M, 65 ml and 35 ml of methanol and 230 nm of PDA analysis. Elution times were found out as were 1.663 min and 2.249 min, for Pibrentasvir and Glecaprevir respectively with linear ranges 20µg/ml, 60 µg/ml and 50 µg/ml, 150 µg/ml, respectively having detection limits as 0.190 µg/ml and 0.207 µg/ml and quantization limits as 0.634 µg/ml and 0.690 µg/ml. This method is explicit having RSD values as 0.097% Pibrentasir & 0.232% Glecaprevir showing an accuracy of between 98.82 and 100.07% for Pibrentasir 99.31, Glecaprevir 100.45% recovery values. During the investigation of degradation, peaks elution times of degradants greatly varied with the elution times of Glecaprevir and Pibrentasvir thus, proving method's power of stability indication and specificity. The validation and degradation stability studies were carried out according to ICH and ICH Q1B Guidelines.

Keywords: Hepatitis; HCV; Pibrentasvir; Glecaprevir; HPLC; Cosmicsil; PDA analysis; ICH.

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INTRODUCTION

When liver cells gets infected and vandalized, the condition is termed as Hepatitis. Although there are varied reasons for its occurrence and types, similar symptoms may be exhibited [1]. The major service of liver is to detoxify blood, store vitamins and manufacture hormones. Disruption of previously stated liver functions may lead to severe health issues in total body [2]. The acute and major kinds are Hepatitis A, B, C caused because of various viruses [3, 4]. Multi-class combination drugs refer to a single pill or pill pack combination of drugs. The combination of used drugs approved is represented in (Table 1). Pibrentasvir acts on NS3A proteases are indispensable to replication of hepatitis C virus RNA and virus assembly. These processes are clogged and hence virus growth is held in by Pibrentasvir [5-7]. Glecaprevir Proteases NS4A and 5A are preconditions for RNA replication and virus assembly of hepatitis C virus. Hence, blocks these two processes and thus virus development is suppressed [8-10].

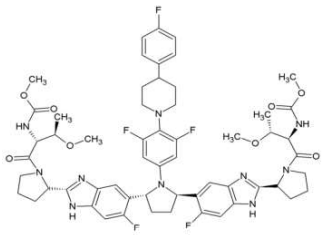

Figure 1: Structure of Pibrentasvir

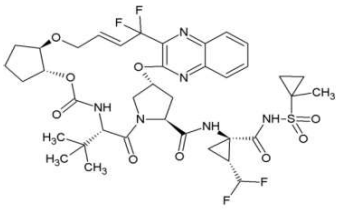

Figure 2: Structure of Glecaprevir

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RESEARCH ARTICLE

Evaluation of Antiulcer Activity of Methanolic Extract of *Barleria buxifolia* in Experimental Rats

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ABSTRACT:

Aim and Objective: The purpose of the study is to evaluate the antiulcer activity on methanolic extract of *Barleria buxifolia L* (MEBB) in experimental animals. **Material and Method:** The antiulcer activity was evaluated against pylorus ligation and aspirin induced ulcers in wistar rats. The MEBB was administered orally at a dose of 200 mg/kg and 400 mg/kg in rats. Omeprazole (20 mg/kg) was used as standard drug and 1% CMC and aspirin (250 mg/kg) were used in control group. **Results:** Preliminary phytochemical screening revealed the presence of several bioactive compounds. No mortality rate in rats were found upto 4000 mg/kg dose. The MEBB produced significant decrease in gastric juice volume, free acidity, total acidity, total acid output, ulcer score and ulcer index but increase in gastric juice p^H in both models when compared to control group. It produced 69.01% and 68.11% ulcer inhibition in pylorus ligation and aspirin induced method. It also produced significant results for antioxidant parameters. The obtained results were due to the presence of flavonoids in MEBB which produce antisecretory effect. **Conclusion:** The obtained results revealed that the MEBB exhibits antiulcer activity in wistar rats. The high dose (400 mg/kg) of MEBB gives significant results when compared to low dose (200 mg/kg) of MEBB.

KEYWORDS: *Barleria buxifolia*, Antiulcer activity, Pylorus ligation, Aspirin, Ulcer index.

INTRODUCTION:

Ulcer usually represents an open sore in the epithelial lining of stomach due to the presence of oxidative stress on gastric mucosa or inhibition of prostaglandin synthesis[1]. The causative agents of ulcer are alcohol consumption, smoking, stress, obesity, diet, zollinger-ellison syndrome, presence of H.pylori bacteria and excessive consumption of NSAIDs[2]. It is usually diagnosed by endoscopy and some specific tests like invasive and non-invasive tests[3]. Generally, some gastroprotective medicines are used to treat peptic ulcer disease includes H_2 receptor antagonists, proton pump inhibitors and drugs used in triple and quatrlet therapy[4]. Due to side effects from chemical drugs, several herbal drugs came into existence for the treatment of ulcer disease without providing any severe ADR or side effects[2].

Barleria buxifolia L is a perennial herb belonging to the family Acanthaceae. The synonyms for this plant are Barleria acanthodes and Dicranacanthus buxifolia. In Sanskrit and Telugu it is called as Iksura and Erramullugoranta[5]. It is usually used as folk medicine in many places of India. The plant had been reported for activities like antibacterial, antifungal, antiurolithiatic, anxiety and antidepressant activity[6]. Screening of MEBB showed the presence of alkaloids, flavonoids, saponins, terpenoid and acid compounds. The recent study aimed to evaluate the antiulcer activity of methanolic extract of *Barleria buxifolia*, yet there is no work performed on this plant regarding to ulcer activity.

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Carbamazepine-induced hyperglycemia: A rare case report

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Abstract

Carbamazepine is a commonly used iminostilbene antiepileptic medication and it is estimated that 46.9% of the total antiepileptic drug overdose in the United Kingdom is because of this drug. The overdose of Carbamazepine can show negative effects on multiple systems, these include neurologic (ataxia, seizures, and altered sensorium), cardiac (tachycardia, hypotension) and metabolic manifestations. We reported a case of a 17-year-old girl had an increase in glucose levels after voluntary ingestion carbamazepine tablets. After ingestion, her gross random blood sugar level was increased, then physician suspected that she might be a Type I diabetic,but HbA1C[glycosylated hemoglobin] levels was found normal.Carbamazepine was discontinued and patient received symptomatic therapy. The patient had decreased levels of blood sugar level,after removal of the drug within the next day after ingestion of carbamazepine. A Naranjo assessment was obtained, indicating a definite relationship between the patient's increased in blood glucose levels and her use of carbamazepine.

Keywords: Carbamazepine, glycosylated hemoglobin, hyperglycemia, overdose

Introduction

Carbamazepine is a commonly used iminostilbene antiepileptic medication, and it is estimated

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Alleviatory effects of hydroalcoholic extract of *Brassica oleracea* var. *botrytis* leaves against sodium fluoride induced hepatotoxicity and oxidative stress on male Wistar rats

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Fluoride is one of the most common pollutants of potable water. Fluorosis is an endemic and global problem. Excessive intake of fluoride might accumulate and alter the functions of soft tissues including liver. The main objective of the present study was to investigate the alleviatory effects of hydroalcoholic extract of *Brassica oleracea* var. *botrytis* (BOB) leaves on sodium fluoride (NaF) induced hepatotoxicity. Thirty-six male Wistar albino rats were divided into six groups of six animals in each. Group I served as the normal control. Group II served as toxic control. Group III, IV, and V served as treatment groups received extract at three doses 100, 200, and 400 mg/kg respectively. Group VI served as plant control received a hydroalcoholic extract of BOB leaves 400 mg/kg. All groups except I, and VI, received NaF (100 ppm) through drinking water for 30 days. After the end of the study, serum profile and lipid peroxidation, reduced glutathione and catalase enzyme levels were measured in homogenates of the liver. The results of the present study suggested that BOB alleviates sodium fluoride-induced hepatotoxicity, probably *via* its antioxidant activity.

Keywords: Lipid peroxidation, Lipid profile, Liver biomarkers, Pancreatic enzymes, Sodium fluoride

The liver is one of the vital organs of vertebrates playing a central role in the body homeostasis through biotransformation of toxicants in the body. It is an accessory digestive gland and produces bile, which aids in the digestion of lipids by emulsification. Compared to western countries, India has been suffering from more percentage of liver diseases mainly due to many chemicals (inorganic and organic), medicinal preparations, chronic alcohol consumption and toxicants[1,2].

Fluoride is a highly reactive electronegative ion and is the 13th most abundant naturally occurring element in the earth's crust. It can easily cross cell membrane either by a simple or passive diffusion mechanism. The major and natural source of fluoride is soil rock and the other chief sources of fluoride include beverages, food, industries, medicines, cosmetics and fluoride pesticides. Fluorosis is the most widespread common health problem in the entire world. It is the most debilitating disease commonly seen where calcium deficiency and malnutrition are more prevalent. Fluoride often described as a double-edged sword because, in small doses, it can be considered as an essential trace element with significant protective effect in preventing dental caries, osteoporosis and bone fractures**.** On the other hand, many research reports clearly described that the excessive and/or prolonged intake of fluoride increased oxidative stress by generation of reactive oxygen species (ROS) and free radicals, increased lipid peroxidation, suppressed antioxidant enzymes level in soft tissues such as liver, kidney, brain, lung, and testes, which were considered as an important mechanism of intoxication[3,4]. Administration of fluoride also severely causes oxidation of macromolecules, membrane phospholipids breakdown, mitochondrial membrane depolarization and induces aberrations in various cellular processes such as gene expression, cell cycle, proliferation migration, respiration, ion transport, secretion, endocytosis, apoptosis, and necrosis in the body[5,6].

The higher amount of fluoride disturbs the metabolic processes and detoxification capabilities of

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Research article *Open Access*

Pharmcognostic, phytochemical and antibacterial studies on *jasminum auriculatum*

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ABSTRACT

Jasmine is a genus of shrubs and vines in the olive family Oleaceae with about 200 species throughout the world, out of which around 40 species are reported to be growing in India. Irrespective of the species, extracts from different parts such as leaves, stem, bark and roots of the Jasminum plants have been used in ethno-medicines for a long time. The aim of the present study is to screen the plant material for phytochemical constituents and antibacterial activity. An antimicrobial is a substance that kills or inhibits the growth of microorganisms such as bacteria, fungi or protozoans as well as destroying viruses. Antimicrobial drugs either kill microbes (microbicidal) or prevent the growth of microbes (microbiststic). *Jasminum auriculatum* is an evergreen shrub; native to Deccan Peninsula, Circars and Carnatic extending south wards to Travancore. The present study on pharmacognostical characteristic of *Jasminum auriculatum* provide useful information for its correct identity and help to differentiate from the closely related other species. Strains of bacteria Streptomyces aureus and Escherichia coli have been used for the study. The ethanolic extracts were used to find antibacterial activity by disc plate method and are showing very good reaction for carbohydrates, alkaloids, volatile oils, flavanoids, tannins, saponins, fats and oils and amino acids. This may be the reason for the very good antibacterial activity.

Keywords: Jasminum auriculatum, Ethanolic extract, Antibacterial activity, Streptomyces aureus, Escherichia coli, Disc plate method, Flavanoids, Tannins

INTRODUCTION

The term "**medicinal plant**" includes various types of plants used in herbalism ("herbology" or "herbal medicine"). It is the use of plants for medicinal purposes and the study of such uses.

The word "**herb**" has been derived from the Latin word, *"herba"* and an old French word *"herbe"*. Nowadays, herb refers to any part of the plant like fruit, seed, stem, bark, flower, leaf, stigma or a root, as well as a non-woody plant. Earlier, the term "herb" was only applied to non-woody plants, including those that come from trees

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Tissue Distribution, Cytotoxicity and Pharmacokinetic Studies of Multifunctional Citric Acid Dendrimers using the Drug Cyclophosphamide

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Abstract : The aim of present work is to develop a multifunctional dendritic carrier for targeting tumor cells that overcome drug leakage during circulation and encapsulate tightly an anticancer drug within it through high affinity interactions. PEGylation, polyethylene glycol addition to dendritic carriers improves its circulation time in the body and also ensures high stability without detectable drug release from formulations other than the target site. PEGylated citric acid dendrimer was found an efficient carrier for targeting antitumor agent, cyclophosphamide to the target tumor organs. Dendrimers are repeatedly branched, spherical molecular moieties synthesized by Divergent technique and characterized for acute cytotoxicity assays, pharmacokinetic parameters and tissue distribution studies. Results of the above studies met the objective and tumor uptake of cyclophosphamide has increased significantly when compared with other organs and exhibited relatively lower toxicity to other organs targeting specifically tumor cells. Thus, the data suggest PEGylated citric acid dendrimer-drug complex is a simple and efficient carrier system to deliver drugs to the tumor cells.

Key words : Dendrimer, Acute toxicity, Tumor, myeloid, melanoma, multi-functional.

Introduction:

Melanoma and Leukemia are considered the leading causes of cancer deaths world-wide[1]. Melanoma, a skin cancer, increasing at a rate faster than any other cancers whereas myeloid leukemia, neoplastic proliferation of myeloid cells represents the maximum number of deaths[2]. Chemotherapy of the above cancers is associated with several other undesirable and unwanted side-effects. Therefore, there is a need to control the incidence of these cancers either by early detection or by employing proven prevention methods and techniques[3]. Many studies proved that nanotechnology creates a new pathway for some nano drug delivery systems that reduce the unwanted or undesirable side-effects produced during chemotherapy. In addition, it

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Case Report

Vancomycin Induced Exanthem- A Case Report

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ABSTRACT

Exanthem is a skin eruption, as a prominent manifestation accompanying certain infectious diseases. It is an acute, short lived, viral disease of infants and young children characterized by high fever at onset that drops to normal after 3-4 days and concomitant appearance of a maculo popular rash that appears first on trunk and then spreads to other areas. Exanthem is widely spread out rash which is caused due to underlying diseases, heat rash, sun burn, toxins, viruses and medication side effects. It is one of the major side effects associated with the use of parenteral Vancomycin especially in the department of Pediatrics.

Vancomycin is an antibiotic used to treat number of bacterial infections. It is complex tricyclic glycopeptide antibiotic obtained from Nocardia species Amycolatopsis orientalis. Vancomycin has strong bactericidal activity against a broad range of gram positive bacteria. With the increase in vancomycin use, adverse drug reactions (ADRs) associated with vancomycin have been reported increasingly more often. However, the characteristics of cutaneous ADRs with and without systemic reactions (SRs) have not been described.

We are reporting a case of 3 months old male child with complaints of fever which is continuous in nature, improper feed intake and continuous crying. The child was diagnosed as a case of SEPSIS based on laboratory data. During the course of treatment the child developed exanthem after administration of parenteral Vancomycin. So Vancomycin was withdrawn and alternatively parenteral Taxim and Calamine and Diphenhydramine HCL lotion was prescribed to treat Exanthem.

***Key Words*:** Vancomycin, Exanthem, Sepsis

INTRODUCTION

Adverse drug reactions affecting skin are common and present with a diverse pattern of expressions. Cutaneous hypersensitivity reactions range in severity, from mild reaction to severe cutaneous adverse reactions. [1] Exanthem is a skin eruption, as a prominent manifestation accompanying certain infectious diseases. Exanthem is a wide spread non specific skin rash commonly characterized by generalized eruption of erythematous macules and popular lesions. It is an acute, short lived, viral disease of infants and young children characterized by high fever at onset that drops to normal after 3-4 days and concomitant appearance of a macula popular rash that appears first on trunk and then spreads to other areas. This condition can be treated with antibiotics, calamine lotion, anti virals. [2]

Vancomycin is an antibiotic used to treat number of bacterial infections. It is complex tricyclic glycopeptide antibiotic obtained from Nocardia species Amycolatopsis orientalis. It is recommended intravenously as a treatment for complicated blood stream infections (sepsis), endocarditis, skin infections and meningitis caused by several bacteria. As it