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CHOLELITHIASIS -CASE REPORT

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ABSTRACT: A 45-year-old female patient was admitted in the Gastroenterology ward, with chief complaints of pain in the lower abdomen since, 1 week. The pain is sudden in onset and increase in severity, dragging in nature. No aggravating factors. Relived on medication. No H/O burning micturition, loose stools. And has no similar history in the past. On evaluation it is shown to be the condition of cholelithiasis.

KEYWORDS - Gallstones, Cholecystectomy -

OBJECTIVE -To discuss the aetiology that can result in cholelithiasis in the patient; To evaluate the physical findings, laboratory test and diagnostic imaging tests in the patient. To review the various treatment options for the patient with cholelithiasis

INTRODUTION:

- Gallstones (cholelithiasis) consists of deposits of digestive fluid that can form into a hardened stones in the gall bladder.
- The gall bladder is the small organ located just beneath the liver.
- The gall bladder holds the digestive fluids known as bile that is released into the small intestine.
- The stones can be small and one or more large stones, in many cases they do not produce any symptoms.
- The predisposing factors include:
    1. Changes in the composition of bile that can affect the solubility of its constituents.
    2. High blood cholesterol levels.
    3. Female gender
    4. Obesity
    5. Several pregnancies in young women, especially when accompanied by obesity.
    6. Diabetes mellitus.

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ANTIDIABETIC ACTIVITY AND PHYTOCHEMICAL SCREENING OF LEAVES EXTRACT OF DIOSPYROS PEREGRINE IN ALLOXAN-INDUCED DIABETIC RATS

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ABSTRACT

Diabetes mellitus is a most common endocrine disorder, affecting more than 300 million people worldwide. For these therapies developed along the principles of allopathic are often limited in efficacy, Carry the risk of adverse effects, and are often too costly, especially for the developing world. In order to identify complementary or alternative approaches to existing medications, we studied the anti-diabetic potential of leaves of *Diospyros peregrine*. The acute oral toxicity studies of the extracts revealed no toxic effects up to the levels of 2000mg/kg b.wt. The aqueous and alcoholic extracts of 20 and 30mg/kg body weight of *Diospyros peregrine* was screened for the presence of hypoglycemic and antidiabetic activity. In this study diabetes was induced by a single IP dose Alloxan monohydrate in 72hrs fasted rats. The FBGL was carried on 7th, 14th and 21st day and OGTT was measured on 8th, 15th and 22nd day. Glibeclamide was taken as the standard and the results are quite comparable with it. The studies were indicated that the leaves of *Diospyros peregrine* are effective in regeneration of insulin secreting β-cells and thus possess antidiabetic activity. The aqueous and alcoholic extracts showed significant effect in decreasing the Fasting blood Glucose level and oral glucose tolerance test of rats and it's also showed good hypoglycemic activity in normal glycemic rats. The preliminary phytochemical analysis of the extracts of *Diospyros peregrine* revealed the presence of Alkaloids, Tannins,

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Evaluation And Characterization Of Bioadhesive Drug Delivery Systems

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Abstract

Due to their capacity for localized medication administration and sustained release, bio adhesive systems are gaining more and more attention. As a result of the non-specific targeting, side effects are reduced. This review gives a general overview of the knowledge of bioadhesive drug delivery systems and the most current developments in their composition.

Keywords- Bioadhesive, Mucoadhesion, Nanoparticles, Drug Delivery Systems.

INTRODUCTION

Adhesion may be defined simply as a process of "fixing" of two surfaces to one another. Bioadhesion may be defined as the binding of a natural or synthetic polymer to a biological substrate. When the substrate is Mucus layer, the term is known as Mucoadhesion. The rationale behind using mucoadhesive system is the prolonged retention time in the Gastro-intestinal tract resulting in maximum absorption and hence enhanced bioavailability.

(i) General Concepts of Mucoadhesion-Mucus is a viscous and heterogeneous biological product that covers many epithelial surfaces. Cells secreting mucus are located at various locations in the body like Gastrointestinal, Ocular, Nasal, Buccal, Reproductive and Respiratory tracts. Mucus functions as a lubricant to reduce shear stress and acting as barrier against harmful substances. Goblets cell containing Mucus are located in the epithelium. Mucus is located in large granules in the goblet cells. Mucus granules are located in the apical side of the goblet cell giving a balloon shaped appearance of these cells. It is released by the process of Exocytosis or Exfoliation of the Whole cell. Secretion of Mucus varies with the age, sex, body location, and health condition but the average mucus turnover is nearly 6 hr. Apart from this mucus includes secretory IgA, lysozyme, Lactoferrin, lipids, polysaccharides, and various other ionic species. Goblet cells undergo two types of granules exocytosis: Basal secretion, which is featured by a low level, continuous and unregulated secretion, and stimulated secretion, which is a regulated exocytosis of granules in response to extracellular stimuli. The stimulated Pathway dramatically increases the mucus secretion. (Serra, Doménech, and Peppas, 2009) Mucus is mainly composed of water (>95) and mucins, which are glycoproteins of very high molecular weight (2-14 x 1012 g/mol). Along with these, proteins, lipids and mucopolysaccharides are found in small proportions (<1%). Mucin

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FEBRILE SEIZURES A CASE REPORT:-

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ABSTRACT:-

A 7 months old female child admitted in pediatric ward with chief complaints of fever since morning, one episode of seizures activity, 10 episodes of stools. Febrile seizures are the most frequent of seizure disorder in childhood. Evaluated in OP showed the result of Febrile seizures. She has a past history of developed loose stools sudden onset of watery inconsistency .But not blood tinged or not associated with vomiting's. Then in the morning she developed sudden onset of high grade fever, which is relieved on medication. It is associated with rash,1-episode of seizures activity. The signs include ; up rolling of eyes(+), fisting of hand (+) .But not associated with deviation of mouth, and no urine incontinence. No signs of dehydration was found. No signs of pallor, icterus, cyanosis, lymphadenopathy, oedema. Initial investigations were done. Then she was started with IVF (RL- 23ml/hr) , antibiotics (ceftriaxone), Benzodiazepines(frisium, midazolam) probiotic (enterogenia).

KEYWORDS:-

FS(febrile seizures)., LP(lumbar puncture).,MTS(mesial temporal sclerosis).

INTRODUCTION:-

These are seizures, which occurs between 3 months to 5years of age, associated with fever but without evidence of Intracranial infection or defined cause for seizure, and without any H/O seizures earlier. These febrile seizures occurs because the developing brain cannot withstand rapid and large increase in temperature.

Types of seizures:-

1.Simple febrile seizures:-less then 15 minutes of duration, no focal features s/o focal origin of seizure only one attack in one febrile episode of fever

DEVELOPMENT OF PLANT-MEDIATED SILVER NANOPARTICLES& THEIR PHARMACOLOGICAL EVALUATION

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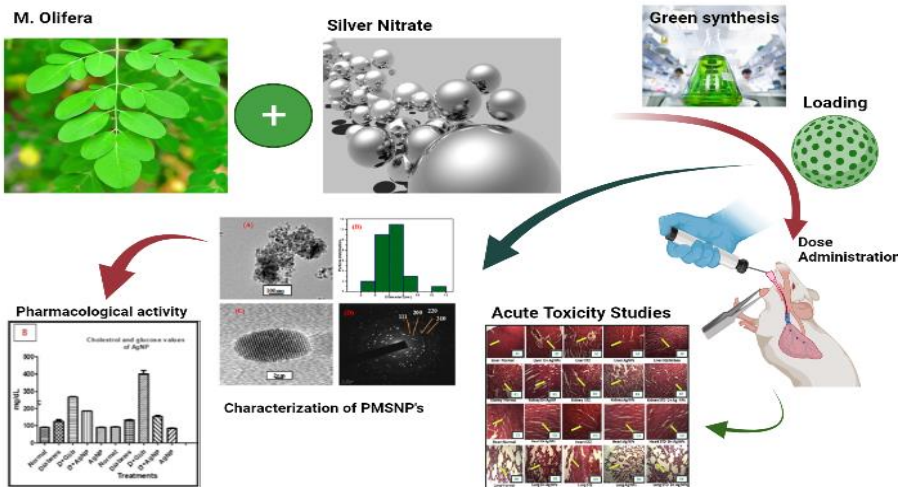
Abstract:
Diabetes is among the most common debilitating and non-transferable diseases on the planet. The idea of using nanoparticles as a drug to treat diabetes mellitus seems intriguing. The Ag nanoparticles (Ag NPs) were effectively produced utilizing *Moringa olifera* (family: *Moringaceae*) plant extract employing a simple, cheaper, faster, and environmentally friendly green synthesis process. The antidiabetic effect of the produced Ag NPs was also tested in vivo. In the presence of plant extract, silver nitrate was converted to silver ions (Ag). XRD, FTIR, UV, XPS, and HRTEM studies characterize the formed Ag NPs. Ag NPs that have been biosynthesized, crystal nature was confirmed through XRD analysis and confirmed by UV-visible spectroscopy. FT-IR spectra were used to verify the presence of various functional groups in the biomolecules, forming and stabilizing the nanoparticles. The size of the NPS was in the range of 20-40 nm determined by HRTEM. The induction of diabetes using STZ showed increased blood glucose, cholesterol, triglycerides, LDL, VLDL, massive loss in body weight. These changes were reversed following the treatment of diabetic rats for 28 days and showed significant inhibition ($p < 0.001$) at a dose range of 0.2 mg/kg leaf extract and 0.2 mg/kg Ag NPs compared with the extract-treated group. These obtained results suggested that plant-mediated Ag NPs have shown promising antidiabetic and anti-hyperlipidemic activity compared to the crude extract.



Graphical abstract

Keywords: Diabetes, *Moringa*, AgNPs, Anti-hyperlipidemic, Anti-diabetic activity

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Latest drug developments in the field of Internal medicine: Cardiology, Heart failure, Diabetes, and Inflammation

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Abstract:

Internal medicine is a field of medicine where doctors use their clinical judgment and scientific knowledge to identify and treat a wide range of illnesses and health issues in adults. The greatest cause of early death and disability in people is cardiovascular disease (CVD), and its prevalence is rising around the globe. Due to their significant impact on the rising cost of healthcare, CVDs also place a significant socioeconomic burden on the general populace. Due to its rising incidence worldwide and the tight association between persistent hyperglycemic states and obesity, liver disease, and several cardiovascular problems, type 2

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A STUDY ON HYDROALCOHOLIC EXTRACT OF CITRULLUS COLOCYNTHIS LEAVES: PHARMACOGNOSICAL, PHYTOCHEMICAL AND IN-VITRO ANTI-OXIDANT EVALUATION

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ABSTRACT

The objective of the present work is to study the Pharmacognostical, Phytochemical characterization and in vitro anti-oxidant potential of hydro alcoholic extract of *Citrullus colocynthis*. In developing countries, herbal medicines account for about 80% of primary health care used by the global population. It is believed that this is attributed to the chemical constituents in them which are part of the physiological functions of the living flora, thus they are considered to be more compatible with the human body due to their physiological functions. *Citrullus colocynthis* (L.) Schrad. is a species of cucurbit that belongs to the family of Cucurbitaceae. It is a perennial herbaceous vine that grows up to three meters in length, flowers and has a berry-like fruit. The leaves of *Citrullus colocynthis* was collected in and around Vellore. The leaves powder was analyzed macroscopically, microscopically, physiochemically, and phytochemically by macroscopic, microscopical, and physicochemical methods. A variety of chemical tests were performed on this hydro-alcoholic extract of leaves of *Citrullus colocynthis* to identify flavonoids, phenolic compounds, alkaloids, glycosides, carbohydrates, carotenoids, proteins, tannins, amino acids, and sterols as per standard procedures. The total phenol content of *Citrullus colocynthis* was determined by the Folin-Ciocalteu colorimetric method. The aluminum chloride colorimetric technique was used for estimation of total flavonoid estimation. DPPH stable free radical method is an easy, rapid and sensitive way to survey the antioxidant activity of specific compound or plant extracts. The reducing power ability of plant extracts was screened by assessing the ability of the test extract to reduce FeCl3 solution as mentioned. The total phenolic content in the hydro alcoholic extract of C. colocynthis leaves was found to be 64.6 mg/g. The total flavonoid content in the hydro alcoholic extract of *C. colocynthis* leaves was found to be 85.5 mg/g. A hydroalcoholic extract from *Citrullus colocynthis* showed moderate antioxidant activity despite having strong antioxidant properties despite plants' strong antioxidant properties. By absorbing electrons from antioxidants, it neutralizes its free radical nature. There is a scientific foundation for the prospect of applying the leaves of *Citrullus colocynthis* for the treatment of anti-oxidants through the present study. A future scope of work includes identifying the chemical components responsible for these activities and conducting in-vivo pharmacological screenings.

Key words: Citrullus Colocynthis, Herbal Medicine, Anti-Oxidant Activity, Phenolic, Flavonoid Content.

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INTRODUCTION

In indigenous cultures (such as Black African and Native American cultures) herbal remedies have played a significant role in healing rituals, while other cultures have developed traditional medical systems (such as Siddha, Ayurveda, Unani and Traditional Chinese Medicine) that also incorporated herbal remedies (Ampofo

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MALDI-TOF HR-MS TECHNIQUES FOR FRAGMENTATION ANALYSIS OF NOVEL POLYCYCLIC MICROTUBULE DISASSEMBLY INHIBITOR DRUG MOLECULES

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Abstract— Since 2010, matrix-assisted laser desorption ionisation time-of-flight mass spectrometry (MALDI-TOF MS) has been used in healthcare settings. Over the traditional method of biochemical identification, MALDI-TOF MS has a number of advantages, including simplicity, speed, precision, and affordability. Numerous challenges to detecting bacteria, fungi, and viruses can be overcome using this method. As technology developed, a growing number of databases tracked spectra, enabling the identification of species that had similar morphological, genotypic, and biochemical features. Due to improvements in sample preparation and database enrichment, using MALDI-TOF MS for identification has become more precise and rapid. MALDI-TOF MS has yielded encouraging results for colony identification and quick sample detection. Rapidly diagnosing extremely contagious and drug-resistant illnesses is a crucial use of MALDI-TOF MS. Here, we give a review of the scientific literature evaluating the efficiency of MALDI-TOF MS for identifying pathogenic bacteria, fungi, and viruses that are relevant to clinical settings. Although MALDI-TOF MS offers several advantages for finding clinical infections, it also has significant disadvantages. Because there aren't many spectra in the database and organisms have inherent similarities, it might be challenging to tell one species from another, leading to misidentifications. Additional testing

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THYMOQUINONE (TQ) INHIBITS INFLAMMATORY RESPONSE IN AN ALZHEIMER'S DISEASE RAT MODEL BY INHIBITING TNF-PRODUCTION

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ABSTRACT

A promising therapeutic agent for Alzheimer's disease is thymoquinone (TQ) in Nigella sativa. In a rat model of AD, where aggregated Aβ(42) was infused into the hippocampus, TQ was administered orally at a dose of 25 mg/kg/day. Cognitive function was assessed using the Morris Water Maze task, and levels of inflammatory cytokines in the animals brain were measured. Protein expression related to synaptic plasticity, apoptosis, and neuronal migration was examined. On Day 3, the Aβ(42)-infused group exhibited cognitive impairment compared to the control group, but TQ administration mitigated this effect. Levels of TNF-alpha, IL-1 alpha, and IL-1 beta did not differ significantly between groups. Aβ(42) infusion slightly reduced IFN-γ levels, which were restored by TQ treatment. TQ improved memory performance, reduced inflammation (indicated by decreased IL-1 beta levels), and increased DCX protein levels, suggesting enhanced neurogenesis. Both Aβ(42) groups showed lower MAP2 and PARP protein activation, indicating potential neuroprotective effects. Furthermore, a positive correlation was observed between IL-1 beta and DCX levels. These findings suggest that TQ may benefit AD by promoting neurogenesis, modulating IFN-γ levels, and reducing inflammation. TQ shows promise as a therapeutic agent for AD by targeting neuroinflammation and neuroprotection pathways. Further research is needed to understand the underlying mechanisms and assess the translation of these findings to human studies.

Keywords: Alzheimer's Disease, IFN-γ levels, Mitogen-Activated Protein Kinase2, protein Poly (ADP-ribose) Polymerase.

INTRODUCTION

In Alzheimer's disease (AD), plaques and neurofibrillary tangles are two of the main pathological hallmarks. Inflammatory activity of microglia is triggered by the neurotoxicity caused by these aberrant structures, resulting in neuronal death Animal models and AD patients show a microglial-driven response. A high level of specific cytokines and chemokines are produced when microglia become activated. ILs (Interleukins), TNFs (Tumour Necrosis Factors), IFNs (Interferons), and TGFs (Transforming Growth Factors) are linked in the aetiology of Alzheimer's disease and other brain illnesses. AD neuroinflammation may cause neuro-degeneration. In animal studies and humans, cytokine levels and administration were contradictory. The conflicting results complicated the definition of the roles of cytokines and chemokines in diagnosing and treating AD neurodegenerative disease. Traditional AD medication with acetylcholinesterase inhibitors (AChE) and N-methyl-D-aspartate receptor antagonists concentrates on mental functioning or cholinergic malfunction. Current Alzheimer's treatments focus on delaying intellectual abilities, behavioural, and psychological development. Complementary therapy is needed to avoid or minimize clinical signs and remove Pathological changes. As a result of their neuroprotective properties, herbal medicine has recently become more popular for treating AD. Black cumin seeds (Nigella sativa) contain thymoquinone (TQ), one of the main active ingredients. TQ may be used as a herbal medicine because of its wide range of therapeutic benefits. TQ's antioxidant, anti-inflammatory, and neuroprotective effects might help fight Alzheimer's.

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Impact of Technology on Alzheimer's Patients to Memorize Things

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ABSTRACT: The work shows the effects and the methods that can be applied by the medical representative to provide the best methods in the application of the treatment of the patients. The use of technology is in making the improvement of the health and mental conditions of humans. This also shows some of the issues faced in the making of the improvement of the mental condition of the patients. It also shows that the rapid increase of diseases makes increase of the condition of the make the loss of the memory of humans. Thus leads to their non-independent movement around nature. The disease generally starts with the general loss of the short time memories but as time changes it increases and damages the cells of the brain. In some of cases, the rapid increase of the dieses in the brain of the human makes them face sudden death. Finally we discussed the ANOVA description for virus vector.

KEYWORDS: *Alzheimer's disease, technology, mental stability, Side effects of Alzheimer's disease, Quick remedies of Alzheimer's disease,*

Methods for Producing a Lipidic Drug Delivery System with Maximal Bioavailability Improving the Absorption of a Poorly Water-Soluble Anti-Hypertensive Drugs

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Abstract— A standard delivery technique is utilised to provide the majority of pharmaceuticals used to treat various illnesses, which are often taken orally. Due to its weak water solubility, chemical stability, and pre-systemic metabolism, oral dosage has a low bioavailability. Pharmaceuticals with low solubility and bioavailability in water pose a challenge to formulation experts. One of the new technologies created to solve these issues is lipid-based medicine delivery systems (LBDDS). Increased bioavailability can be achieved by encapsulating or solubilizing the drug in lipid excipients, which can also aid in solubilization

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FORMULATION AND EVALUATION OF ATENELOL LIQUID FILL FORMULATIONS FOR SOFT GELS

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ABSTRACT
The present investigation was under taken with the objective of enhancing the permeability of Atenolol (ATL), a β1 selective receptor antagonist through the preparation of liquid fill formulations for soft gels. Liquid fill formulations for ATL(25mg) soft gels were prepared using excipients such as dimethyl sulfoxide(DMSO), Ethanol, hydrophilic vehicles like Propylene glycol (PG), polyethylene glycol(PEG-400) and HP-β-CD, Water. The prepared formulations were evaluated for Appearance, pH, content uniformity, viscosity, drug excipient compatibility and *in vitro* drug release parameters. Stability of the optimised formulation was evaluated by storing for six months, at 40^0C and 75% RH. Among all the prepared formulations, formulation F3 containing 40% DMSO, 23.75% PEG-400 and 23.75% PG showed superior drug release (100% within 75sec) with definite physical and chemical stability. The results provide surveillance for developing soft gel capsule of ATL that give better rate of absorption, than existing dosage form and provide quick onset of action with better patient compliance.

KEYWORDS: Atenolol, *In vitro* dissolution, Liquid fill formulations, Stability, Viscosity.

INTRODUCTION
Atenolol (ATL) is a selective β1 receptor antagonist, a drug belonging to the group of beta blockers[1], without membrane stabilizing or intrinsic sympathomimetic activities.[2] ATL was introduced in 1976. It was developed as a replacement for propranolol in the treatment of hypertension.[3] Approved by US FDA in1981, whereas generic products of atenolol were available since 1988.[4] It has lower absorption window in the GIT.[5] Thus, it seems that an increase in gastric residence time may increase the absorption and bioavailability of drug.[6] The objective was to enhance its rate of absorption by formulating into soft gels.

Hypertension is the most common risk factor for Cardiovascular diseases and affects nearly two-thirds of adults aged 60 years or older. It is estimated that uncontrolled HTN is responsible for 7.5 million deaths per year worldwide and in USA alone accounts for over 47 billion dollars spent in health care services, medications and absent workforce. Despite various advances in the field it is projected that 1.56 billion people will suffer from HTN by 2025. 3 various randomized controlled trails have demonstrated that even slight blood pressure decreases such as 10mmHg reduces patients risk of stroke related mortality by 40%. ATL reduces renal vascular resistance in hypertensive patients.[7] Hence, ATL was chosen because of its anti-hypertensive activity, in order to increase its absorption.

Atenolol is white powder, freely soluble in methanol, DMSO and is practically insoluble in Acetonitrile, Chloroform.[8] ATL is used in the management of hypertension, angina pectoris, cardiac arrhythmias and myocardial infraction. It may also be used for the prophylaxis of migraine.[9] ATL is rapidly, but incompletely absorbed from the GIT, the oral bioavailability being about 50-60%.[10] ATL belongs to BCS class-III.[11] It has poor permeability in the lower GIT due to its hydrophilic nature.[12] The permeability is enhanced by addition of penetration enhancers like DMSO.[13] The originator brand name of ATL is TENORMIN where it is manufactured by AstraZeneca pharmaceuticals.[4] The dosage forms available in the market are tablets (25,50,100mg) and injection (0.5mg/ml). CATENOL (25,50,100mg), ATEN (25,50,100mg). ATL is mostly used in combination with Amlodipine ABITEN-A (Atenolol (50mg) + Amlodipine (5mg)).[14]

The pharmaceutical industry manufactures approximately 75% of its solid dosage form as

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PHARMACOGNISTIC, PHYTOCHEMICAL ANALYIS AND INVITRO OXIDANT ACTIVITY OF HYDRO-ALCOHOLIC EXTRACT OF PERGULARIA DAEMIA LEAF

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ABSTRACT

Pergularia daemia (Forssk.) Chiov. of family Asclepidaceae commonly known as utaran which is used to cure cough, asthma and treating various diseases in traditional system of medicine. In this study, various phytochemicals were screened from *Pergularia daemia* leaves and physicochemical characteristics were analyzed. In addition to the leaf constants, the macroscopic and microscopic pharmacognostical characteristics were also measured. Physicochemical analysis of the powdered leaf drug was performed to assess its ash values, total ash value, acid soluble ash value and acid insoluble ash value, extractive value (alcohol and water soluble), and moisture content. Alkaloids, flavonoids, terpenoids, saponins, carbohydrates, amino acids, and flavonoids have been identified in preliminary phytochemical screenings.

KEY WORDS: *Pergularia Daemia*, Pharmacognostical Study, Physicochemical analysis, and Phytochemical Screening.

INTRODUCTION

A pharmacognosy profile studies natural products, the goal of which is to discover sources of natural drugs (plants, microorganisms, fungi, algae, animals) and products derived from their metabolic processes, which can be used for treating, preventing, and diagnosing diseases in humans and animals. The procedure for synthesizing, isolating, and identifying biologically active substances, as well as modifying them technologically and categorizing them according to their effects [1]. Herbal products manufactured in compliance with the Pharmacopoeial guidelines are widely used in a wide range of medical systems because the industry is well-organized. A number of universities and institutes have conducted extensive basic and clinical research using advanced methods on medicinal plants. [2]. Phytochemicals found in plants are responsible for most physiological effects in the body. Plant phytochemicals play an important role in maintaining and improving the health of living organisms. Phytochemicals have different added benefits when it comes to biochemical reactions that occur in the body. An antioxidant protects a biological system from oxidative stress. Aerobic respiration results in the generation of free radicals by macrophages, polymorphonulcear leukocytes, and peroxisomes. ROS and antioxidants are maintained in balance when antioxidants donate electrons to free radicals without becoming unstable themselves [3].

A variety of medicinal uses have been reported

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A Prospective Observational Study on Prescribing Patterns of Restricted Antimicrobials and Determining Outcomes

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Abstract-
Background:
Treatment with Antimicrobial agents appears to be so efficacious and rational that they are occasionally prescribed for dubious indications and for extended than required where the priority for adverse effects and development of resistance is hardly any. AMR could be a global problem. Eradication of AMR requires a big reduction within the use of antimicrobials. As a result, some antimicrobials are restricted and prescribed only under the supervision of a physician for which they are grouped under Restricted Antimicrobial Agents.
Objective:
This study illustrates the factors influencing the need for prescribing Restricted Antimicrobials and evaluating the patient outcomes. Restricted Antimicrobials are regularly classified under a 'traffic light system'. While this isn't a necessary need, one of these machines is diagnosed throughout many Australian healthcare centers and it's far usually taken into consideration to be an effective device for teaching prescribers approximately a local policy of restricted antimicrobials.
Methodology:
The study was conducted over a period of 6 months at territory hospital. A total of 114 patients were considered. This study was conducted on those patients who got admitted in general wards.
Results:
Study carried out in those subjects revealed that most of the cases were of CAI and had got admitted due to LRTI (18%) followed by surgery (17%) and the highly prescribed RA was found to be Meropenem (41%). Patients who got specific therapy got less no. of hospital stay. Samples were collected from subjects for culture tests before starting therapy and was found that most of the organisms detected to be KLEBSILLA (23.4%) and E. COLI (10.6%) and maximum no. Of organisms detected were found to be resistant to Ciprofloxacin (13.2%) and Levofloxacin (10.6%). Outcome showed that 89% of the patients got successfully treated and discharged.
Conclusion:
AMS can offer all healthcare professionals an intention to save the public from an inappropriate use of AMR and help in achieving positive outcomes in patients. In our study, we observed that patients receiving specific therapy benefited more than patients on empirical therapy and surgical prophylaxis. Through our study, we conclude that RA has greater impact in treating various infections and decreasing resistance.

Keywords: **Antimicrobials, Resistance, Restricted Antimicrobials, Global problem, Positive outcomes, Successful therapy.**

INTRODUCTION:

The factor that rubs out microscopic life forms or ceases their expansion [(1)]. Antimicrobial drug treatments may be sorted in step with the microscopic living entities that behave themselves mostly conversely, as an illustration, bacterial growth is destructed by antibiotics, and against fungal growth, antifungals are prescribed. They can also be graded according to their functioning. Improvements in antimicrobial technology have led to answers which could move past genuinely hindering microbial boom. Rather, positive forms of porous media were advanced to assassinate microorganisms [(2)].

To fight communicable disorders, antimicrobial drugs which might be powerful in controlling, eradicating, or getting rid of the boom of beasts of prey of microbes has been advanced. The highest of those antimicrobial drugs present in herbal merchandise in which they had been at first utilized by diverse creatures to shield against an attack of microbes [(3, 4)]. Had in fact been remote and marked, a lot of those "herbal" merchandise was in the end changed through humanity to propose extra or magnified action of antimicrobials [(3)]. The moves of a lot of those antimicrobial drugs are precise to precise kinds of infectious organisms even though others may also have an effect on vast tiers of microorganisms. The management of antimicrobial agents within the remedy and eradication of communicable disorders has aggravated an evolutional reaction amongst microorganisms through generating antimicrobial resistance [(5)]. The main causes of AMR are microbial, human, clinical usage, public perception and behavior, vaccination reluctance.

The execution of suitable formulary regulations of antimicrobial drugs is taken into consideration a center method of antimicrobial stewardship in Australian hospitals [(6)]. This Recommended list of Antimicrobial Restrictions presents steering to centers that might

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ORIGINAL ARTICLE **OPEN ACCESS**

Investigation of hypoglycemic, anticholesteremic, *in vivo* antioxidant and pancreatic beta cell protective effect of *Tecoma gaudichaudi DC* leaves in streptozotocin-induced diabetic rats

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ABSTRACT
Bignonia Linn (Bignoniaceae) is a monotypic genus of woody climbers, native to North America and mostly grown for ornament in the tropics of the old world. The antidiabetic potential of core species of Bignoniaceae was carried out on some species of Tecoma genus such as Tecoma gaudichaudi DC. In present study, in-vivo antidiabetic potential of isolated fraction of ethyl acetate extract of Tecoma gaudichaudi DC has been investigated. The identification of triterpenoid and their related functional group in bioactive fraction was categorized by using HRMS and IR. Oral administration of ethyl acetate extract of Tecoma gaudichaudi DC at dose 250 mg/kg & 500mg/kg) significantly increase in the body weight, decrease in the blood glucose and total cholesterol (P<0.05) and restore function of SOD and CAT enzymes. Histologically EATG (250 & 500mg/kg) treated group shows no significant effect on pancreatic β- cells while fraction rich with Ursolic acid treated group shows increased cell size of pancreatic β- cells. Insulin treated group shows normal density of islets of β- cells along with few areas showing necropsy. These finding reveals that ethyl acetate extract of leaves of Tecoma gaudichaudi DC shows significant antihyperglycemic, anti-cholesterolemic, in-vivo antioxidant activity and improved the cell density of β-cells of islets of langerhans in diabetic rats.
Keywords: *Tecoma gaudichaudi DC, Streptozotocin; Antihyperglycemic; Anti-cholesterolemic; Antioxidant*

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INTRODUCTION

Diabetes mellitus is a metabolic disease, characterized by hyperglycemia and impaired metabolism of glucose and other energy-yielding fuels, such as lipids and proteins and is the result of a deficiency of insulin secretion or a resistance to insulin action, or both [1]. Diabetes constitutes a worldwide public health problem [2]and according to International Diabetes Federation 382 million people get affected by diabetes in 2013 and recent projections suggests that this prevalence is likely to increase in the next 20 years, affecting 592 million people (10.1%) in 2035. Diabetes mellitus type 1 and type 2 are caused by damage due to chronic inflammation of pancreatic β-cell island. It causes abnormal insulin release, effects insulin receptor and post receptor events and ends with liver, kidney, eye damage [3]. Various complications get arises during diabetes from these vascular complications are the leading cause of morbidity and mortality among patients with type 1 and type 2 diabetes mellitus. These vascular abnormalities result of a chronic hyperglycemia state, which leads to an increase in oxidative stress and inflammatory responses [4].Herbal medicines overcome various side effects of synthetic drugs therefore the study of hypoglycemic plants is then encouraged [5,6].Plant families which are confirmed to show hypoglycemic activity include: Leguminoseae, Lamiaceae, Lilliaceae, Cucurbitaceae, Asteraceae, Moraceae, Rosaceae, Euphorbiaceae, Araliaceae, Polygalaceae, Asclepidaceae, Meliaceae etc [7]. The effect of the medicinal plants may delay the diabetic complications and rectify the metabolic abnormalities. Now a day's more focus on to isolate bioactive compounds and it shows hypoglycemic activity [8].From all secondary metabolite's pentacyclic triterpenes, are an important group of it considered as lupenyl, ursanyl, betulenyl or oleanyl. They are presented in plant species as the form of aglycone's saponin triterpenoids [4-5]. Previous reports state that species of Bignoniaceae family show presence of promising active constituents such as tannins, flavonoids, triterpenes, alkaloids, carbohydrates, etc. [6].

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ORIGINAL ARTICLE **OPEN ACCESS**

Cytotoxic, antioxidant and phytochemical analysis of *Tecoma gaudichaudi* DC (Bignoniaceae)

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ABSTRACT
Bignonia Linn (Bignoniaceae) is a monotypic genus of woody climbers, native to North America and mostly grown for ornament in the tropics of the old world. In the present work, invitro cytotoxic (SRB) assay was carry out against five melanoma cell lines such as MCF 7, B16F10, B16F1, SK-MEL-2, MDA-MB-231 for determining the cytotoxic effects in cells in response to plant extracts. Initially Tecoma gaudichaudiDC were first sequentially extracted with pet ether, ethanol, ethyl acetate respectively by soxhlet extraction and subjected to phytochemical analysis. Preliminary phytochemical investigation of extracts of Tecoma gaudichaudi DC species was carried out by chemical test it reveals that plant contains triterpenoids, steroids, tannins, flavonoids. The ethyl acetate, ethanol, pet ether extract of Tecoma gaudichaudiDC along with Ursolic acid was not found effective on these five cancer cell lines at concentrations 10-80µg/ml by in-vitro cytototoxic assay.
***Keywords**: Tecoma gaudichaudi dc, bignoniaceae, cytotoxic activity, melanoma cell lines.*

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INTRODUCTION

Bignonia Linn (Bignoniaceae) is a monotypic genus of woody climbers, native to North America and mostly grown for ornament in the tropics of the old world [1]. Bignoniaceae family was having 100 genera and more than 750 plant species observed in various tropical regions of India. Known numbers of this family are Bignonia, Tecoma, Catalpa, Tabebuia and Jacaranda. These are succulent herbs, shrubs, stem sometimes reduced to a rhizome or tuber. Numerous species of this family are observed as poisonous to leeches [2]. In Charak, Sushruta, the root, bark, stem and leaf of some species of Bignoniaceae family is useful for snake bite, the stem and wood for scorpion sting. Previous reports state that species of Bignoniaceae family show presence of promising active constituents such as tannins, flavonoids, triterpenes, alkaloids, carbohydrates, etc. [3]. The phytochemical analysis of various species of Bignoniaceae family was not studied so far hence; the following research deals with to carry an out phytochemical analysis of various extracts of leaves of *Tecoma gaudichaudi* DC. However, no previous biological activities have been reported for *Tecoma gaudichaudi* DC leaf powder except some ethnomedicinal claims were reported such as in Bangladesh whole plant of *Tecoma gaudichaudi* DC use of a remedy for diabetes and infertility problems [3]. The present study aims to evaluate the in vitro cytotoxic activity of ethanol, ethyl acetate, pet ether extract of *Tecoma gaudichaudi* DC against five cancer cell lines, such as human breast cancer cell line MDA-MB-231, MCF 7, mouse melanoma cell line B16F10 and B16F1, human melanoma cell line SK-MEL-2 and study also focus on analysis of various chemical moiety by preliminary phytochemical analysis. This study is considered to be the first report on the *Tecoma gaudichaudi* DC use against these cancer cell line.

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VIRTUAL REALITY IN HEALTHCARE EDUCATION: A REVIEW OF ITS DEVELOPMENT, APPLICATIONS AND CHALLENGES.

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ABSTRACT

Virtual Reality (VR) has made extensive inroads into both the consumer and professional sphere of life worldwide. In the education sector, virtual reality (VR) offers learners an immersive and interactive learning experience, enabling them to understand challenging concepts and ideas more efficiently. As VR has developed into a very useful technology, its overall practicality for use in education has tremendously increased over the years. However, due to the continuous and enormous evolution of the technology, the field of education struggles to stay informed of the latest advancements, changing affordances, and pedagogical applications. The usefulness of VR is multifaceted, and its application is ranging from the entertainment industry to the highly sophisticated space technology. The VR applications in healthcare is really promising and it is efficiently used to help children with autism, postnatal depression, and anxiety, and even to help patients with strokes recover. The application of VR to treat the patients with injury or illness are already into practice. However still there are unanswered questions that need to be addressed. The advances and technological innovations in healthcare sectors have occurred throughout history, continually advancing in the diagnosis and management of many diseases. These include the first vaccine for smallpox in the 18th

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EVALUATION OF CORONARY ARTERY DISEASE IN ASYMPTOMATIC TYPE-2 DIABETICS: THE ROLE OF EXERCISE STRESS TESTING

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Abstract

Controlling micro vascular disease and coronary artery disease becomes significantly more challenging in those with type 2 diabetes. Examining the state of one's arteries on a regular basis is, thus, crucial. One of the most practical and inexpensive methods for monitoring changes in blood volume is the photoplethysmogram (PPG). In order to draw conclusions about the patient's health, doctors used one of the many applications of photoplethysmography (PPG), the second derivative photoplethysmogram (SDPPG). Instead of the SDPPG formal ageing index, also known as the SDPPG-AI, we shall utilise the SDPPG informal technique. When comparing the 23 patients with diabetes to the healthy people who served as controls, the researchers observed that the patients with diabetes had a higher index of vascular ageing.

Keywords: Type 2 Diabetes, Photoplethysmograph, SDPPG, Vascular Aging

I. INTRODUCTION

The metabolic condition known as diabetes mellitus, or simply diabetes, is characterised by insulin resistance and/or insufficient insulin synthesis. Diabetes is a common shorthand for diabetes mellitus. When diabetes goes untreated for a long time, it can cause tissue and blood vessel damage in vital organs like the kidneys, heart, muscles, and eyes. kinds 1 and 2 diabetes, or simply kinds 1 and 2, are the two most often diagnosed forms of the disease [1].

Younger people are more likely to be diagnosed with type 1 diabetes, which is related to genetics, whereas middle-aged adults are more likely to develop type 2 diabetes, which is related to lifestyle [2]. Younger persons are more likely to be diagnosed with type 1 diabetes. People tend to get diagnosed with type 1 diabetes at a younger age. The global health issue caused by the increasing incidence of type 2 diabetes is reaching epidemic proportions. Estimates for the prevalence of diabetes in the United States range from 7.4% in 1995 to 8.9% in 2025 [3]. Microvascular disease and the rapid worsening of coronary artery disease are both much more common in people

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FORMULATION DESIGN AND CHARACTERIZATION OF PITAVASTATIN CALCIUM LIPID BASED SOLID SELF-EMULSIFYING DELIVERY SYSTEM

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Abstract: Oil and hydrophilic surfactants were used to create a solid self-emulsifying delivery system containing calcium Pitavastatin. Pitavastatin calcium has limited solubility and bioavailability, so it was important to increase these attributes by utilising the right formulation process and component. Oleic acid, Tween 20, and PEG 400 were used to create a self-emulsifying system based on early research. Pseudo-ternary phase diagrams were used to pinpoint the Microemulsion zone. For spray drying, a liquid system: adsorbent (Aerosil 200) at a 2:1 ratio was used. The system underwent testing for in vitro dissolution, emulsification time, and drug content percentage. Fourier transform infrared spectroscopy (FTIR), DSC, scanning electron microscopy (SEM), particle size, zeta potential, and XRD were among the additional analytical methods employed for characterization. The drug content detected in the

Innovative Research on Garcinia Kola Heckel Seed Extracts Phytochemicals and Related Enzymes Ability to Prevent Important Blood Glucose Levels

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Abstract— a member of the Guttiferae family of Angiosperms, garcinia kola is the term "bitter kola" is used in trade. Its relevance in folkloric medicine as a purgative, mastcatory, aphrodisiac, etc. is significant. The seed seeds are used in the therapy of a variety of illnesses, including diabetes. Diabetes mellitus is a metabolic illness with several underlying causes characterised by chronic hyperglycemia that can cause serious side effects such neuropathy, nephropathy, retinopathy, and foot ulcers. A screening for qualitative phytochemicals was done. The structure of the isolated chemical was clarified using Gas Chromatography-Mass Spectrophotometry and Fourier Transformed-Infra Red spectroscopy after column chromatographic analysis of the ethyl acetate extract. Under predetermined circumstances, pig pancrease and seed small intestine were used to extract pancreatic -amylase and intestinal glucosidase. The following substances were found: phenolics, flavonoids, cardiac glycosides, alkaloids, coumarins, and phlobatannins. The IC50 values for methanol, ethyl acetate, and n-Hexane preparations were used to block –amylase 0.78 mg/ml, 3.44 mg/ml, 4.89 In contrast, the concentrations of glucosidase were 2.67 mg/ml, 1.68 mg/ml, and 10.29 mg/ml, respectively. from an ethyl solution acetate, the substance ZAAK was obtained. Fourier ZAAK contains an ester and a carboxylic acid, according to transformed-infrared spectra. The ZAAK total ion chromatogram showed three main peaks that correspond to Zaak numbers 1, 2, and 3 are. ZAAK1, ZAAK2, and

A LEARNING EXAMINATION OF MICROALBUMINURIA DISEASE IS IN NON-HYPERTENSIVE AND NON-DIABETIC PATIENTS WITH RECENT ISCHEMIC STROKE

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ABSTRACT: The work states that Microalbuminuria (MA) is an amount of urinary albumin that is higher than the standard value, but also lesser than the amount identified by a predictable measuring scale. It also shows that in non-diabetic patients, the amount of sugar level in the urine of the person increases. The increases of the sugar level make increase of the drowsiness and the stress of the individual. The insulin level of humans decreases. These diseases in hypertension are elaborated as early identification of damage in the kidney and an interpreter for last stage in the kidney disease and cardiovascular disease. Thus makes the increase of the values of the keratin amount of the patient. This results as the major factor in making the uneven function of the body in making the filtration of the liquid. The malfunction of the kidney in the internal function of the body makes increase of other organ's dysfunction.

Keywords: *Microalbuminuria, non-hypertensive, Non-diabetic, Heart diseases, Kidney diseases*

Design and Formulation optimization by Using Design of Experiment of Trilayered Sustained Release Tablets containing an Antihypertensive Drug

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ABSTRACT

The purpose of this effort is to design, produce, and test extended-release trilayer matrix tablets that contain Ramipril for the purpose of administering the medicine over a longer period of time. Direct compression method with Response surface technique for polymers that included HPMC K4M, HPMC K15M, and xanthan gum (low, intermediate, and high concentrations) were used to construct a total of twelve different formulations (RTF1–RTF12) for the active layer (middle layer) by utilising Design of experiment software. These formulations were named RTF1–RTF12. One formulation was selected on the basis of its physicochemical qualities and drug release, and it was further made into prolonged release trilayered matrix tablets by altering amounts of polymers using the direct compression method. These tablets were then put through an evaluation. Characterization of the best possible optimised formulation was performed for the FTIR studies. RTF8 was selected as the best

A Prospective Observational Study On The Clinical Profile, Efficacy And Adverse Effects Of Beta-Blockers In Patients With Liver Cirrhosis.

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Contributions: (I) Conception and design: P. Nageshwara Rao, Palem Venkata Suresh; (II) Administrative support: A.V.Kishore Babu , A.Srinivasa Rao,M.Rajendar ; (III) Provision of study materials or patients: P.Nageshwara Rao , Anand V Kulkarni; (IV) Collection and assembly of data: Palem Venkata Suresh , S.P.Nandini Krishna , A.Usha Kiran; (V) Data analysis and interpretation: Palem Venkata Suresh ; (VI) Manuscript writing: All authors; (VII) Final approval of manuscript: All authors.

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Abstract

Background: Non-selective beta-blockers (NSBBs) are the established foundation of treatment for prevention of first bleeding and rebleeding of oesophageal varices in cirrhosis patients. NSBBs include propranolol, carvedilol, nadolol, and timolol. Fixed doses of NSBBs are discouraged and preferably the dose should be titrated. Mainly, in case of low blood pressure and doses must be carefully tapered, with signs of decreased organ perfusion or significant hypotension.

Methodology:A total of 150 patients were considered. Informed consent was obtained from all the subjects.This study appraises the clinical outcomes, safety and effcacy of Carvedilol, metaprolol ,propranolol and detects the adverse effects in patients who come to OP department. BP and PR were collected by using oximeter. We also assess patients liver status by using prognostic markers like child Pugh, meld, maddreys function score and correlated

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FORMULATION AND *IN-VITRO* EVALUATION OF BOSENTAN MONOHYDRATE GASTRORETENTIVE TABLETS FOR TREATMENT OF PULMONARY ARTERY HYPERTENSION

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ABSTRACT

Aim: Bosentan monohydrate is an endothelin receptor antagonist which is used for the treatment of pulmonary artery hypertension. Bosentan monohydrate gastro retentive tablets were formulated in the present research by using various polymers, sodium bicarbonate as gas generating agent by wet granulation technique. Absorption maximum of Bosentan monohydrate was determined; analytical method was developed and calibration curve was constructed. **Methods:** The formulation blend was subjected to various flow properties, post compression and floating parameter studies. *In vitro* dissolution studies were conducted and release data was subjected to kinetic analysis. **Results:** Calibration curve showed high degree of linearity which represents the sensitivity and accuracy of developed UV analytical method. Pre compression parameters revealed that all results were within the ideal limits indicated the suitable flow properties of the powder blend. All Bosentan monohydrate gastro retentive tablets indicated uniform post compression parameters like weight uniformity, thickness, hardness, friability. Floating parameters indicated the floating ability and prolonged floating duration for gastro retentive delivery of Bosentan monohydrate. Drug content studies revealed all formulations showed uniform drug content. *In vitro* studies revealed that Bosentan monohydrate release is sustained and prolonged for 8 – 12 hr which ensures selective drug absorption from stomach and patience compliance. **Conclusion:** Formulation S6 was identified as optimised formulation with respect to its ideal pre and post compression properties, floating parameters and *in vitro* drug release sustained for prolonged period. Release kinetic analysis of optimized formulation revealed that the S6 formulation followed zero order kinetics of drug release.

Evaluation of the activity of trans-Resveratrol alone and in combination with Amlodipine and Pioglitazone against Fructose induced metabolic syndrome rats

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Abstract

Metabolic syndrome (MS) is a cluster of conditions that cause an increase in the risk of diabetes, heart disorders, and stroke.

The present research was completed in Wistar rats, in which Metabolic Syndrome (MS) was induced with a High Fructose Diet. Animals were randomly divided into 7 gatherings and the test group animals received Resveratrol (RSVT), Amlodipine (AML), Pioglitazone (PIO), Resveratrol+Amoldipine, and Resveratrol+Pioglitazone at different doses for 5 weeks. Various behavioral, biochemical, and histopathological parameters were estimated.

AML alone and along with RSVT was found to reduce diastolic and systolic pressures, there was the reduction in BP in the remaining groups. There was a significant reduction in serum insulin and Fasting glucose level (FGL) in all the treatment groups. And there was a noticeable reduction in the levels of total glycerides (TG), total cholesterol (TC) along with LDL, HDL, and VLDL when compared to the control group and HFD group. Histopathological study revealed that there was a reduction in the deposition of lipids in liver cells and aorta as compared to HFD group.

The outcomes showed the defensive mechanism of Resveratrol against fructose-induced Metabolic Syndrome. The mechanism of protection may be due to an escalation of cellular antioxidants. The activity was found to increase in combination with amlodipine and pioglitazone.

Keywords: Amlodipine, Fructose, Metabolic syndrome, Pioglitazone, Resveratrol.

INTRODUCTION

International Diabetes Federation (IDF), National Cholesterol Expert Program Adult Treatment Program III (NCEP ATP III), World Health Organization (WHO)1, and harmonized criteria were used to define the term "metabolic syndrome", these criteria include central obesity, elevated triglycerides, reduced high-density lipoprotein (HDL), raised blood pressure (BP), and fasting plasma glucose (FPG) or fasting glucose levels (FGL)2. Diagnostic criteria for metabolic syndrome often include central obesity and any two of the risk variables3.

Reaven initially coined the term metabolic syndrome (MS), also known as syndrome X, in 1988 to refer to the presence of atherogenic risk factors and underlying insulin resistance. The World Health Organization (WHO) improved the definition in 1997 to refer to a particular grouping of risk factors for type 2 diabetes and cardiovascular diseases, including abdominal obesity, high blood pressure, atherogenic dyslipidemia, stroke, cardiovascular disease, hyperglycemia, insulin resistance, hyperuricemia, and proinflammatory state4,5,6.

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Clinical Spectrum of Alcoholic Liver Disease in Subjects Attending Outpatient Department at a Tertiary Care Hospital

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Authors' contributions

This work was carried out in collaboration among all authors. Author KS managed the literature searches, wrote the protocol, performed data analysis and interpretation and manuscript writing. Authors PPR and PS performed data collection and assembly of data. Author PNR helped in provision of study materials or patients, conception and design of study. Authors AVKB and ASR helped in administrative support and provided guidance in manuscript writing. All authors read and approved the final manuscript.

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Original Research Article

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ABSTRACT

Background: Alcoholic liver disease is one of the primary medical complication of chronic ethanol abuse. It encloses a wide spectrum of diseases comprising of fatty liver, alcoholic hepatitis, alcoholic cirrhosis and hepatocellular carcinoma.
Methodology: A prospective, observational study was done at AIG hospitals in the department of hepatology for a period of 6 months. A total of 200 patient's diagnosed clinically and biochemically with various spectrum of ALD were recruited for the study.Non-invasive prognostic scores were calculated at the time of admission and correlated with severity of disease.
Results: Among 200 study participants, 34.8% belongs to age group of 36-45 years. All were male patients with age group ranged from 25 to 73 years. We observed the high levels of alkaline phosphatese, aspartate aminotransferase/alanine aminotransferase ratio, mean corpuscular

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FORMULATION DEVELOPMENT AND IN-VITRO EVELUATION OF SUSTAINED RELEASE TABLETS OF REPAGLINIDE

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ABSTACT

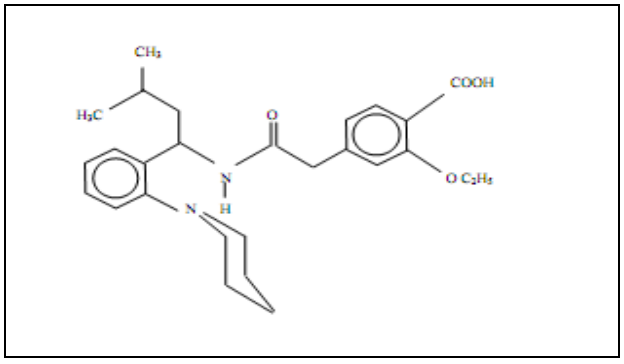
Repaglinide is an oral antihyperglycemic agent used for the treatment of non-insulin dependent diabetes mellitus (NIDDM). Repaglinide is an amino acid derivative that induces an early insulin response to meals decreasing postprandial blood glucose levels. The major problem in oral drug formulations is low and erratic bioavailability, which mainly results from poor aqueous solubility. Solid dispersions is the techniques and the most attractive processes to improve solubility of poorly soluble drugs. Here the solubility of Repaglinide is enhanced by solid dispersions with PEG 6000 and urea as carriers. Among the various solid dispersions prepared, the formulation FSDPN3 i.e., the solid dispersion of Repaglinide with PEG6000 prepared by Fusion method shows faster dissolution rate it was decided to use formulations FSDPN3 to formulate sustained release tablets using different polymers like HPMC, EC ,Guar gum and Xanthum gum by direct compression technique. Among the various sustained release tablets of Repaglinide solid dispersion prepared, the formulation F2 shows complete release of drug in 12 hrs, which is considered as best formulation for sustained release tablets of Repaglinide.

KEYWORDS: Antihyperglycemic, postprandial, xanthum gum, direct compression technique.

INTRODUCTION

Repaglinide (Prandin) is an oral insulin secretagogue of the meglitinide class. This agent is a derivative of benzoic acid & chemically it is: (S)-2-ethoxy-4-{2-[3-methyl-1- [2-(1-piperidinyl) phenyl] butyl] amino]-2-oxoethyl} benzoic acid.

Structure:



MATERIALS

Repaglinide was obtained from Chandra Labs, Hyderabad, India. Polyethylene glycol 6000 from S.D. Fine Chem. Ltd, Mumbai, India. Urea from S.D. Fine Chem. Ltd, Mumbai, India. Micro Crystalline Cellulose from S.D. Fine Chem. Ltd, Mumbai, India. Xanthum gum from S.D. Fine Chem. Ltd, Mumbai, India. Guar gum from S.D. Fine Chem. Ltd, Mumbai, India. Magnesium stearate from S.D. Fine Chem. Ltd, Mumbai, India. Talc from S.D. Fine Chem. Ltd, Mumbai, India. Ethyl cellulose from S.D. Fine Chem. Ltd, Mumbai, India. HPMC from S.D. Fine Chem. Ltd, Mumbai, India

Preparation of calibration curve for repaglinide:

A. Standard curve in 0.1N HCL by using U.V spectrophotometer

Stock Sample Preparation: Accurately weighed 100 mg of drug was first dissolved in100 mL of 0.1N HCl in 100 mL of volumetric flask to make a concentration of 1000 µg/mL (primary stock solution). 5 mL of primary stock solution was pipetted out into 50 mL of volumetric flask and volume was adjusted with 0.1N HCL to make a concentration of 100µg/mL (secondary stock solution).

Sample Preparation: From the secondary stock solution pipette out 0.2, 0.4, 0.6, 0.8, 1.0 ml in to 10ml of volumetric flask and volume made up to with 0.1N HCl to give various concentrations such as 2,4,6,8,10 µg/mL were prepared for calibration curve. Standard curve was plotted by taking absorbance of secondary stock solutions in UV double beam spectrophotometer at 292 nm.

B. Standard curve in 6.8pH phosphate buffer by using UV spectrophotometer

Stock Sample Preparation: Accurately weighed 100 mg of drug was first dissolved in100 mL of 6.8pH

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FORMULATION AND EVALUATION OF MEDICATED HERBAL TOOTHPASTE

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ABSTRACT

The aim of current research to formulate herbal toothpaste utilizing plant extract like *Azadhiracta indica* leaves, *Phyllanthus niruri* leaves, *Spathodea companulata* leaves, aloe vera, Cinnamon bark other ingredient are Camphor, Clove, Honey. The plant extracts ingredient possesses the antibacterial activity. The herbal toothpaste formulated which can satisfy all the required condition to keep the mouth fresh and prevent tooth decay by bacteria. Physical examination: Colour-Pale yellowish white, smooth in nature, relative density-10.2, PH-8.2, Spreadability- Good and stable formulation. The anti-microbial evaluation against *Staphylococcus aureus* reveal that formulated herbal tooth paste exhibited notable activity with ZOI of 16.0 mm at MIC of 25µg/ml. the outcome of this research herbal toothpaste shows equal patronizing and engrossing passion over the marketed preparation it was consider after the comparing the marketed preparation with formulated herbal toothpaste. It has been good scope in dental health of public.

Keywords: Herbal Ingredient, Toothpaste, Antibacterial, Dental, ZOI.

INTRODUCTION

Plants are indispensable to man for his life. The three important necessities of life food, clothing and shelter and a host of other useful products are supplied to him by the plant kingdom. Nature has provided a store house of remedies to cure ailments of mankind. The knowledge of drugs has accumulated over thousands of years as a result of man's inquisitive nature, so that today we possess many effective means of ensuring healthcare. Today a vast store of knowledge concerning therapeutic properties of different plants has accumulated.

Nature always stands as a golden mark to exemplify the outstanding phenomena of symbiosis. In the western world, as the people are becoming aware of the potency and side effect of synthetic drugs, there is an increasing interest in the natural product remedies with a basic approach towards the nature. Throughout the history of mankind, many infectious diseases have been treated with herbals. A number of scientific investigations have highlighted the importance and the contribution of many plant families. Medicinal plants play a vital role for the development of new drugs. The bioactive extract should be standardized on the basis of active compound. The bioactive extract should undergo safety studies. Almost, 70% modern medicines in India are derived from natural products. India has a very small share (1.6%) of this ever-growing global market. To compete with the growing market, there is urgency to expeditiously utilize and scientifically validate more medicinally useful plants [1].

Pharmacognosy is the infrastructure on which depends evolution of novel medicines. The crude drugs also provide essential intermediates for final synthesis of

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A STUDY ON EFFECTS OF PASSIVE SMOKING

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ABTRACT

According to World Health Organization tobacco is the leading cause of death world wide. Passive smoking or Environmental tobacco smoking (ETS) exposure is also known as “Second hand smoking” or “Involuntary smoke”. It may cause pulmonary or extra pulmonary health effects. Tobacco smoke contains over 4000 chemicals in the form of particles and gases, they have irritant properties and found to be suspected human carcinogens. Women have unique heath effects like reproductive and non reproductive problems and beside these disease which are common to both genders rise in women. Children exposed with this smoke have serious respiratory illness than adults. Inhalation of the second hand smoke is hazardous to adults and particularly in children and may cause lung cancer and coronary heart disease in non-smoker adults. ETS exposure has been reported to increase bronchial reactivity to histamine in asthmatics. Objective biomarker of exposure tobacco have been identified. Plasma cotinine was the marker of choice. Influence of passive smoking on pulmonary tests has also been examined and functional disorders of bronchioles have been detected. **Aim:** The aim of the present study is to educate about the passive smoking and to examine the knowledge about passive smoking among the various groups of people.

Objectives:

- Identification of the main sources of exposure.

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FORMULATION DEVELOPMENT AND IN-VITRO EVELUATION OF BUCCAL TABLETS OF BENIDIPINE HCL TABLET

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ABSTRACT

The aim of the present study was formulation development and in-vitro evaluation of benidipine hydrochloride tablet of strength 4 mg. Direct compression technique was chosen to develop a finished pharmaceutical product. Various formulations (F1-F8) were taken. In these trials, drug: excipient ratio was varied and the effect of diluents, and various polymers like, HPMC 15 cps as a rate controlling polymer, and Sodium Alginate, Chitosan, Carbopol 940 are as mucoadhesive polymers on the performance tablets was studied.All the formulation has hausner's ratio between the 1.10 to1.18. It indicates all the formulation show better flow property. Among all formulation F7 showed in-vitro drug release 98.9% for 12hrs. And which is showed better release than marketed preparation hence considered as most promising preparation.

KEYWARDS: Benidipine Hydrochloride tablet, HPMC 15 cps as a rate controlling polymer, and Sodium Alginate, Chitosan, Carbopol 940, mannitol, lactose, magnesium stearate, talc.

1. Drug profile: Benidipine hydrochlorideis a new calcium channel blocker of the dihydropyridine type. It is used as antihypertensive and antianginal agent. It is not official in any Pharmacopoeia.

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ABSTRACT

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EVAUATION OF ANTIMICROBIAL UTILISATION PATTERNS ACCORDING TO WORLD HEALTH ORGANISATION Aware CLASSIFICATION IN A MULTI- SPECIALTY HOSPITAL

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Abstract :
INTRODUCTION: - Inappropriate use of antibiotics has become one of the biggest drivers for antimicrobial resistance [AMR] which has become an expanding public health warning. To improve the usage of antimicrobials, the World Health Organization grouped antibiotics into three categories which include Access, Watch, Reserve group antibiotics [AWaRe]. The compulsion of WHO is that Access group of antibiotics should be widely used and at low cost and to reduce the usage of watch and reserve groups of Antibiotics. Combination of factors such as changing prescribing practices, increasing AMR to other antibiotics classes and lack of availability of first line penicillin antibiotics included in Access groups could lead to the increasing usage of second and third generation cephalosporins of Watch group.
OBJECTIVES: - The Purpose of this study is to evaluate the pattern of antibiotic consumption in patients admitted in different departments according to WHO AWaRe group classification and The Secondary objective is to find out the Medication Errors such as wrong dose, wrong dosage form, wrong route of administration and potential drug interactions caused due to prescribed antibiotics.
METHODOLOGY: - A prospective observational study was conducted over a period of six months at Star multispecialty hospital, Hyderabad. The study was conducted to evaluate the use of antibiotics according to WHO AWaRe group classification. Total 150 prescriptions were analyzed for antibiotic consumption in inpatient departments of hospital.
RESULTS: - In our study we evaluated the overall antibiotic consumption pattern and found that the share of Access, Watch and Reserve group were 24.66%, 68.02% and 5.96% respectively. In our study we observed that the antimicrobial consumption pattern changed drastically without culture test and after culture. It was found that without the culture test Access group were 27.94% Watch group were 69.23%, Reserve group were 2.43% and Unclassified were 0.40% while after culture test the share of Access group changed to 18.03%, Watch group changed to 65.57%, Reserve group changed to 13.11% and Unclassified to 3.28% respectively.

KEYWORDS: Antimicrobial resistance, Essential Medicine List, Empirical therapy, Medication errors, Drug interaction

I. INTRODUCTION:

WHO AWARE CLASSIFICATION

WHO has divided antibiotics into three groups namely: Access, Watch, Reserve group

- **Access** – antibiotics that represent first or second-line for empirical treatment of common infectious syndromes based on a systematic assessment of the available lab data and other factors and that have a good safety profile with a low resistance potential. All access antibiotics are part of the Essential medicine list, that is these antibiotics should be widely available in all settings (while still making efforts to ensure their appropriate use). many penicillins belong to this class.
  Examples include: - penicillins, first and second generation cephalosporins, doxycycline, clindamycin etc.
- **Watch** – antibiotics that present a higher resistant potential that negatively impact Anti microbial resistance. some watch group antibiotics are also included in the eml core list since they are the most effective options for a limited group of well-defined clinical syndromes, but their use should be tightly monitored and restricted to the limited indications. fluoroquinolones, which are unfortunately commonly used in many settings, belong to the watch group as their use should be avoided for indications for which they are no longer first or second choice.
  Examples include: - third and fourth generation cephalosporins.
- **Reserve** – "last-resort" antibiotics, that have activity against multi (Mdr))- or extensively (Xdr) resistant bacteria, and their use should become accessible but tailored to highly specific patients and, in those situations, where all alternatives have failed to work. Examples include: - carbapenems, linezolid, colistin etc. [12,13,14]

II. METHODOLOGY

Study site:
Multispecialty Hospital (Star Hospitals, Banjara Hills, Hyderabad)
Study Design: It is a Prospective Observational Study

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HORMONAL IMBALANCES: A CATASTROPHE TO HUMAN BIOLOGY

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ABSTRACT

The endocrine system is an essential part of the human biology. Its functions have been known since ancient times and proof of that is in the spiritual chakra system where each chakra corresponds to the endocrine gland in that location. However, hormonal health has been neglected in current medical practice due to limited knowledge of the role of hormones which is why many major groups of society are suffering from endocrine related disorders. One of these disorders which would be dangerous to ignore would be PCOD [Polycystic Ovarian Disease] or now known as PCOS [Polycystic ovary syndrome]. 1 in 10 women of childbearing age is affected by PCOS which can problems such as amenorrhea/ oligo menorrhea / hyper menorrhea, and ultimately fertility problems where the woman is unable to conceive. Men are also suffering from problems such as difficulty with ejaculation, difficulty maintaining an erection (erectile dysfunction), low sperm count, undescended testicles (even when age of puberty has been reached), and abnormal breast growth (gynecomastia). There has been a recent surge in these problems world-wide due to an increase in usage of artificial hormones and GMOs in processed food along with industrial pollutants which are being used on a large scale which are wreaking havoc on the human biology.

Keywords: PCOS, PCOD, Endocrine system , Fertility , Sexual health , Animal hormones ,Industrial toxins ,Naturopathy, Men's sexual health, Erectile Dysfunction

INTRODUCTION

In this article we would like to address:

1. What is PCOS?
2. What are the causes of PCOS?
3. What are the hormonal problems faced by men?
4. Harmful hormones being used in industries.
5. How to treat/prevent hormonal disruption through diet and lifestyle.

Polycystic Ovarian Syndrome:

PCOS is defined as a combination of signs and symptoms of androgen excess and ovarian dysfunction in the absence of other specific diagnoses. [1] The reproductive features of PCOS include increased androgen production and disordered gonadotropin (hormones secreted by pituitary gland) secretion leading to menstrual irregularity, hirsutism, and infertility.

Women with PCOS usually have at least two of the following three conditions: [2]

- Absence of ovulation, leading to irregular menstrual periods or no periods at all
- High levels of androgens (a hormone which mostly affects male fertility) or signs of high androgens, such as having excess body or facial hair
- Cysts (fluid-filled sacs) on one or both ovaries—"polycystic" which means "having many cysts"
- PCOS is the most common cause of anovulatory infertility, meaning that the infertility results from the absence of ovulation (the process that releases a mature egg from the ovary every month). Many women do not know that they have PCOS until they have trouble conceiving.

PCOS can cause other problems as well, such as unwanted hair growth, dark patches of skin, acne, weight gain, and irregular bleeding.

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HERBAL MEDICINE: FINDING TRADITIONAL WAYS FOR MODERN PROBLEMS (COVID-19)

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ABSTRACT

Traditional medicine [also known as indigenous or folk medicine] comprises medical aspects of traditional knowledge that developed over generations within various societies before the era of modern science. The WHO defines traditional medicine as " the sum total of the knowledge, skills and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether applicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness. World community is facing an unprecedented pandemic of novel corona virus disease[COVID-19] caused by Severe Acute Respiratory Syndrome Corona virus 2 [SARS-COV-2]. The disease has spread globally. The dimensions of pandemic require an urgent harnessing of all knowledge systems available globally. Utilization of Traditional Chinese Medicine in Wuhan to treat COVID-19 cases sets the example demonstrating the traditional health care can contribute to the treatment of these patients successfully. Notwithstanding the fact that no system of medicine has any evidence based treatment for COVID-19 as yet, clinical interventions are required to be put in place. Therefore, Traditional drugs could be implemented and be used in the treatment of COVID-19.

Keywords: Traditional Medicine, COVID-19, SARS-COV-2, Pandemic, TCM.

INTRODUCTION

Corona virus is a large family of enveloped, positive-sense, single strand RNA virus that infect a broad range of vertebrates. They are extensive in bats. The origin of SARS-COV-2 remains unclear. Bats are considered the original source of SARS-COV-2. The spike proteins in the virus will bind to ACE-2, these are located majorly in bronchioles and the other sites such as oral cavity, taste buds and tongue. Vaccines or drugs that specifically target SARS-COV-2 are lacking.

Mechanism of receptor recognition by SARS-COV-2

Spike protein mediates the entry of virus into the host cells. Spike protein of corona virus contain a receptor binding domain [RBD] that recognizes the ACE-2 as its receptor. Receptor binding domain contains core and RBM, and this mediates the contact with ACE-2. The surface of ACE-2 contains 2 virus binding spots. Several RBM surround these spots and regulate infectivity. Pathogenesis is by human-human transmissions. These SARS-COV-2 virus infected people in 2001-2003 and now corona virus are similar to each other. Several residue changes in SARS-COV-2 RBM stabilize 2 virus binding hotspots which increase the affinity of ACE-2 to bind more. The RATG13, a bat COV that is closely related to SARS-COV-2 also uses human ACE-2 as it's receptor.

Location and Distribution of ACE-2

Where the ACE-2 present in the body, there the virus will bind. High ACE-2 is identified in Type II alveolar cells of lungs, esophageal upper and stratified epithelilal cells, absorptive enterocytes from ileum and colon, cholangiocytes, myocardial cells, kidney proximal tubule cells, bladder urothelial cells, these organs are

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PHARMACOLOGICAL EVALUATION OF ANTIDEPRESSANT AND ANTIANXIETY ACTIVITY OF BUPLEURUM FALCATUM IN ANIMAL MODELS

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ABSTRACT

Bupleurum falcatum, belongs to the family Apiaceae. Anxiety and Depression are widespread psychiatric disorders affecting around 5% of the population. Furthermore, it is difficult to predict which patient will respond to any given treatment. In the traditional systems of medicine, many plants have been used to treat anxiety and depression for thousands of years. The present study was designed to evaluate the antianxiety and antidepressant activity of the alcoholic and aqueous extracts of *Bupleurum falcatum* leaves in rodents. Antianxiety activity was tested by exposing rats to unfamiliar aversion in different methods like elevated plus maze model and actophotometer. The results infer that reduced aversion fear elicits antianxiety activity. The antidepressant activity was tested by using forced swim test and tail suspension test. The results infer that reduced immobility time elicits antidepressant activity. It was concluded that alcoholic and aqueous extracts of *Bupleurum falcatum* leaves having antianxiety and antidepressant activity. Alcoholic extract of *Bupleurum falcatum* leaves showing more significant activity over the aqueous extract.

Keywords: *Bupleurum falcatum*, Antianxiety activity, Antidepressant activity, Elevated plus maze, Actophotometer, Despair swim test, Tail Suspension Test.

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Design and Characterization of Selegiline Bio-Nanoparticles as novel drug carriers for Parkinson's therapy

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ABSTRACT: Background: Selegiline is a monoamine oxidase inhibitor used for the treatment of Parkinson's disease. **Aim:** The present study was aimed to formulate Selegiline polymeric nanoparticles by using various polymers, PLGA (poly (lactic-co-glycolic acid) copolymer, TPGS (D-α-tocopherol-polyethylene glycol-1000 succinate) by Solvent dispersion (Nanoprecipitation) method. **Methods:** Absorption maximum of Selegiline was determined and analytical method was developed. The polymeric nanoparticulate formulations were subjected for Particle size, Zeta Potential, Drug Loading and Entrapment Efficiency studies. *In vitro* diffusion studies were conducted and release data was subjected to kinetic analysis. **Results:** The preformulation studies indicated that absorption maximum of Selegiline was corroborated with literature value. Calibration curve showed a high degree of linearity which represents the sensitivity and accuracy of developed analytical methods. The compatibility studies exhibited no interactions indicating drug polymer compatibility. Zeta potential of all polymeric nanoparticles indicates their stability. Formulations exhibited particle size in nano range with good drug entrapment and uniform drug content. Selegiline *In vitro* release studies showed sustained and prolonged release of drug indicates better absorption with patient compliance. Among all F6 formulations, it exhibited maximum drug release and was considered as optimized formulation with respect to its ideal drug entrapment and *in vitro* drug release. Release kinetics analysis of optimized formulation revealed that the F6 formulation followed zero order kinetics of drug release. **Conclusion:** Results obtained from the above studies conclude that Selegiline polymeric nanoparticles could be formulated for targeted drug delivery with better absorption and improved drug action for Parkinson's therapy.

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Keywords: Polymeric nanoparticles, Selegiline, Nanoprecipitation, PLGA, *In vitro* release, Parkinson's therapy.

INTRODUCTION:

Nanotechnology (NT) uses materials that are the devices of nanometric size range (1 to 100 nm) to treat neurodegenerative disorders. Current drug delivery nanosystems have been tailored to deliver drugs and contrast agents to the brain by crossing the blood brain barrier or through sustained local release. Currently, much attention is focused on research aimed at the development of biocompatible nanocarriers for drugs as indicated in Fig 1. Nanoparticles (NPs) are one of the

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THE COMPARATIVE STUDY OF PSYCHOLOGICAL DISTRESS AND QUALITY OF LIFE IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE AND IRRITABLE BOWEL SYNDROME

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ABSTRACT

Background: The mental health of a patient is equally important as the physical health in chronic conditions like IBD and IBS because these conditions involve the gut brain bidirectional interaction. The psychological status of the patient with IBD and IBS was correlated with the Patient's Quality of life. **Aim:** To asses and compare the psychological distress and quality of life in patients with inflammatory bowel disease and irritable bowel syndrome. **Objectives:** To determine the severity of the disease, health related quality of life and to compare the relative impact of the disease on HRQOL, psychological profile and perceived burden of stressful life events in two groups of outputs suffering from IBD and IBS. **Methods:** A prospective observational study was conducted in Asian Institute of Gastroenterology hospital, Hyderabad, over a period of 6 months which includes 319 cases. This study was conducted using validated questionnaires to evaluate severity, mental health, quality of life. **Results:** In our study IBD patients were found more anxious and depressed than the IBS patients. The quality of life of 78 IBD patients (29.6%) was found to be poor compared to the IBS patients where only 14 patients (25%) patient were found with poor quality of life. **Conclusion:** In this study 319

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SOLID STATE INVESTIGATION OF NABUMETONE

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ABSTRACT:

The present report was aimed at solid state manipulation of nabumetone. Nabumetone is a nonsteroidal anti inflammatory agent with slightly low risk of GI side effects. Different crystal forms of nabumetone were prepared using solvents of different polarity by four techniques, namely solvent evaporation, heating, quench-cooling and seeding. Microscopy, FTIR, X-ray diffractometry (XRD), and differential scanning calorimetry (DSC), were used to characterize crystalline forms of the nabumetone. Acicular and rod shaped crystals were obtained. Metastable polymorphs of nabumetone were identified on the basis of low melting points, and converted into stable form as indicated by the high melting point over a period of 2 months. The polymorph was identified as Form II was reported by earlier works. Evidence indicated that there are two different crystal habit of nabumetone. Physicochemical properties such as melting point, solubility and dissolution were evaluated. Crystals obtained from isopropyl alcohol, and isobutyl alcohol had nearly two fold higher aqueous solubility. Crystals obtained from ethanol has gradual and increased dissolution rate. These crystals may have still low risk of GI side effects.

Key words: Nabumetone, Glipizide, Solubility, Ethanol, Dissolution, Crystals.

INTRODUCTION

Polymorphism may be defined as the ability of a compound to exhibit different crystalline forms.Polymorphs may exhibit significantly different pharmaceutically relevant properties, and hence characterization of polymorphs is essential steps in the preformulation.[2] The polymorphism of an API determines its packing, thermodynamic, spectroscopic, kinetic surface, and mechanical properties in the solid state. The crystal structure can have a direct effect on the solubility of a solid. As different lattice energies characterize different crystal structures, the solubility of different crystal polymorphs must differ as well [1-3].

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RESEARCH ARTICLE

Iodine -A Versatile reagent for Vinylogous Mannich Reaction for the Synthesis of δ-Amino γ-Butenolides and *Insilico* Evaluation

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ABSTRACT:
A set of δ-amino γ-butenolides (1-5) were synthesised by a novel method using molecular iodine as a catalyst by mannich reaction. The purity and progress of the reaction was assessed by thin layer chromatography and the compounds characterisation was done by IR, proton NMR and mass spectroscopic techniques. Molecular modeling studies for the compounds such as docking was performed for the synthesized butenolides to understand the drug receptor interactions and analyze structural changes when bound to the active site of the receptor. the results showed that the compounds 2 and 3 showed significant interaction with target enzymes.

KEYWORDS: δ-amino γ-butenolides , molecular iodine, molecular modeling, MOL GRO virual docker.

INTRODUCTION:
Bioactive natural products can be considered very promising starting points for the development of new therapeutic agents[1]. The biological importance of unsaturated lactones is well known. In particular, the γ-alkylidene butenolides skeleton is a useful entity that is present in natural product such as fibrolides, dihydroxerulin, and protoanemonin and its derivatives possess antiviral, antibiotic, anticancer activity[2,3].

The direct method for the synthesis of γ-butenolides is the addition of 2-trimethylsiloxyfuran to imines in the presence of Lewis acids such as $BF_3.OEt_2$, TMSOTf, $SnCl_4$, $Bi(OTf)_3$, and $SiCl_4$ under strictly anhydrous and low temperature reaction conditions.[4,5] The presence of even a small amount of water lower the yields of the product probably due to the rapid decomposition or deactivation of the promoters. Therefore, the development of new reagents that are more efficient and provide improved yields and selectivity are well appreciated.[6]

Recently, molecular iodine has received considerable attention as an inexpensive, non-toxic, readily available catalyst for various organic transformations; affording the corresponding products with high selectivity in excellent yields. The mild Lewis acidity associated with iodine enhanced its usage in organic synthesis to perform several organic transformations using stoichiometric levels to catalytic amounts. Owing to advantages associated with this eco-friendly catalyst molecular iodine has been explored as a powerful reagent for various organic transformations.

The unique features of iodine prompted us to explore further applications of iodine as catalyst in various carbon-carbon bond forming reactions. The present work was aimed to develop a novel method for the synthesis of δ-amino γ-butenolides by the condensation of 2-trimethylsiloxyfuran with various imines in presence of iodine under mild conditions and perform insilico evaluation by docking with prostaglandin E synthase1 and phospholipase A2 using Molegro virtual docker.

MATERIALS AND METHODS:
The chemicals used were of synthetic grade purchased from local chemical vendors. Infrared spectra are recorded on Perkin Elmer model 283B and Nicolet 740 FT-IR instruments and values are given in cm^{-1}Proton magnetic resonance spectra are recorded on Varian Gemini 200, Varian unity 300 and Advance-300 MHz

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PACIFIERS: THE DILEMMA BETWEEN TRADITION AND NEW FINDINGS

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ABSTRACT

Pacifiers are devices which babies can suck on to help them calm down and sooth them when they cry, get restless or are struggling to sleep. These are made of a silicon or rubber teat which is attached to a plastic shield, which stops the baby from swallowing or choking on it while being helpful in handling the device. These are generally used to replace the mother's nipple and facilitate and medium for sucking which helps the mother take a break from breastfeeding. When babies suck on a pacifier, toy or thumb, it's called non-nutritive sucking (as it yields no nutrition). Pacifier use during the child's sleep has been associated with the prevention of Sudden Infant Death Syndrome [SIDS] and has been said to help babies learn to control their feelings, relax them, and make them feel secure. Pacifier use has been reported to be associated with a reduced risk of sudden infant death syndrome (SIDS), but most countries around the world, including the United States, have been reluctant to recommend the use of pacifiers because of concerns about possible adverse effects. In this review we shall see the different types of pacifiers, the materials used in their manufacture, the complications arising by their use, and the role they play in preventing Sudden Infant Death Syndrome [SIDS].

Keywords: Pacifiers, non-nutritive sucking, Sudden Infant Death Syndrome.

INTRODUCTION

Types of Pacifiers:

1. Orthodontic pacifiers: The nipples of these are flattened at the bottom and rounded at the top. During sucking these types of pacifiers flatten the baby's mouth which reduces pressure on the developing teeth.
2. Round tip baby pacifiers: These types of pacifiers mimic the shape of an actual nipple, which is why they are often suggested for breastfed babies to prevent nipple confusion.
3. Silicon baby pacifiers: These types are sturdier, easier to clean and more widely available.
4. Latex baby pacifiers: These types tend to be softer and more flexible but the softness of the material also means that there is a potential for tearing with older children with teeth.
5. Multiple-piece baby pacifiers: These are the most common types of pacifiers. These usually consist of a nipple, a guard and a ring which are each manufactured separately before being combined into the traditional pacifier.

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Materials used for the manufacture of pacifiers:

1. Silicon:
   It is a chemical element with the atomic number 14.
   It is a hard, crystalline solid with a slight metallic lustre. Its melting point is 1,414 °C.

These are easier to clean pacifiers which are widely available. They are made up of a single moulded piece of plastic, silicon or latex.

Effects:

Certain children can suffer from latex allergies and this is said to be due to vaccinations especially Hepatitis B vaccinations.

The latex used in this may also lead to health issues. Thought latex provides a smooth and flexible finish to the

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CLINICAL OUTCOMES AND TOLERABILITY OF SACUBITRIL-VALSARTAN COMBINATION IN PATIENTS WITH HEART FAILURE

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ABSTRACT

Background: Heart failure sometimes called as Congestive heart failure, occurs when heart muscles doesn't pump as well as it should. Certain conditions such as narrowed arteries in your heart (Coronary heart disease) o high blood pressure, gradually leave your heart too weak or too stiff to fill and pump efficiently. **Methodology:** A total of 101 patients were considered. Informed consent was obtained from all the subject care takers. Subjects enrolled in the study were admitted in ICU's and OP department. The study appraises the clinical outcomes of sacubitril-valsartan by detecting NYHA and LV Ejection fraction and evaluated the tolerability of the sacubitril-valsartan by detecting adverse effects of the drug. **Results:** Out of 101 patients 74 patients (74.3%) were found to be males and 27 patients (26.7%) were found to be females. Most of the patients were of elderly people. Most of the patients were diagnosed as suffering from CAD. **Conclusion:** Out of 101 patients treated with sacubitril – valsartan combination, most of the patients were tolerable to this drug. The outcomes such as elevated serum creatinine and serum electrolytes were almost normal.

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Improvement of Solubility and Dissolution Rate of Poorly Water-Soluble Anti-Cholestermic Drug Atorvastatin by Solid Dispersion Technique

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ABSTRACT

Atorvastatin calcium belongs to class II drug, which is characterized by low solubility and high permeability, which makes the drug to have low bioavailability. Enhancement of its solubility makes the drug more bioavailable and has fewer side effects. This was achieved by forming solid dispersion of the drug and formulating the tablets. Atorvastatin was mixed with various proportions of excipients which showed no color change at the end of two months, proving no drug-excipient interaction as confirmed by FTIR studies. The pre-compression blend of atorvastatin solid dispersions which were prepared by solvent evaporation technique were characterized with respect to angle of repose, bulk density, tapped density, Carr's index and Hausner's ratio. The pre-compression blends of all the batches were showed good to fair flowability and compressibility especially with F2 formulation having excellent results. The prepared formulations were evaluated for various quality control parameters. The tablets formulations passed all the tests of post formulation studies such as weight variation, friability, drug content, etc. From the *in vitro* studies, among all the formulations F2 formulation containing drug and mannitol in the ratio of 1:2 showed good dissolution rate of 97.43% in 25 minutes. While the formulations containing PVP k30 and PEG 4000 showed less release. Therefore, F2 formulation was found to be the better formulation as per dissolution profile. By conducting further studies like preclinical and clinical, the formulation can be adopted for manufacturing in bulk.

KEYWORDS: Atorvastatin, solid dispersions, Mannitol, PEG 4000, PVP k30.

Introduction

Hyperlipidemia is a condition with elevated levels of lipids as well as triglycerides in blood plasma, which are produced during biosynthesis pathway of cholesterol (Gupta *et al.,* 2011). This includes lipoproteins such as high, low and very low-density lipoproteins which are abbreviated as HDL, LDL and VLDL respectively as well as triglycerides (TG). High HDL levels in blood indicate lower risk of cardiovascular disease and hence called as good cholesterol whereas LDL, VLDL and TG levels if high are prone to increased risk of atherosclerosis as well as other cardiovascular disorders, and hence called as bad cholesterol (Ross and Harker, 1976). Atorvastatin calcium, an anti-hyperlipidemia agent is used in the treatment of patients with high cholesterol levels (Marchesi et al., 2000; Gomez-Domingues et al., 2006; Karpisek et al., 2007; Van Wissen et al., 2005; Roth., 2002). Atorvastatin competitively inhibits the HMG-CoA reductase enzyme thereby decreasing the hepatic cholesterol levels and also increase the HDL levels reducing the risk of cardiovascular mortality rate agent (Sasaki et al., 2002; Pontrelli et al., 2002; Server et al., 2003). Atorvastatin is known to selectively inhibit HMG-CoA reductase enzyme which is released by the liver and is responsible for the synthesis of mevalonate from HMG-CoA during the cholesterol biosynthesis pathway. This results in decreased hepatic enzyme thereby decreasing the hepatic cholesterol levels). It is primarily used to prevent coronary heart disease (CHD), myocardial infarction and other cardiovascular disorder (Karam et al., 2008; Yang et al., 2008; Tousoulis et al., 2013; Colhoun et al., 2004)

Atorvastatin belongs to class II drugs that are characterized by low solubility and high permeability (Fig. 1). It is freely soluble in methanol whereas it is partially soluble in water and phosphate buffer of pH 7.4 as a result, its bioavailability is minimal (Ahjel and Lupuleasa, 2009). Therefore, to enhance the bioavaila-

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RESEARCH ARTICLE

ATYPICAL PRESENTATION OF METASTATIC EWING'S SARCOMA OF PUBIC BONE-A RARE CASE

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Key words:-
Pelvic Mass, Ewing's Sarcoma(ES), Chemotherapy(CT), Radiation Therapy (RT), Surgery

Abstract

Ewing's sarcoma is a highly malignant bone tumor which usually occurs in children and young adults and is not common in adults older than 30 years. It often arises from diaphysis of long bones. Although it may develop in any bone, the most frequent sites are femur, ilium, tibia, pelvic area, ribs and scapulae. A delay in early symptoms and diagnosis is quite common, particularly of pelvic tumors in which this mass is not palpable until it is quite large. The most important and earliest symptom is pain which may radiate to the limbs and constitutional symptoms (such as malaise and fever). Majority of patients have metastasis involving the lungs and other bones. Ewing's sarcoma involving the pelvis is a great challenge in terms of local control due to the complexity of pelvic anatomy, which increases the difficulty of treating them. We report a rare case report of Ewing's sarcoma of right pubic ramus with metastasis to lungs and spine in a 19 years old male. Further multislice spiral CT pelvis, Magnetic Resonance Imaging (MRI) of dorsal and lumbar spine and nuclear medicine positron emission tomography (PET-CT scan) was done to assess the involvement of soft tissue and proven Ewing's sarcoma. He was treated by a multidisciplinary approach by surgery, chemotherapy (CT) and radiation therapy (RT) for effective response. The prognosis and survival of patients in this location (pelvis) are much less favourable than for patients with tumors of other extremities.

Introduction:-

Ewing's sarcoma is a primary malignant bone tumor that usually occurs during the first two decades of life. It is the second most common bone tumor of childhood and adolescence. It has been classified within a large group of neoplasms termed "Ewing's Sarcoma Family Of Tumors" (ESFT)[(1)]. Ewing's sarcoma can spread (metastasize) to other parts of the body, such as the lungs, bone marrow, and other soft tissues. When compared with other cancers, malignant bone tumors like Ewing's sarcoma are rare. Of these rare bone tumors, Ewing's sarcoma is the second most common in children and young adults. According to data on children younger than 15 years old, approximately 1.7 children out of a million develop the disease.[(2,3)]

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Open Access to Pharmaceutical and Medical Research

Open Access Review Article

The Clinical Aspects of Saroglitazar and its Side Effects

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ABSTRACT

The new substance element has been known as novel antidiabetic drug, eg: saroglitazar. saroglitazar is a medication used to treat type-2 diabetes. saroglitazar was known under the exchange name Lipaglyn, created by Zydus cadila. lipaglyn is the first drug approved to treat type-2diabetes mellitus by the drug controller general of India in june 2013. Lipaglyn is demonstrated for the patients experiencing diabetes dyslipidaemia. It is given once daily for treatment. Saroglitazar manages the lipid parameters just as glycemic control. [1]

Keywords: Anti-diabetic, dual PPAR agonist, glitazar, hypertriglyceridemia, insulin sensitizer, Lipaglyn, AE's (adverse effects).

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INTRODUCTION:

Dyslipidaemia is considered as one of the major risk factors for cardiovascular diseases (CVD) accounting for 50% of the myocardial infarction (MI) cases worldwide.[2] A recent epidemiological survey on prevalence of lipid abnormalities of the Indian population

by Indian Council of Medical Research-India Diabetes Study (ICMR-INDIAB), has shown that 79% of Indian subjects greater than 20 years of age have abnormalities in at least one of the lipid parameters.[3]In this survey, the commonly found lipid abnormality was low-high density lipoprotein cholesterol (low HDL-C) in 72% subjects followed by high triglycerides(TG) in 29.5% subjects and then high low-density lipoprotein cholesterol (LDL-C) in 11.8% subjects.[4] Prevalence of dyslipidaemia is high in India, pharmacological intervention strategies are used to prevent and manage cardiovascular risk factor. Statins the first line treatment for dyslipidaemia and decrease LDL-C levels as well as the danger of cardiovascular occasions in patients with or without cardiovascular disease.[5] Intensive statin treatment was compared with moderate-dose statin treatment steadily brings down LDL cholesterol levels and paces of non-lethal cardiovascular events.[6]The extent of CVD chance decrease as an outcome of LDL-C bringing down to the range of 25% and 35%.[3]This measurably important but clinically insufficient control of CVD risk is to a limited extent because of a lipid treatment centre around LDL-C alone with a resultant disregard of other significant parts of lipoprotein metabolism. [7] Statin treatment may not eliminate CVD Risk related with low HDL and high triglycerides. [8,9] This review article centres around raised serum triglycerides (TG) and triglyceride rich lipoproteins as potential components limiting further decrease in CVD events in spite of low on-treatment LDL-C. [10]

NEWER CONCEPT —DUAL PPAR α/γ AGONIST:

Peroxisome proliferator-activated receptors (PPARs) are nuclear lipid-activated interpretation factors that regulates the expression of genes to control the lipid and lipoprotein metabolism, glucose homeostasis and inflammatory process. There are 3 PPARs subtypes which are usually assigned PPAR alpha, PPAR gamma and PPAR ß/d. PPAR α enactment builds high thickness lipoprotein cholesterol synthesis, stimulates "reverse" cholesterol transport and decreases triglycerides. PPAR activation brings about insulin sensitization and antidiabetic activity. Consolidated medicine with PPAR and an agonist may conceivably improve insulin resistance and ease atherogenic

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Open Access to Pharmaceutical and Medical Research

Open Access Review Article

Therapeutic Considerations for Docetaxel and Paclitaxel in Metastatic Breast Cancer

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ABSTRACT

Breast cancer is the main source of death among women. Currently, 77% of women diagnosed with breast cancer are age 50 and older; however, it is projected that approximately 66% of the new cases diagnosed will occur in women younger than 65. Taxanes are one of the most effective class of drugs among all the chemotherapeutic agents. They are crucial in the adjuvant therapy of lymph node fantastic or high risk/lymph node poor breast cancer. Several clinical trials have assessed the wellbeing and adequacy of taxanes along with their tolerability in patients with metastatic cancer (MBC) The overview of these Paclitaxel and Docetaxel, the mechanism of action, pharmacokinetics and pharmacodynamics, dose and administration, adverse effects, clinical potency, and sufferable profiles combination therapies, the pathological complete response of these taxanes are included. The different novel formulations of taxanes are formulated from nanoparticles, polyglutamate, liposomes to improve the wellbeing and adequacy taxanes to reduce their toxicities. Single-agent research located with docetaxel and paclitaxel in metastatic breast most cancers show clinically huge antitumor motion even in the advanced stage, heavily pretreated, safe, as properly as in refractory diseases. This action is likewise clear with taxane-based combination regimens. Serious hematologic and nonhematologic toxicities are incompatible, with different toxicities noted dependent on the portion and weekly regimen selected. Weekly docetaxel and paclitaxel regimens speak to important helpful treatment options for women suffering from metastatic breast cancer and have entered assessment as a major aspect of adjuvant treatment for this disease Toxicity associated with taxanes chemotherapy are based totally on the dose schedules and weekly regimen selected and the most frequent toxicities related with these marketers include myalgia, peripheral neuropathy, neutropenia, etc Docetaxel retains in tumor cells for longer duration when compared to paclitaxel because of its slow efflux and large amounts of uptake into the cell which explains its more benefits when compared to paclitaxel. Clinical studies conducted so far suggested a more benefit to risk ratio for docetaxel when compared to paclitaxel. This article reviews mainly different actions exhibited by taxanes in the therapy of metastatic breast cancer and others on stages of cancer along with the toxicities associated with these agents.

Keywords: Metastatic breast cancer, Taxanes, Paclitaxel, Docetaxel, Single-agent, Combination regimen.

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INTRODUCTION:

Worldwide, breast cancer is leading cancer in females. Neoadjuvant chemotherapy administered before medical surgery is the possible treatment option for various breast cancer patients [1]. Preoperative chemotherapy diminishes the primary tumor thereby facilitating breast conservation [2, 3].

Preoperative chemotherapy administration on open tumors before the medical procedure likewise gives the chance to quickly measure tumor reaction and identify the patients who responded to the therapy. It also helps in attaining pathological complete response (pCR) which is often described by the destruction of all malignant cells from the breast and also from axillary lymph nodes, which is the primary endpoint for disease-free tolerance after neoadjuvant therapy, particularly in triple-negative breast tumor [4, 5].

Clinical parameters, for example, estrogen receptor-negative status, excessive histological evaluation, and high proliferative fame are associated with excessive affectability to chemotherapy [5, 6]. Of all the new anti-

Review Article

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A Comprehensive Study on Nerivio Migra

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ABSTRACT

Migraine is one among the foremost prevalent and disabling disorders, characterized by recurrent headache attacks with nausea, vomiting, photophobia, and phonophobia. Nerivio Migra may be a breakthrough device for acute treatment of migraines. Attached to the patient's arm (below the shoulder), it's a clinically-tested wearable suited to be worn everywhere and at any time. Non steroidal anti inflammatory drugs (NSAIDs) and triptans, commonly used for acute migraine treatment[3], may be ineffective, poorly tolerated, contraindicated, and if used in excess, may lead to medication overuse headache there is a great unmet need for alternative acute migraine treatments that are both effective and well tolerated. Non-invasive neuromodulation is safe, well tolerated, and may have fewer adverse effects than drugs. Remote electrical neuromodulation (REN) may be a novel acute migraine treatment that stimulates upper arm peripheral nerves to induce conditioned pain modulation (CPM) -an endogenous analgesia mechanism during which conditioning stimulation inhibits pain in remote body regions.

Key words:
Migraine,
Phonophobia, photophobia
Remote electrical neuromodulation.

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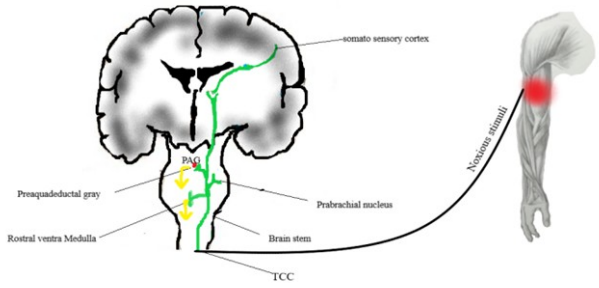
INTRODUCTION

Migraine is one among the foremost prevalent and disabling disorders, characterized by recurrent headache attacks with nausea, vomiting, photophobia, and phonophobia. Nerivio Migra may be a breakthrough device for the acute treatment of migraines. Attached to the patient's arm (below the shoulder), it is a clinically-tested wearable suited to be worn everywhere and at any time. NerivioMigra, also as other sorts of wearable's the corporate is planning, are controlled by intuitive smartphone applications to simply adapt therapy treatments to today's modern lifestyle. Which can be available in limited quantities for late 2019 and early 2020.

DISCUSSION

Migraine is one of the most prevalent and disabling disorders,[1] characterized by recurrent headache attacks with nausea, vomiting, photophobia, and phonophobia[2].Non-steroidal anti-inflammatory drugs (NSAIDs) and triptans, commonly used for acute migraine treatment[3], may be ineffective, poorly tolerated, contraindicated, and if used in excess, may lead to medication overuse headache [4,5] and migraine chronification[6] profound barriers to optimal migraine care[7,8]. Only 15.9% of the U.S. population with migraine use triptans, with an extremely high discontinuation prevalence of 55.2-81.5%[9] . Thus, there's an excellent unmet need for alternative acute migraine treatments that are both effective and well tolerated. Non-invasive neuromodulation is safe, well tolerated, and should have fewer adverse effects than drugs[10,11]. Remote electrical neuromodulation (REN) may be a novel acute migraine treatment that stimulates upper arm peripheral nerves to induce conditioned pain modulation (CPM) - an endogenous analgesia mechanism during which conditioning stimulation inhibits pain in remote body regions[12]. The mechanism of REN and its potential use in migraine are described in details during a recent pilot study[13].Presumably, REN activates descending inhibition pathways that originate within the periaqueductal gray (PAG) and within the rostral ventromedial medulla (RVM) which globally inhibit pain by the discharge of serotonin and noradrenalin (Fig. 1). the pilot study demonstrated that early treatment of migraine attacks with REN can significantly reduce headache[13]. During this paper, we report the results of a randomized, double-blind, sham - controlled, multicentre pivotal study designed to guage the efficacy and safety of REN for the acute treatment of migraine.

Figure 1. Migraine Head Ache



OPEN IN FIGURE VIEWER POWERPOINT

Schematic illustration of the principle of operation of REN. The device stimulates C and Aδnoxious sensory fibers of the upper arm above their depolarization thresholds but below the the perceived pain threshold. The noxious information reaches the brainstem through the ascending pain pathway

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Effect of Median Age of Countries Population on the Total Number of Covid-19 Cases and Deaths around the World

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ABSTRACT
COVID-19 (Coronavirus disease) is an infectious disease which is caused by a newly discovered coronavirus. Most of the people infected with the COVID-19 virus will show mild to moderate respiratory illness and recover without the necessity of special treatment. Median age is an important indicator of the population's age distribution. It provides the 'midpoint' age of a population. The aim of this review is to provide the evidence on the role of median age or young population of a particular country with regard to transmission rate of the spread of disease and deaths. The median age of all the affected countries were divided into four class intervals such as (15-25, 26-35, 36-45, and 46-55). The total number of Covid-19 cases and deaths of affected 209 countries/territories as on 13th April, 2020 were summarized according to their median age. Hence from the review, it can be concluded the total number of both cases and deaths are higher in countries with higher median age. From the survey reports of India and South Korea, it is clearly observed that the chances of infections is more in young people and the chances of fatalities are more in older people. Thus, in view of the data it can be said that the younger population is getting affected more, and hence perhaps with less number of deaths. That indicates that younger adults without realizing may be spreading COVID-19. Thus, the best approach for controlling the spread of COVID-19 seems to isolate older people and those with underlying medical conditions from the younger people.

Key-words: *COVID-19; Median age; Cases; Deaths.*

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I. INTRODUCTION

Several pneumonia cases of unknown etiology have been reported on 8th December, 2019, in Wuhan, Hubei province, China.[1-3] Most of the patients were found to live or work at around the local Huanan wholesale seafood market, where live animals were sold. On 7th January, 2020 the Chinese Center for Disease Control and Prevention (CDC) has identified a novel coronavirus from the sample of throat swab of a patient. The novel coronavirus was subsequently named as 2019-nCoV by World Health Organization (WHO).[4]

The official name of the 2019 novel coronavirus was then announced by WHO as coronavirus disease (COVID-19).[5] Within a month, this coronavirus quickly spread throughout China during the Chinese New Year, a time when there is a high level of mobility among Chinese people.[6]

COVID-19 (Coronavirus disease) is an infectious disease which is caused by a newly discovered coronavirus.[7] Most of the people infected with the COVID-19 virus will show mild to moderate respiratory illness and recover without the necessity of special treatment.[7] Elderly people, and those with underlying medical problems like diabetes, cardiovascular disease, cancer and chronic respiratory disease are more susceptible to develop serious illness.[7] The COVID-19 virus primarily spreads through saliva droplets or nasal

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Research Article

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EJPMR

EVALUATION OF ANTIDIABETIC ACTIVITY OF *SWERTIA CHIRAYITA* AND *PANAX GINSENG*

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ABSTRACT

Diabetes mellitus, one of the most common endocrine disorders has caused significant morbidity and mortality due to macro vascular and micro vascular complications. Currently available therapies for diabetes include insulin and various oral anti diabetic drugs have number of serious adverse effect; therefore the search for more effective and safer hypoglycemic agents is one of the important areas of investigation. Some medicinal plants have been reported to be useful in diabetes worldwide. The herbs like *swertia chirayata* shown to protect the liver. It contains xanthones which is reputedly effective against Malaria, Tuberculosis. It also cures constipation and used for treating dyspepsia with all other properties the *swertia chirayita* shows good anti diabetic activity. The other herb which was used to carry out the experiment *panax ginseng* is well effective in case of anti-sterility in men, it prevents cancer and fight chemical dependency (anti proliferative). The study was conducted to examine the possible antidiabetic activity of *swertia chirayata and panax ginseng* leaf extraction on male wistar rats. Gold thio glucose method was used to induce diabetes in rats. Initially blood glucose levels were increased abruptly after induction. After giving the oral administration of ethanolic extract of *swertia chirayat* (100mg/ Kg, 200mg/kg) and *panax gingseng* (250mg/kg, 100mg/kg). Finding of this research showed that ethanolic extract of a plant *swertia* possess phytochemicals like steroids, alkaloids, tannins, flavonoids and *panax ginseng* possess alkaloids, carbohydrates, flavonoids and tannins significant ($P < 0.05$) anti diabetic activity. The results were compared with standard drug metformin (400mg/kg).

KEYWORDS: *Swertia chirayita*, *panax ginseng*, Antidiabetics.

INTRODUCTION

DIABETES MELLITUS

Diabetes mellitus is a chronic metabolic disorder characterized by high blood glucose concentration (hyperglycemia) caused by insulin deficiency often combined with insulin resistance (Rang and Dale, 2008). Diabetes mellitus refers to the group of diseases that leads to high blood glucose level due to defect in either insulin secretion or insulin action in the body (Rother, 2007).

Hyperglycemia occurs because of uncontrolled hepatic glucose output and reduced uptake of glucose by skeletal muscle with reduced glycogen synthesis. When the renal threshold for glucose reabsorption is exceeded, glucose spills over into the urine (glycosuria) and causes an osmotic diuresis (polyuria), which in turn results in dehydration, thirst and increased drinking of water (polydipsia).

The characteristic symptoms of diabetes mellitus are polyuria, polydipsia, polyphagia (increased hunger), blurred vision, these symptoms may be absent if the blood sugar is only mildly elevated.

IMPORTANT TYPES OF DIABETES MELLITUS

A. TYPE I DIABETES MELLITUS

Type I diabetes mellitus is characterized by loss of the insulin producing beta cells of the islets of Langerhans in the pancreas leading to insulin deficiency. Type I diabetes can be further classified as immune mediated or idiopathic. Type I diabetes is majorly of the immune mediated variety, where beta cell loss is a T-cell mediated auto immune attack (Rother, 2007). Type I diabetes is also called as juvenile diabetes (childhood) or insulin dependent diabetes mellitus (IDDM).

There is no preventive measure that can be taken against this type I diabetes. Diet and exercise cannot reverse or prevent type I diabetes. Sensitivity and responsiveness to insulin are usually normal especially in early stages.

B. TYPE II DIABETES MELLITUS

Type II diabetes mellitus is characterized differently and it is due to insulin resistance or reduced insulin sensitivity and it may be absolutely due to reduced insulin secretion in some of the cases. Insulin receptor sensitivity decreases on insulin receptors.

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Original Article

STUDY OF POTENTIAL DRUG INTERACTIONS AMONG EIGHT MAJOR DEPARTMENTS-GENERAL MEDICINE, ORTHOPEDICS, GYNECOLOGY, PULMONOLOGY, GENERAL SURGERY, PSYCHIATRY, OTOLARYNGOLOGY AND DERMATOLOGY OF A TERTIARY CARE TEACHING HOSPITAL IN SOUTHERN INDIA

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ABSTRACT

Objective: To identify frequency, type, severity and predictors of potential drug-drug interactions(pDDIs), potential drug-food interactions(pDFIs), potential drug-alcohol interactions(pDAIs) and potential drug-tobacco interactions(pDTIs) and most frequently interacting drug combination pairs in hospitalized patients from departments(depts) of General Medicine(GM), Orthopedic(Ortho), Gynecology(OBG), Pulmonology(Pulmo), General Surgery (GS), Psychiatry (Psych), Otolaryngology(ENT) and Dermatology (Derm) of study population.

Methods: A Prospective Observational Study was conducted in eight major dept's of a tertiary care teaching hospital for a period of 6 mo. A sample size of 650 prescriptions reflecting admission no's for each department were used.

Results: A total of 650 patients were included in the study. Among them, 282(43.4%) were males and 368(56.6%) were females. The mean age of the study population was 39.67±15.23. A total of 487 pDDIs, 734 pDFIs, 586 pDAIs and 159 pDTIs were found out of 650 hospitalized episodes. OBG showed the highest pDDIs and pDAIs. Highest pDFIs and pDTIs were seen in Pulmo. The majority of DDIs were minor, DFIs and DAIs were moderate and DTIs were of major in severity. Pharmacokinetic types of interactions were seen in the majority of the depts. Logistic regression analysis showed that Polypharmacy was associated with the occurrence of DIs. Most of the DIs repeated several times in particular depts and a list of these combinations was prepared.

Conclusion: With the high occurrence of overall DIs and characteristic patterns of DIs combination pairs among different departments of the hospital, the presence of clinical pharmacists in hospitals can play a great role, especially in developing nations like India where their role in hospitalized settings is always controversial.

Keywords: Drug interactions, Drug-drug interactions, Drug-food interactions, Drug-alcohol interactions, Drug-tobacco interactions, Departments, Drug combination pairs, Clinical Pharmacist

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INTRODUCTION

Drug interactions(DIs) are one of the most common causes of adverse drug reactions and continues to be a public health challenge in both developed and developing countries in the world. These DIs can be defined as an alteration in the efficacy or toxicity of a drug caused by concomitant administration with other drugs, food, beverages, and other supplements [1]. With thousands of drugs available worldwide and a substantial increase in drug discovery processes, the range of possibilities for drug interactions is considerable. It is reported that elderly patients with their increased complexity of the disease and therapeutic regimen are more susceptible to the occurrence of DIs [2].

However, these DIs may also occur independently in patients of all age groups. As the pattern of medications received by patients of different age groups and in different departments in a hospital is more complex, it is not easy to estimate the occurrence of DIs accurately. The prescriptions having 3 or more drugs had increased from 11.8% in 1988-1994 to 20.08% in 2007-2010 and having 5 or more drugs have increased from 4% to 15.01% during the same time period in the United States [3, 4].

The mechanism implicated in the occurrences of DIs can be Pharmacokinetic (PK) with alteration in the absorption, distribution, metabolism, and excretion of object drug or Pharmacodynamic (PD) in which interaction is close to the target organ and has an additive or antagonistic effect on the pharmacological action of the object drug [5].

About 30% of all adverse drug events increasing the hospital stay and healthcare cost of patients are related to DIs [6, 7].

Therefore, reviewing the therapy by the clinical pharmacist based on the physiological conditions of the patient and considering the type of allergies, medication history, and social habits of the patient, the clinical pharmacist may play a key role in preventing different types of DIs and adverse events.

Not much data is available on the distribution pattern of DIs in different department's (dept's) of the hospital. There are several published data regarding the pattern of DIs in a particular department of the hospital or the overall interactions found in particular age groups [2, 8]. Further, the literature has mainly focused on drug-drug interactions (DDIs), while there are also risks of occurrence of DIs with food, alcohol, and tobacco [9-11]. There are some very well-known potential drug-food interactions that are potentially dangerous and may result in therapeutic failure. With an increasing population taking alcohol and tobacco, many drugs interact adversely with them. Hence this study aims to find out the frequency, type, severity, and predictors of potential drug-drug interactions (pDDIs), potential drug-food interactions (pDFIs), potential drug-alcohol interactions (pDAIs) and potential drug-tobacco interactions (pDTIs) and the most frequently interacting drug combination pairs in hospitalized patients from departments (depts) of General medicine (GM), Orthopedic (Ortho), Pulmonology (Pulmo), General Surgery (GS), Psychiatry (Psych), Otolaryngology (ENT) and Dermatology (Derm) of the study population, which will help the doctor to be aware of these

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SP-143

DEVELOPMENT, CHARACTERIZATION AND PRE CLINICAL EVALUATION OF POLYHERBAL SYRUP FOR ANTIOXIDANT AND HEP ATOPROTECTIVE ACTIVITY

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ABSTRACT

The liver problems are on rise which necessitates development of better remedies to contain them. Hence the present study was intended to develop, characterize and evaluate polyherbal syrup containing *Cicer arietinum, Tabebuia argentea, Acacia leucophloea, Biophytum sensitivum* for its hepatoprotective and antioxidant activity. Polyherbal syrup was prepared by taking equal proportions of methanolic extracts of selected plants and simple syrup in 1:5 proportions. The formulation was then characterized for its organoleptic parameters, physicochemical parameters, stability testing and refractive index. It was later evaluated for hepatoprotective and antioxidant activity in CCl_4 induced hepatotoxicity model. The formulation showed significant hepatoprotective and antioxidant activity by restoring altered biochemical and antioxidant enzyme levels in both the models which proved its efficacy in alleviating liver disorders. The study provides a better remedy for liver disorders which needs further substantiation in clinical studies.

KEY WORDS: ***Hepatotoxicity, Polyherbal formulation, Oxidative stress.***

1. INTRODUCTION

Liver diseases have turned into a global concern worldwide[1]. The exposure to various organic compounds (drugs, chemicals, etc.) and environmental pollutants, to form highly reactive substances like reactive oxygen species (ROS) directly or through metabolic activation, which results change in anatomy or functions of liver[2]. The management of liver disorders is a big challenge to the modern medicine. The modern allopathic drugs are unsatisfactory in alleviation of hepatic ailments and some of these drugs adversely affect the liver function. The traditional system of medicine like ayurveda and siddha system of medicine have a crucial role in curing of liver aliments[3].Owing to good safety profile, use of herbal medicine for various diseases have received much attention in worldwide and in India[4]. The herbal formulations that have attained widespread acceptability as therapeutic agents include antidiabetics, hepatoprotective agents, and lipid-reducing agents[5]. However, there are many limitations such as collection, storage, doses, and duration regarding the safety and efficacy of these preparations. A research has been carried out to evaluate hepatoprotective and antioxidant activity of herbal agents as formulation[6]. The formulation contains methanolic extracts of aerial parts except seeds and seed coat of *Cicer arietinum* (Fabaceae), leaves of *Tabebuia argentea* (Bignoniaceae), *Biophytum sensitivum* (Oxalidaceae) and bark of *Acacia leucophloea* (Mimosaceae).

2. MATERIALS AND METHODS

2.1. Preparation of formulation

All the plant materials were collected and authentication was done by Dr. K. Madhava Chetty, Assistant professor, Department of Botany, Sri Venkateshwara University, Tirupati, Andhra Pradesh. Methanolic extracts of each plant prepared by using continuous hot percolation method. These extracts of each plant in equal proportions were mixed with simple syrup in 1:5 v/v ratio. The final liquid dosage form was then subjected to evaluation of quality and Pharmacological activity of the formulation as per official standards.

2.2. Chemicals

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FORMULATION AND EVALUATION OF FELODIPINE HOLLOW MICROSPHERES

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ABSTRACT
Felodipine is a calcium channel blocker which is used for the treatment of high blood pressure to prevent heart stroke. In the current research work hollow microspheres of Felodipine with better absorption in gastric pH was formulated by using various polymers. Drug polymer compatibility was characterized by FT-IR. Microspheres were prepared by emulsion solvent diffusion technique by using different polymers such as ethyl cellulose, carbopol 934, eudragit and sodium alginate at varying concentrations. The formulations were evaluated for micromeritic properties, buoyancy, percentage yield, entrapment efficiency, *in vitro* studies and stability stuides. SEM photographs showed outer surface of microspheres was smooth and dense where as internal surface was porous which helped to prolong floating. Optimized F2 formulation exhibited higher release rate 95.55%. *In vitro* drug release studies showed controlled release of Felodipine for over 8h. Stability studies indicated the F2 formulation was stable with respect to its drug release.

KEYWORDS: Felodipine hollow microspheres, polymers, emulsion solvent diffusion technique, FTIR Studies, floating time, *in vitro* drug release studies.

INTRODUCTION
Oral drug delivery has been known for decades as the most widely used route of administration among all the routes. The reasons that the oral route achieved such popularity may be in part attributed to its ease of administration as well as the traditional belief. Pharmaceutical product designed for oral delivery which are currently available in the market mostly immediate-release or conventional release, which maintains the drug concentration within the therapeutically effective range only, when administered several times a day. This results in a significant fluctuation in the drug level.[1,2] An effective drug therapy not only depends on the inherent therapeutic activity of the drug molecule but also the efficiency of its delivery at the site of action. Drug absorption at the desired rate means, first, to reach the effective plasma level within an acceptable short time period; second, to avoid an overshoot in the case of rapidly absorbed drugs and third, to maintain effective plasma levels over the desired time period. To develop a drug delivery system for oral administration, it is necessary to optimize not only the release rate of an active ingredient from the system but also the residence time of the system in the gastrointestinal tract.[3] One of the most feasible approaches for achieving a prolonged and predictable drug delivery in the GI tract is to control the gastric residence time (GRT), by using gastro-retentive dosage forms (GRDFs).[4,5] Floating systems were first described by Davis in 1968. FDDS is an effective technology to prolong the gastric residence time in order to improve the bioavailability of the drug. FDDS are low-density systems that have sufficient buoyancy to float over the gastric contents and remain in the stomach for a prolonged period. Floating systems can be classified as follows. The various buoyant preparation include hollow microsphere (micro balloons), granules powder, capsule, tablet (pills) laminated films. Hollow microspheres float immediately upon contact with gastric fluid and gives promising approaches for increasing the bioavailability of drugs with absorption windows in upper small intestine and stomach. However, immediate floating can only be achieved, when the density of the device is lower than gastric fluid 1.004 gm/cm^3.[6,7] Hollow microspheres of non-steroidal anti-inflammatory drugs are very effective for controlled release, and reduce the major side effect of gastric irritation. For example, floating microspheres of indomethacin are quite beneficial for rheumatic patients.[8,9] Hollow microspheres can greatly improve the pharmacotherapy of the stomach through local drug release, leading to

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DESIGN AND *IN-VITRO* EVALUATION STUDIES OF TELMISARTAN LIPOSOMAL FORMULATIONS

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ABSTRACT
The aim of the present study was to develop a liposomal gel formulation for antihypertensive drug telmisatran. Liposomal carriers are well known for their topical drug delivery system with an advantage to overcome serious gastrointestinal complications for steroidal or non steroidal drugs given in oral route. Liposomes with various concentrations of cholesterol were prepared using thin film hydration technique (vacuum rotatory evaporator). The liposomal formulation was incorporated in gel (carbopol) and characterized. The SEM analysis showed surface morphology of liposomal formulation was achieved. The FTIR analysis showed there is no specific interaction between drug and excipients. The in-vitro studies revealed that liposomal gel formulation exhibits increased permeation showing sustain. The future studies are warranted to develop commercial liposomal gel formulation for the treatment of hypertension.

KEYWORDS: Liposomes, Telmisatran, FTIR & in-vitro studies.

INTRODUCTION
Telmisartan is a nonpeptide angiotensin-II receptor (type AT1) antagonist. It blocks the vasoconstrictor and aldosterone-secreting effects of angiotensin-II by selectively blocking its binding to the AT1 receptor in adrenal gland and smooth muscles of vasculature.[1,2] In the past few decades, considerable attention has been focused on the development of new drug delivery system (NDDS). The NDDS should ideally fulfill two prerequisites. Firstly, it should deliver the drug at a rate directed by the needs of the body, over the period of treatment. Secondly, it should channel the active entity to the site of action. Conventional dosage forms including prolonged release dosage forms are unable to meet none of these. At present, no available drug delivery system behaves ideally, but sincere attempts have been made to achieve them through various novel approaches in drug delivery. In recent years, vesicles have become the vehicle of choice in drug delivery. Lipid vesicles were found to be of value in immunology, membrane biology, diagnostic techniques, and most recently, genetic engineering. Vesicles can play a major role in modelling biological membranes, and in the transport and targeting of active agents. Vesicular drug delivery reduces the cost of therapy by improved bioavailability of medication, especially in case of poorly soluble drugs. They can incorporate both hydrophilic and lipophilic drugs. These systems delay drug elimination of rapidly metabolizable drugs and function as sustained release systems and solve the problems of drug insolubility, instability and rapid degradation. Consequently, a number of vesicular delivery systems such as liposomes, proliposomes, transferosomes, pharmacosomes, niosomes or proniosomes etc, were developed.[3] Most commonly used materials for the formation of vesicles are phospholipids cholesterol and non-ionic surfactants. Vesicular system offers number of advantages in drug delivery through the skin such as biocompatibility, non-toxicity, incorporated both hydrophilic and lipophilic drugs, controlled drug delivery rate and extent, act as a depot formation for sustained release of drug, increased permeation of drugs through the skin and penetration enhancer because of their unique composition etc.[4,5] Liposome can be defined as "a colloidal, vesicular structures composed of one or more lipid bilayers surrounding a number of aqueous compartments".[6] Liposomes can be composed of naturally-derived phospholipids with mixed lipid chain like egg phosphatidylethonalimine or of pure components like DOPE (dioleolylphosphatidyl ethanolamine) and cholesterol.[7] A number of evidences demonstrated the ability of liposomes to enhance the efficiency of drug delivery via several routes of administration.[8] Liposome as a vesicular system offers a number of advantages,

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DEVELOPMENT AND CHARACTRIZATION OF GRANISETRON FAST DISSOLVING TABLETS

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Therapeutic Considerations for Docetaxel and Paclitaxel in Metastatic Breast Cancer

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ABSTRACT

Breast cancer is the main source of death among women. Currently, 77% of women diagnosed with breast cancer are age 50 and older; however, it is projected that approximately 66% of the new cases diagnosed will occur in women younger than 65. Taxanes are one of the most effective class of drugs among all the chemotherapeutic agents. They are crucial in the adjuvant therapy of lymph node fantastic or high risk/lymph node poor breast cancer. Several clinical trials have assessed the wellbeing and adequacy of taxanes along with their tolerability in patients with metastatic cancer (MBC) The overview of these Paclitaxel and Docetaxel, the mechanism of action, pharmacokinetics and pharmacodynamics, dose and administration, adverse effects, clinical potency, and sufferable profiles combination therapies, the pathological complete response of these taxanes are included. The different novel formulations of taxanes are formulated from nanoparticles, polyglutamate, liposomes to improve the wellbeing and adequacy taxanes to reduce their toxicities. Single-agent research located with docetaxel and paclitaxel in metastatic breast most cancers show clinically huge antitumor motion even in the advanced stage, heavily pretreated, safe, as properly as in refractory diseases. This action is likewise clear with taxane-based combination regimens. Serious hematologic and nonhematologic toxicities are incompatible, with different toxicities noted dependent on the portion and weekly regimen selected. Weekly docetaxel and paclitaxel regimens speak to important helpful treatment options for women suffering from metastatic breast cancer and have entered assessment as a major aspect of adjuvant treatment for this disease Toxicity associated with taxanes chemotherapy are based totally on the dose schedules and weekly regimen selected and the most frequent toxicities related with these marketers include myalgia, peripheral neuropathy, neutropenia, etc Docetaxel retains in tumor cells for longer duration when compared to paclitaxel because of its slow efflux and large amounts of uptake into the cell which explains its more benefits when compared to paclitaxel. Clinical studies conducted so far suggested a more benefit to risk ratio for docetaxel when compared to paclitaxel. This article reviews mainly different actions exhibited by taxanes in the therapy of metastatic breast cancer and others on stages of cancer along with the toxicities associated with these agents.

Keywords: Metastatic breast cancer, Taxanes, Paclitaxel, Docetaxel, Single-agent, Combination regimen.

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INTRODUCTION:

Worldwide, breast cancer is leading cancer in females. Neoadjuvant chemotherapy administered before medical surgery is the possible treatment option for various breast cancer patients [1]. Preoperative chemotherapy diminishes the primary tumor thereby facilitating breast conservation [2, 3].

Preoperative chemotherapy administration on open tumors before the medical procedure likewise gives the chance to quickly measure tumor reaction and identify the patients who responded to the therapy. It also helps in attaining pathological complete response (pCR) which is often described by the destruction of all malignant cells from the breast and also from axillary lymph nodes, which is the primary endpoint for disease-free tolerance after neoadjuvant therapy, particularly in triple-negative breast tumor [4, 5].

Clinical parameters, for example, estrogen receptor-negative status, excessive histological evaluation, and high proliferative fame are associated with excessive affectability to chemotherapy [5, 6]. Of all the new anti-

Research Article

Formulation and Evaluation of a Novel Capsule-in-a-Capsule Technology of Anti-tubercular Drugs

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ABSTRACT

The present investigation aims to develop a novel capsule-in-a-capsule technology using multiple unit mini-tablets for targeting and sustaining the release of rifampicin and isoniazid in stomach and intestine respectively. Before developing the batches, drugs and polymers were checked for compatibility studies. For preparing the formulation, rifampicin was developed as liquid dispersions and floating mini-tablets using various solvent mixtures and hydrophilic polymers respectively. Whereas, isoniazid was developed as intestinal targeted mini-tablets using pH-dependent polymers. Moreover, the capsule-in-a-capsule formulation was developed by first filling five isoniazid mini-tablets into a smaller sized capsule (i.e. size "3") and then smaller mini-tablets-filled capsule of isoniazid and ten rifampicin mini-tablets into a bigger sized capsule (i.e. size "0"). FTIR and DSC studies confirm that there was no interaction between drug and polymers. From the separate in-vitro dissolution studies, it was found that rifampicin floating mini-tablets containing 30% concentration of HPMCK-4M and HPMC-K100M polymers in 1:4 ratio and intestinal targeted isoniazid mini-tablets containing 50% concentration of eudragit-S100 polymer were considered as the most optimized batches. Whereas, capsule-in-a-capsule formulation released 96.92±1.14 % of rifampicin at the end of 4 hours and 4.17±1.68 %, 99.06±1.88 % of isoniazid at the end of 2 and 6 hours respectively. This formulation was also found to be stable as per the ICH guidelines. The developed capsule-in-a-capsule formulations have successfully released rifampicin and isoniazid in the pH of stomach and small intestine respectively as observed from the in-vitro results.

Keywords: Rifampicin; Isoniazid; Capsule-in-a-capsule technology; Liquid dispersions; Floating mini-tablets; Intestinal targeted mini-tablets.

INTRODUCTION

Tuberculosis is a deadly and common infectious disease which is caused by mycobacterium, mainly mycobacterium tuberculosis.[1] Since past forty years, rifampicin and isoniazid has been majorly used in tuberculosis therapy.[2,3] It is because isoniazid is a first-line anti-tubercular drug and it acts by inhibiting the mycolic acid synthesis in the mycobacterium cell wall. Isoniazid is never used alone to treat active tuberculosis because of its quick resistance to the body. Whereas, rifampicin is a novel and only anti-tubercular drug which has the unique ability to kill dormant tubercular bacilli. It acts by inhibiting DNA-dependent RNA polymerase in the bacterial cells by binding to its beta-subunit, thereby preventing RNA transcription and subsequent proteins translation.[4]

Isoniazid and rifampicin are widely prescribed as combination product for tuberculosis treatment. But since past years, two critical problems have been observed from such combination products of isoniazid and rifampicin. That includes 1) The impaired and varying bioavailability of rifampicin from combination formulation with isoniazid and 2) Poor rifampicin stability containing combination formulation with Isoniazid.[5-7] The possible reason for such problem is that the rifampicin interacts with isoniazid in the acidic media of stomach to form inactive 3-formyl rifamycin isonicotinyl hydrazone. Thus, the use of substandard combination formulations ultimately results in the emergence of drug resistant tuberculosis and hence treatment failure.[8] Moreover, it has also been found that rifampicin is highly soluble between 1-2 pH and well absorbed from the stomach. Whereas, isoniazid is well absorbed from all the three sections of small intestine (i.e. duodenum, jejunum and ileum).[9] Thus, there is a necessity to modify the combination formulation in such a way that rifampicin and isoniazid are not released simultaneously in the stomach.

Thus, the innovative thinking has transformed towards the novel concept of capsule-in-a-capsule technology of Anti-tubercular drugs with improved functionality. It is because capsule-in-a-capsule drug delivery systems are ideally suited for combination or dual release products. They can be used to combine incompatible active pharmaceutical ingredients and to deliver compounds to two different regions of gastro-intestinal tract. The best advantage of this novel technology is that it offers several

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CORONAVIRUS: ORIGIN, SPREAD, DIAGNOSTIC TESTS, LIFE CYCLE, TREATMENT AND PREVENTIVE MEASURES FOR COVID-19

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ABSTRACT

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).It was first identified in December 2019 in Wuhan, China, and has since spread globally, resulting in an ongoing pandemic. The World Health Organization (WHO) on March 11, 2020, has declared the novel coronavirus (COVID-19) outbreak a global pandemic. According to the CDC Trusted Source, SARS-CoV-2 has an incubation period of 2 to 14 days. This means that someone who's carrying the virus may come into contact with many people before symptoms begin. The virus is primarily spread between people during close contact, often via small droplets produced by coughing,sneezing, and talking.To date, there are no specific vaccines or medicines for COVID-19 but by using some anti-viral and anti malarial drugs such as hydrochlroquine and chloroquine it can be treated out. The epidemic preventive measures are epidemic lockdown and social distancing.

Keywords: COVID-19, SARS-CoV-2, epidemic prevention and control, social distancing, epicenter lockdown.

INTRODUCTION

Corona viruses belong to the class:-pisoniviricetes, family:Corona viridae, kingdom:-orthornavirae and are characterized by causing respiratory tract infections ranging from mild diseases such as common cold to pneumonia with a lethal outcome.The SARS-CoV-2 virus is a single-stranded RNA beta-coronavirus, similar to SARS-CoV and MERS-CoV.Researchers first identified a coronavirus in 1937, isolating one that was responsible for a type of bronchitis in birds that had the potential to devastate poultry stocks.Scientists found evidence of human coronaviruses in the 1960s, in the noses of people with the common cold. In the context of human coronaviruses, it was thought that they caused only mild self-limitinginfections until the SARS-CoV outbreak in 2002–2003 [2]. Two humanα-coronaviruses (HCoV-229Eand HCoV-NL63) and twoβ-coronaviruses (HCoV-OC43 and HCoV-HKU1) were identified asendemic in human populations, responsible for 15%–30% of annual respiratory tract infections.However, a more severe disease has been detected in neonates, elderly people and in individuals withpre-existing illnesses

Human coronaviruses that are particularly prevalent include 229E, NL63, OC43, and HKU1.The name "coronavirus" comes from the crown-like projections on their surfaces. "Corona in Latin means "halo" .

Origin and cause

The coronavirus likely originated in bats or pangolins. The first transmission to humans was in Wuhan, China. Since then, the virus has mostly spread through person-to-person contact.

Coronaviruses are a group of viruses that can cause disease in both animals and humans. The most common in certain species of animals, such as cattle and camels. Although the transmission of coronaviruses from animals to humans is rare, this new strain likely came from bats, though one study suggests pangolins may be the origin. The severe acute respiratory syndrome (SARS)

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Research Article

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A NEW HPLC METHOD DEVELOPMENT AND VALIDATION FOR THE DETERMINATION OF SOFOSBUVIR IN TABLET DOSAGE FORM

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ABSTRACT

A simple, accurate, rapid and precise isocratic reverse phase high performance liquid chromatographic method has been developed and validated for the determination of Sofosbuvir in tablet dosage form. The chromatographic separation was carried out with a Kromosil analytical column (250×4.6mm,5µm), a mixture of 0.1% ortho phosphoric acid: acetonitrile in the ratio of 30:70 as mobile phase, at a flow rate of 1.0 ml/minute maintaining the temperature at 30ºc. UV detection was performed at 260 nm. The retention time was 2.576 for Sofosbuvir. The method was validated according to ICH guidelines and the acceptance criteria of results for accuracy, precision, linearity, robustness, limit of detection, limit of quantification and ruggedness were met in all cases. The % RSD values for Sofosbuvir in precision study was found to be 0.70%. The linearity of the calibration curve for each analyte in the desired concentration range was good (r^2>0.999). The high recovery and value of low relative standard deviation confirm the suitability of the method for routine evaluation of Sofosbuvir in pharmaceutical dosage forms.

KEYWORDS: Sofosbuvir, HPLC, Method development, validation.

INTRODUCTION

Sofosbuvir (SBR) is a pro drug.[1-5] nucleotide analog, an important part used as combination therapy to treat cases like hepatitis C virus (HCV) infection, co-infection of HIV and HCV. After its metabolism to the active antiviral agent 2'-deoxy-2'-α-fluoro-β-C-methyluridine-5'-triphosphate (commonly known as GS-461203), the triphosphate generally serves as a defective substrate for the protein NS5B, an RNA-dependent RNA polymerase which required for replication of viral RNA. The drug SBR and other nucleotide inhibitors of the HCV RNA polymerase exhibit a very high barrier to resistance development. Markedly, this is an important advantage relative to HCV drugs that target other certain viral enzymes such as the protease, for which rapid resistance development has proved to be an important cause of therapeutic failure.

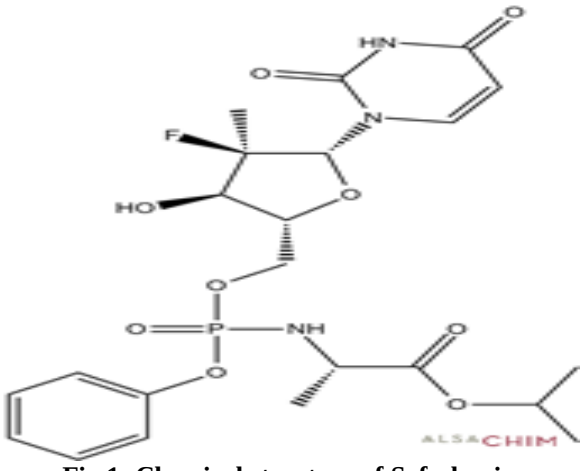

Fig 1: Chemical structure of Sofosbuvir.

Literature survey,[4-10] helps us to get motivated and go for the present research work. There are certain assay methods available for this compound. Kalpana Nekkala, Shanmukha Kumar J V, Ramachandran D developed a method for the simultaneous estimation of sofosbuvir

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RESEARCH ARTICLE

Development and Validation of UPLC method for the determination of Lenvatinib in Capsule formulation

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ABSTRACT:
A new, simple and selective method was developed to estimate Lenvatinib pharmaceutical dosage form by UPLC. Ideal Chromatographic peak of separation was attained on a Acquity BEH C18 (50*3.0mm. 1.7µm) using mobile phase consisting 0.1% Orthophosphoric acid: ACN (60:40) v/v with detection of 248 nm. Linearity of the drug was observed in the concentration range 60-140 µg /ml (r^2 =0.994). From the results, the developed method was simple, sensitive, precise and accurate and it can successfully be applied for the determination of API in the commercial formulations of Lenvatinib in quality control laboratories.

KEYWORDS: Lenvatinib, development, validation, ICH guidelines, UPLC method.

INTRODUCTION:
Lenvatinib is chemically 4-[3-chloro-4-(cyclopropylcarbamoylamino)phenoxy]-7-methoxyquinoline-6-carboxamide as shown in figure 1 with the molecular formula $C_{21}H_{19}clN_4O_4$ and molecular weight of 426.857g/mol[1]. It is an anticancer agent which acts by inhibiting VEGFR (vascular endothelial growth factor) as well as FGFR (fibroblast growth factor receptors) and also platelet derived growth factor receptor (PDGFR)[2]. Hence, used in the treatment of thyroid cancer[3][4][5] Hepatocellular cancer (HCC)[6][7] and renal carcinoma.[8]

Literature study shows very few validation methods for determining Lenvatinib such as spectroscopy and HPLC method[9], LC-MS/MS method[10][11] as well as RP-HPLC method[12][13]. However, in the present research study, a new and precise UPLC method was established for determination of Lenvatinib in capsule formulation and validated as per ICH guidelines[14].

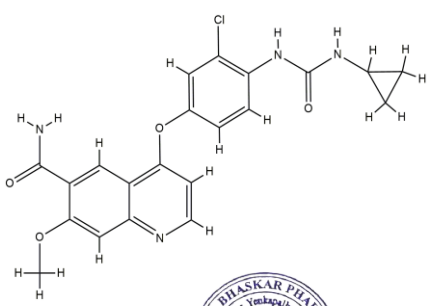

Figure 1: Structure of Lenvatinib

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NEW METHOD DEVELOPMENT AND VALIDATION FOR SIMULTANEOUS DETERMINATION OF ASPIRIN, ATORVASTATIN AND CLOPIDOGREL IN CAPSULE DOSAGE FORM BY HPLC

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Abstract:

A simple, accurate, rapid and precise isocratic reverse phase high performance liquid chromatographic method has been developed and validated for simultaneous determination of aspirin, atorvastatin and clopidogrel in capsule dosage form. The chromatographic separation was carried out on an Inertsil ODS analytical column (250×4.6mm,5µm) with a mixture of solvents phosphate buffer (pH 3.15 adjusted with o-phosphoric acid), acetonitrile and methanol (40:40:20 v/v/v) as mobile phase, at a flow rate of 1.0 ml/minute maintaining the temperature at 30ºc. UV detection was performed at 240 nm. The retention times were 2.4, 3.5 and 4.5 for atorvastatin, aspirin and clopidogrel respectively. The method was validated according to ICH guidelines and the acceptance criteria of results for accuracy, precision, linearity, robustness, limit of detection, limit of quantification and ruggedness were met in all cases. The % RSD values for atorvastatin, aspirin and clopidogrel were found to be 0.101%, 0.547% and 0.515% respectively. The linearity of the calibration curve for each analyte in the desired concentration range was good (r^2>0.999). The high recovery and value of low relative standard deviation confirm the suitability of the method for routine evaluation of aspirin, atorvastatin and clopidogrel in pharmaceutical dosage forms.

Keywords: *Aspirin, atorvastatin, clopidogrel, simultaneous, HPLC.*

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Research article *Open Access*

Method development and validation of combination of sofosbuvir and velpatasvir by RP-HPLC method

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ABSTRACT

Objective
The objective of the present research work was to develop a innovative, simple, and economic method for estimation of Sofosbuvir and Velpatasvir in bulk and dosage form by RP-HPLC.

Methods
The chromatographic conditions were performed on Develosil ODS HG-5 RP C_{18}, 5µm, 15cmx4.6mm i.d. as stationary phase and mobile phase was prepared with a mixture of Potassium Dihydrogen Phosphate buffer (adjusted with 1% Orthophosphoric acid, pH- 3.5) (0.05M) : Acetonitrile with (70:30 v/v), flow 1.0 ml/min, with Injection Volume 10µl, at detection wavelength 257 nm and run time at 10.0 mins

Results
The analytical method is valid for estimation of Sofosbuvir and Velpatasvir over a range of 6 µg/ml – 14 µg/ml and 12 µg/ml – 28 µg/ml. The results of system suitability test, linearity, precision and accuracy, robustness, specificity, LOD and LOQ and stabilities presented in this report are within the acceptance range.

Conclusion
A specific, sensitive, economic method estimation of Sofosbuvir and Velpatasvir has been developed based on ICH Guidelines with bulk and dosage forms.

Keywords: Sofosbuvir and Velpatasvir, HPLC, Method Development, ICH, Validation, Accuracy, Precision.

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Research article *Open Access*

Method development and validation of raltegravir by RP-HPLC method

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ABSTRACT

Objective

The objective of the present research work was to develop an innovative, simple, and economic method for estimation of Raltegravir in bulk and dosage form by RP-HPLC.

Methods

The chromatographic conditions were performed on Symmetry Develosil ODS HG-5 RP C_{18}, 5µm, 15cmx4.6mm i.d. as stationary phase and mobile phase was prepared with a mixture of Phosphate buffer (pH=3.0) : Methanol with 30:70, flow 1.0 ml/min, with Injection Volume 10µl, at detection wavelength 246 nm and run time at 5.0 min.

Results

The analytical method is valid for estimation of Raltegravir over a range of 20 µg/ml–70 µg/ml. The results of system suitability test, linearity, precision and accuracy, robustness, specificity, LOD and LOQ and stabilities presented in this report are within the acceptance range.

Conclusion

A specific, sensitive, economic method estimation of Raltegravir has been developed based on ICH Guidelines with bulk and dosage forms.

Keywords: Raltegravir, HPLC, Method Development, ICH, Validation, Accuracy, Precision.

INTRODUCTION

Raltegravir (RAL), sold under the brand name Isentress, is an antiretroviral medication used, together with other medication, to treat HIV/AIDS. [1] It may also be used, as part of post exposure prophylaxis, to prevent HIV infection following potential exposure. It is taken by mouth. [2] Common side effects include trouble sleeping, feeling tired, nausea, high blood sugar, and headaches. [3] Severe side effects may

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EJPMR

EVALUATION OF ANTIDIABETIC ACTIVITY OF *SWERTIA CHIRAYITA* AND *PANAX GINSENG*

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ABSTRACT

Diabetes mellitus, one of the most common endocrine disorders has caused significant morbidity and mortality due to macro vascular and micro vascular complications. Currently available therapies for diabetes include insulin and various oral anti diabetic drugs have number of serious adverse effect; therefore the search for more effective and safer hypoglycemic agents is one of the important areas of investigation. Some medicinal plants have been reported to be useful in diabetes worldwide. The herbs like *swertia chirayata* shown to protect the liver. It contains xanthones which is reputedly effective against Malaria, Tuberculosis. It also cures constipation and used for treating dyspepsia with all other properties the *swertia chirayita* shows good anti diabetic activity. The other herb which was used to carry out the experiment *panax ginseng* is well effective in case of anti-sterility in men, it prevents cancer and fight chemical dependency (anti proliferative). The study was conducted to examine the possible antidiabetic activity of *swertia chirayata and panax ginseng* leaf extraction on male wistar rats. Gold thio glucose method was used to induce diabetes in rats. Initially blood glucose levels were increased abruptly after induction. After giving the oral administration of ethanolic extract of *swertia chirayat* (100mg/ Kg, 200mg/kg) and *panax gingseng* (250mg/kg, 100mg/kg). Finding of this research showed that ethanolic extract of a plant *swertia* possess phytochemicals like steroids, alkaloids, tannins, flavonoids and *panax ginseng* possess alkaloids, carbohydrates, flavonoids and tannins significant ($P < 0.05$) anti diabetic activity. The results were compared with standard drug metformin (400mg/kg).

KEYWORDS: *Swertia chirayita*, *panax ginseng*, Antidiabetics.

INTRODUCTION

DIABETES MELLITUS

Diabetes mellitus is a chronic metabolic disorder characterized by high blood glucose concentration (hyperglycemia) caused by insulin deficiency often combined with insulin resistance (Rang and Dale, 2008). Diabetes mellitus refers to the group of diseases that leads to high blood glucose level due to defect in either insulin secretion or insulin action in the body (Rother, 2007).

Hyperglycemia occurs because of uncontrolled hepatic glucose output and reduced uptake of glucose by skeletal muscle with reduced glycogen synthesis. When the renal threshold for glucose reabsorption is exceeded, glucose spills over into the urine (glycosuria) and causes an osmotic diuresis (polyuria), which in turn results in dehydration, thirst and increased drinking of water (polydipsia).

The characteristic symptoms of diabetes mellitus are polyuria, polydipsia, polyphagia (increased hunger), blurred vision, these symptoms may be absent if the blood sugar is only mildly elevated.

IMPORTANT TYPES OF DIABETES MELLITUS

A. TYPE I DIABETES MELLITUS

Type I diabetes mellitus is characterized by loss of the insulin producing beta cells of the islets of Langerhans in the pancreas leading to insulin deficiency. Type I diabetes can be further classified as immune mediated or idiopathic. Type I diabetes is majorly of the immune mediated variety, where beta cell loss is a T-cell mediated auto immune attack (Rother, 2007). Type I diabetes is also called as juvenile diabetes (childhood) or insulin dependent diabetes mellitus (IDDM).

There is no preventive measure that can be taken against this type I diabetes. Diet and exercise cannot reverse or prevent type I diabetes. Sensitivity and responsiveness to insulin are usually normal especially in early stages.

B. TYPE II DIABETES MELLITUS

Type II diabetes mellitus is characterized differently and it is due to insulin resistance or reduced insulin sensitivity and it may be absolutely due to reduced insulin secretion in some of the cases. Insulin receptor sensitivity decreases or insulin receptors.

Research Article

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QUANTITATIVE DETERMINATION OF QUERCETIN A BIOMARKER IN METHANOLIC EXTRACT OF *LAGERSTROEMIA LANCEOLATA* AND *LAGERSTROEMIA PARVIFLORA* LEAVES BY HPTLC METHOD

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ABSTRACT

In Indian Ayurvedic system, *Lagerstroemia lanceolata* (*L. lanceolata*) and *Lagerstroemia parviflora* (*L. parviflora*) are well-known plants used for major and minor ailments. Quercetin identified from the vast plethora of plant extracts has proved to possess ethno pharmacological relevance. The present investigation is to estimate biologically active flavonoid compound, quercetin in methanolic leaves extract of *L. lanceolata* and *L. parviflora* by using high-performance thin-layer chromatography (HPTLC). After extraction and phytochemical screening, the extracts were subjected to quantification for the presence of quercetin by HPTLC. Pre coated silica gel 60 F254 is used as a stationary phase and toluene: ethyl acetate: formic acid in ratio of 7: 5: 1 is used as a mobile phase. Densitometric estimation and quantification of quercetin was carried out at 254 nm. The standard Rf value of quercetin is 0.64. The total peak area of the standard, quercetin was compared and the corresponding peak areas of *L. lanceolata* and *L. parviflora* extracts were estimated to be 390.6 and 5442.8 respectively. A good linear relationship 0.988 was obtained between the concentration ranges of 0.2-1.0 µg. This HPTLC method was found to be simple and convenient for rapid screening of active compounds and quantification of the investigated flavonoids in *L. lanceolata* and *L. parviflora*.

Keywords: *Lagerstroemia lanceolata*, *Lagerstroemia parviflora,* HPTLC, Flavonoid compounds, Quercetin.

INTRODUCTION

Nature still obliges as the man's primary source for the cure of his ailments. Research in preventive medicine showed the importance of functional nutrition in reducing the risk factor of certain chronic diseases. Innate defense system of the human body may be insufficient for the damage caused by continued oxidative stress[1]. Flavonoids are a group of polyphenolic compounds, which are extensively dispersed throughout the plant kingdom. Till date about 300 varieties of flavonoids are known[2]. Herbal medicines have situated the test of time for their efficacy, safety, cultural suitability and smaller side effects. Flavonoids are classified as flavonones, flavones, flavonols, flavanols, flavan-3-ols and isoflavones according to the locations of the substitutes present on the parent molecule. Quercetin and other flavonoids have the structure to act as powerful antioxidants and have often proven so *in vitro*. Quercetin, being a major constituent of the flavonoid intake, could be a key in fighting several chronic degenerative diseases[3]. Growing scientific evidence has shown adverse side effects, like liver damage and mutagenesis, of synthetic antioxidant[4]. Therefore, recently there has been an upsurge of interest in natural products as antioxidants, as they inhibit the free radical reactions and protect human body from various diseases, such as cancer and diabetes. Recent studies showed that a number of plant products including poly phenolic substances (e.g., gallocatechins, delphinidin, cyanidin, gallic acid, ellagic acid, pelargonidin and sitosterol) and various plants or herbal extracts exert potent antioxidant actions, which are very well known for their healing powers[5]. Quercetin 5, 7, 3', 4', -tetrahydroxy flavonol exhibit anti-inflammatory, antihepatotoxic[6], antiulcer[7], anti-allergic and antiviral actions and some of them provides protection against cardiovascular mortality[8,9]. Quercetin in combination with other flavonoids, inhibits a number of enzymes like bradykinin[10], tyrosine kinase[11]and 5'- nucleotidase activity[12]. *L. lanceolata* Wall (Lythraceae) is a moderate to large deciduous tree, sometimes attaining 30 meters in height and 2.4 to 3.0 meters in girth with a clean cylindrical bole of 12 to 15 meters. It is found from Bombay to Kerala and in the hills of Deccan Peninsula up to an altitude of 1,200 meters. Bark is smooth, greenish or yellowish white, exfoliating in papery strips; leaves elliptic- lanceolate or broadly ovate, 6.2 to 10.0 cm x 1.8 to 5.0 cm, coriaceous, glabrous, shining above, usually white or grayish blue; flowers small, white, in large panicles; capsules ellipsoid; seeds winged[13]. *L. lanceolata* has been used in the treatment of asthma, diabetes mellitus, chronic bronchitis, cold and cough. Seeds have been documented for its multiple pharmacological activities including narcotic principle. Steroid, terpenoids, phenols, flavonoids, alkaloids, ellagic acid and tannins are the major components present in the plant[14]. *L. parviflora* Roxb (Lythraceae) is a medium-sized deciduous plant indigenous to India and available even up to a height of 900 m in the Himalayas. The plant is used for the treatment of syphilis, sores and carbuncles[15]. Mazumder *et al.* (2003)[16] reported the antibacterial activities of the leaves of the plant and Bhakuni *et al.* (1969)[17] reported the anti-asthmatic activity of the flowers of *L. parviflora*. The leaf juice of this plant is used in traditional medicine to treat fever in Jharkhand, India[15]. *L. lanceolata* and *L. parviflora* contain quercetin as an important active constituent and is predictable by HPLC method. Phytochemical assessment is one of the tools for the quality evaluation, which includes preliminary phytochemical screening, chemo profiling and marker compound analysis using current analytical techniques. In the last two decades HPTLC method has appeared as a significant tool for the qualitative and quantitative

EVALUATION OF ANTI INFLAMMATORY AND ANALGESIC ACTIVITIES OF THE EXTRACT PREPARED FROM ALOYSIA POLYSTACHYA IN EXPERIMENTAL ANIM ALS

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EVALUATION OF ANTI INFLAMMATORY AND ANALGESIC ACTIVITIES OF THE EXTRACT PREPARED FROM *ALOYSIA POLYSTACHYA* IN EXPERIMENTAL ANIM ALS

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ABSTRACT

Aloysia polystachya used as an appetite suppressant herb for millennia. It also has antioxidant, ant diabetic, and nootropic actions. It is proved that it is a natural anti obesogenic agent and is widely consumed in India. Its actions like anti-atherosclerotic is of high medicinal value. The phytochemical screening of extract shows the presence of alkaloids, phytosterols, phenolic compunds and tannins using various methods. In the present work an attempt has been made to evaluate the anti inflammatory, analgesic activities of ethanolic extract of *aloysia polystachya* (100mg/kg, 200mg/kg) and the results were found to be positive. The results were compared with the standard drug indomethacin (10mg/kg), pentazocin (10mg/kg) and aspirin (10mg/kg). Hence, *aloysia polystachya* contains anti inflammatory and analgesic activity. The present work was done to demonstrate the anti inflammatory and analgesic activity of the ethnolic extract obtained from the leaves of *aloysia polystachya* (verbenaceae). Inflammation was induced by carrageenan induced paw edema and pain was induced by eddy's hot plate and tail flick method. Thermal and radiant heat is used in hot plate and tail flick method respectively.

KEYWORDS: *Aloysia polystachya*, analgesic, anti inflammatory activity.

1. INTRODUCTION

Pain is the most common reason for physician consultation. It is a major symptom in many medical conditions. It can significantly interfere with a person's quality of life and general functioning.[1] It is a part of the body's defence system, producing are flexiveretraction from the painful stimulus, and tendencies to protect the affected body part while it heals, and avoid that harmful situation in the future.[2,3] Pain is the most common reason for using complementary and alternative medicine.[4,5] Pain is primarily managed with analgesics. Opioid analgesics are commonly used for treatment of pain. Although opioids are strong analgesics, there are other drugs used for the treatment of pain.

Inflammation is the body's immediate response to damage to its tissues and cells by pathogens, noxious stimuli such as chemicals, or physical injury.[6] It is a protective attempt by the organism to remove the injurious stimuli as well as initiate the healing process for the tissue. Inflammation can be classified as either acute or chronic status depending on onset time. Acute inflammation is the primary response of the body to injurious stimuli and it involves the local vascular and immune response. On the other hand, chronic inflammation is a pathological condition characterized by progressive destruction and recovery of the injured tissue from the inflammatory response.[7]

Though a variety of chemical mediators or signalling molecules such as histamine, serotonin, leukotrienes, prostaglandins are involved in the inflammatory response the mechanism of inflammation injury is attributed to release of ROS (reactive oxygen species) from activated neutrophils and macrophages. The over production of ROS by macrophages causes oxidative damage to membrane lipids, DNA, proteins and lipoproteins.[8] In addition, ROS propagate inflammation by stimulating release of cytokines such as interleukin-1, tumor necrosis factor and interferon which stimulate recruitment of additional neutrophils and macrophages. Further ROS activates Nuclear Factor ƙ-β(NF-ƙ-β) which regulates various cellular genes involved in immune and acute phase inflammatory responses and in cell survival. Thus free radicals are important mediators that provoke or sustain inflammatory processes and consequently, their neutralization by antioxidants and radical scavengers can attenuate inflammation.

2. MATERIAL AND METHODS

2.1 Material

Drugs and chemicals

1. Pentazocine inj. (Ranbaxy laboratories limited).

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Prevalence of electrolyte imbalance in hospitalized patients and relationship to outcome and duration of stay in orthopaedic department

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Abstract
Background: Electrolyte imbalance is a severe and life-threatening condition, but its investigation and evaluation is often inadequate and inappropriate. The aim of the study is to identify the prevalence of electrolyte imbalance (Na & K) in hospitalized patients and to evaluate the relationship to their outcome and duration of stay in orthopedic department in a tertiary care hospital.
Materials and methods: 150 patients of both genders and all age groups excluding pediatric and neonate patients were evaluated. Study was carried out in Udai Omni hospital, Hyderabad between mid-december 2018 to march 2019.
Results: 150 patients were evaluated during the study period and electrolyte imbalance was found in 38 patients that is prevalence of electrolyte imbalance was 25.33%. This study has shown equal gender distribution of electrolyte imbalance (19 cases each) and are most commonly seen in elderly patients of age >60years (52.63%). The most common comorbid conditions seen in these 38 patients are Diabetes mellitus (DM), Hypertension (HTN), Hypothyroidism, Chronic kidney disease (CKD) etc. Most of the cases are seen with combined DM and HTN. Among all the electrolyte imbalance cases, the most commonly seen type of electrolyte imbalance are Hyponatremia and Hypokalemia (11 cases each). Most of the cases of electrolyte imbalance are seen pre-operatively. This study showed almost equal gender distribution of Hyponatremia. Distribution of Hypokalemia cases is relatively high in males. Out of 38 cases, 10 (26%) cases have shown increased duration of stay due to electrolyte imbalance. Among 38 cases, most commonly observed cause of electrolyte imbalance is CKD followed by these of diuretics. In this study most common presenting symptoms are constipation, nausea, vomiting, headache, confusion, weakness, dizziness and some patients were asymptomatic.
Conclusion: In this prospective, observational study on orthopaedic patients, prevalence of different electrolyte imbalance are seen, in which Hyponatremia and Hypokalemia are more common in hospitalized patients. Electrolyte imbalance complicates the health conditions of the patients and leads to increased falls and fractures and duration of hospital stay.

Keywords: Prevalence, electrolyte imbalance, orthopaedic, duration of stay, causes, symptoms

Introduction

Electrolytes are minerals that carry an electric charge. These electrolytes are essential for various bodily functions or processes, like proper nerve and muscle function, maintaining acid-base balance and keeping body hydrated.

The concentration of cations and anions is different in ICF and ECF. The ICF has a high concentration of potassium, magnesium (cations) and phosphates (anions). Whereas the concentration of sodium and chloride ions are relatively low in ICF. ECF has high concentrations of sodium and the main anions present are chloride and bicarbonates. For electrolyte homeostasis, the electrolyte concentration in both the cell and the plasma should be within normal limits. This normal limit of serum electrolyte concentrations can be maintained by proper balancing on the four processes – electrolyte intake, absorption, distribution and excretion. Any disturbances in these four processes can lead to electrolyte imbalances [1]. Electrolyte imbalance is a severe and life threatening condition, but its investigation and evaluation is often inadequate and inappropriate. The important electrolyte imbalances that are seen most commonly in clinical practice are of Sodium and Potassium [2]. Sodium Normal range is 136-145 mmol/L. Conditions that occur due to imbalanced sodium levels are: Hyponatremia (low sodium levels) and Hypernatremia (high sodium levels). Hyponatremia when under-recognized, incorrectly investigated and sub optimally managed, can lead to poor patient outcomes. Frequently insufficient diagnostic testing or investigations can affect both management and outcome of the patients [3]. Failure to correct the condition of hyponatremia may lead to delay or prevention of both patient outcomes and hospital length of stay [4, 5]. Potassium Normal range is 3.5 – 5.0 mmol/L. Conditions occur due to imbalance in potassium levels are: Hypokalemia and Hyperkalemia [1]. Common causes of electrolyte imbalance may include vomiting, diarrhea, excessive sweating, renal diseases, poor diet, acid base imbalance in the body, congestive cardiac failure, cancer treatment, old age, stress, use of some drugs such as diuretics, antidepressants, anti-epileptics etc and post-operative surgery patients are more

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Formulation and Evaluation of Valsartan Floating Tablets

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Abstract

The present research work was an attempt to formulate and evaluate floating tablet containing valsartan in the form of tablets using polymers like HPMC K100M, Ethyl cellulose, $NaHCO_3$ as gas generating agent. Valsartan, an antihypertensive drug, with an oral bioavailability 23%, short half-life (6 hr) and largely present in unionized form in acidic pH, have been designed to increase gastric residence time and therapeutic efficacy. This can be achieved by fabricating floating tablets which retain in stomach for prolonged time to release the drug. The tablets were formulated by direct compression method. The effect of sodium bicarbonate and citric acid on drug release profile and floating properties were investigated. The tablets were characterized for the pre and post compression parameters such as friability, hardness, thickness, drug content, weight variation, *in-vitro* buoyancy studies and *in-vitro* drug release studies and the results were within the limits. The *in-vitro* drug release studies were carried out in a USP type-II apparatus in 0.1N HCl. Optimized formulation (F1) revealed that tablet was constantly floating in the stomach region of the rabbit, thereby indicating improved gastric retention time for more than 8 h. Consequently, all the findings and outcomes have showed that developed valsartan matrix tablets could be effectively used for floating drug delivery system.

Keywords

Valsartan, polymers, sodium bi carbonate and citric acid, FTIR studies, direct compression technique.

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INTRODUCTION:

Valsartan is an angiotensin receptor blocker widely prescribed for hypertension. It's absorbed from the upper part of gastrointestinal tract [1, 2]. The oral route is considered as the most convenient and extensive route of drug delivery among all the routes

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FORMULATION AND EVALUATION OF DELAYED RELEASE TABLETS OF LANSOPRAZOLE

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ABSTARCT
The objective of the study was an attempt to formulate and evaluate delayed release tablets of lansoprazole which is a benzimidazole anti ulcer agent and is one of the most widely used drugs for treating mild and severe ulcers. The stability of lansoprazole a proton pump inhibitor is a function of pH and it rapidly degrades in acidic medium of the stomach, but has acceptable stability in alkaline conditions. The present study demonstrates that the lansoprazole tablets could be successfully intestine targeted by using pH dependent polymers in different concentrations. The drug and excipient compatibility study was performed by FT-IR and study revealed that there was no interaction between drug & excipient. The tablets were evaluated for various parameters like hardness, friability, weight variation, percentage drug content and *in-vitro* disintegration time, *in-vitro* dissolution study, drug release kinetic study and stability study. By observing the dissolution profile for all the formulations, F1 was the better formulation. From the result of this study it may be concluded that the colon targeted drug delivery tablets using a combination of two polymers in optimized concentrations can be used to increase the delayed action of drug release to deliver the drug in a delayed manner.

KEYWORDS: Lansoprazole, polymers, direct compression technique, FTIR & *in-vitro* studies.

INTRODUCTION

The term "drug delivery" can be defined as "the techniques that are used to get the therapeutic agents inside the body". The Oral Solid Dosage forms are the preferred route of administration for many drugs and most widely used formulations for new and existing modified release products. Indeed, for controlled release systems, the oral route of administration has by far received the most attention with respect to research on physiological and drug constraints as well as design and testing of products. This is because there is more flexibility in dosage form design for the oral route than there is for the parental route.[1-4] Delayed Release Drug Delivery System involves release of drugs only at a specific site in the gastrointestinal tract. The drugs contained in such a system are those that are.[5-6]

i) Destroyed in the stomach or by intestinal enzymes
ii) Known to cause gastric distress
iii) Absorbed from a specific intestinal site or
iv)Meant to exert local effect at a specific gastrointestinal site

The two types of delayed release systems are:
1. Intestinal release systems
2. Colonic release systems

MATERIAL AND METHODS

Materials

Lansoprazole was obtained from Chandra labs, Hyderabad. Microcrystalline cellulose, Cross povidone and Magnesium stearate were purchased from S. D. Fine Chemicals, Mumbai. Cross caramellose sodium and Sodium starch glycolate were procured from Mylan Chem. Ltd, Mumbai and Talc was obtained from ESSEL fine chem, Mumbai, India.

Methods

Preformulation studies

Pre formulation studies are performed to investigate the physical and chemical properties of a drug substance alone and also when combined with other substances such as excipient. It is the first step in the rational development of dosage forms.

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Research Article

A New Simple RP-HPLC Method Development and Validation of Empagliflozin in Bulk and it's Tablet Dosage Form

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ABSTRACT

The primary important objective of the present research work is to develop simple, specific, rapid, accurate and sensitive reverse phase HPLC method and validated for the qualitative and quantitative determination of empagliflozin in its active pharmaceutical ingredient and tablet dosage form according to ICH guidelines. An isocratic separation was done by using Phenomenex C18 column possess 75 x 4.6 mm, 2.6 µ,100 A0 dimensions with a mobile phase composition of water: acetonitrile (10:90% v/v) at a flow rate of 1ml/min and response detected by using 261 nm wavelength as absorption maximum. The Retention time of empagliflozin was found to be 2.84 minutes, LOD and LOQ were observed at 1.5 µg/ml and 4.6 µg/ml concentration respectively, linear curve was observed in the concentration range of 10-60 µg/ml with correlation coefficient of 0.99. The percentage recovery (accuracy) was in the range of 98.3- 102% and the % RSD was observed to be less than 2%. The proposed method was validated for accuracy, precision, sensitivity, linearity and robustness and successfully employed for quantitative determination of empagliflozin in tablet dosage form in quality control department of pharmaceutical industry.

Keywords: RP-HPLC, Retention Time, Limit of detection, Limit of quantification, Robustness.

INTRODUCTION

Chemically empagliflozin is (1S)-1,5-Anhydro-1-(4-chlor-3-{4-[(3S)-tetrahydro-3-furanyloxy]benzyl} phenyl)-D-glucitol works as sodium-glucose co-transporter 2 (SGLT2) inhibitors offer an insulin-independent component for improving blood glucose levels, since they advance urinary glucose discharge (UGE) by restraining glucose reabsorption in the kidney. Notwithstanding glucose control, SGLT2 inhibitors are related with weight reduction and circulatory strain decreases, and don't build the danger of hypoglycemia[1].

On extensive literature review revealed that, different analytical methods have been reported for the qualitative and quantitative analysis of empagliflozin in bulk and pharmaceutical dosage forms using UV–visible spectroscopy[2,3] and reverse phase- high performance liquid chromatography (RP-HPLC). In depth literature survey reveals that even though so many numbers of RP-HPL C methods were reported, but there is no RP- HPLC method with less retention time with simple mobile phase system was not reported for quantitative estimation of empagliflozin in bulk drugs and pharmaceutical dosage forms[4,5,6].

The objective of the present research work was to develop and validate simple, precise, sensitive and accurate analytical method with less retention time and simple cost-effective solvent system for the estimation of empagliflozin in pure and commercially available tablets for regular analysis in pharmaceutical industry. Chromatographic method is the most effective popular method for the analysis of drug substance and drug product; hence a new RP- HPLC method was developed and validated for the estimation of empagliflozin.[7]

MATERIALS AND METHODS

The empagliflozin reference standard (claim 99.18%) was provided by HETERO Drugs. Tablets of empagliflozin (JARDIANCE -10mg) were purchased from a local pharmacy. HPLC grade acetonitrile was obtained from Finar Chemicals Limited, Ahmadabad, India. All the glass wares used in this research work were made of Borosilicate glass and the solvents and prepared solutions were filtered by using Nylon (0.45µm) filters.

Chromatography

RP-HPLC method was performed with Cyberlab HPLC equipment with UV detector and manual injector with a 10 µL loop. The equipment was connected to data-processing system (LC- Solution software). The chromatographic system was performed using C_{18} (250 x 4.6mm, 2.6µ,100 A^0) column. Separation was successfully achieved using a mobile phase composition of Acetonitrile: Water (90:10 v/v) at a flow rate of 1 ml/min. The eluent was measured using UV detection at a wavelength of 261nm.The column temperature was maintained at 25°C±2 and the injection volume of 10 µL was injected. The prepared mobile phase was filtered through a 0.45 µm nylon filter prior to use.

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NUTRITIONAL ASSESSMENT AND MANAGEMENT IN CHRONIC LIVER DISEASE

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ABSTRACT

Liver plays major role in metabolism of nutrients their distribution and absorption. Malnutrition is common in patients with chronic liver disease and it is an important prognostic indicator. The aim of the study was to assess the nutritional status of the patients with chronic liver disease by using Assessment parameters like MNA (mini nutrition assessment tool that classify nutritional status of the patient into three: normal nutritional status, at risk of malnutrition, malnourished, and also based Anthropometric measurements (BMI, MAC, calf circumference), laboratory and cinical findings. The present study is prospective observational study. The patients are recruited from gastroenterology department Apollo hospitals, jubilee hills from October to march 2018. The sample of study composed of 70 patients who fulfilled inclusion criteria. The study revealed that 25.7% of the patients have good nutritional status, 54.5% of the patients are at risk of malnutrition, 20% of the patients were malnourished based on MNA Screening score. 21.4% of the patients have good nutritional status, 54.3% are at risk of malnutrition and 24.3% are malnourished based on MNA Indicator score. Based on the BMI 1.75% of males and 23.07 percent of females were underweight, 52.63% males and30.79 females were normal weight, 26.31% males and others were less likely overweight and obese. Based on MUAC and Calf circumference most of their nutritional status was well nourished and moderately nourished. Assessment of nutritional statuus based on laboratory parameters showed that serum Albumin, Pre albumin,

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Research Article

A Prospective Study on Alcohol Drinking Patterns, Dependency and Disease Severity in Alcohol Related Liver Cirrhosis

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Abstract:

Aim: To determine the relation between the alcohol dependency and alcoholic liver disease states objectively with well-defined scoring systems.

Design: A prospective observational study conducted on the in-patients diagnosed with Liver Cirrhosis.

Setting: Asian Institute of Gastroenterology, Hyderabad, Telangana, India.

Participants: A total of 255 patients (220 males and 35 females) between October 2017 and January 2018.

Parameters: Alcohol Use Disorders Identification Test (AUDIT), Severity of Alcohol Dependence questionnaire (SADQ) and liver assessment with MELD score, Maddrey's Discriminant Fraction and Child-PUGH score.

Results: Of the 255 patients, 89 were non-alcoholic patients and 166 were alcoholic patients of which 127 were alcohol dependent and 39 were alcohol non-dependent. In the alcohol dependent patients, there were 47/127 mild alcohol dependent, 48/127 moderate alcohol dependent and 32/127 severe alcohol dependent. When compared with the severity levels, we found that most of the alcoholic patients has shown high severity and most of them were alcohol dependents. In non-alcoholic patients, most of them had shown the disease condition to be moderate. When the increasing disease severity was compared with the increasing dependency values, it has shown negative correlation.

Conclusion: From the study, it can be concluded that the cause for the liver cirrhosis in most of the cases is consumption of alcohol but, when the severity scores has been compared it states that the increase in the alcohol dependence is not specifically related to the increasing disease severity.

Keywords: Alcoholic Liver Disease, Liver Cirrhosis, AUDIT score, SADQ score, Alcohol Dependence, Alcohol non-dependence.

Introduction

Alcoholic liver disease (ALD) is the most prevalent cause of advanced liver disease. It encompasses a spectrum of injury, ranging from simple steatosis to frank cirrhosis.[1] It is not necessary that a single stage of the disease occurs, but multiple stages may be present simultaneously in a single individual which includes three stages: fatty liver or simple steatosis, alcoholic hepatitis and chronic hepatitis with hepatic fibrosis or cirrhosis.[2] A subset of patients with ALD develop severe alcoholic hepatitis, which has a substantially worse short-term prognosis. Alcoholic Hepatitis ranges from mild injury to severe and life-threatening injury which later develops into chronic liver disease (liver cirrhosis).[2]

Cirrhosis of Liver is one of the important health issue occurring these days and is the last stage of liver disease. Nearly all liver cirrhosis cases require admission to the hospital and many patients are associated with ascites and hepatic encephalopathy as its complications. Some of the patients are requiring biopsy and liver transplantation due to the deteriorating nature of their liver.[1] In today's lifestyle, there is an increase intake of alcohol and is the leading cause for many health issues of which liver cirrhosis is the most important health hazard occurring due to alcohol.[2] Hence, it is important to review for the relationship between the increasing dependency of alcohol abuse and the disease severity in these liver cirrhosis patients.

Materials and Methods

The study was performed in the liver unit of Asian Institute of Gastroenterology, Telangana, India. It is a well-recognized hospital where people from all over the country visit to get their disease treated. Subjects recruited in the study were admitted as in-patients in the hospital in the period of four months from October 2017 to January 2018. This study

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A PROSPECTIVE OBSERVATIONAL STUDY ON PREVALENCE OF CHRONIC KIDNEY DISEASE IN DIABETES MELLITUS

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ABSTRACT

Background: Diabetes is a metabolic disorder that results from deficiency in insulin production and insulin resistance. Chronic Kidney Disease is defined as kidney damage or glomerular filtration rate (GFR) <60 mL/min/1.73 m^2 for 3 months or more. In 2013, diabetes led to more than 51,000 new cases of kidney failure and over 247,000 people are currently living with kidney failure resulting from diabetes.[1] **Methodology:** This study was conducted with the aim to assess the percentage of population at risk of Chronic Kidney Disease in Diabetes Mellitus, to determine the stages of Chronic Kidney Disease and to assess the quality of life of the patient that who are diagnosed with Chronic Kidney Disease in Diabetes in Mallareddy Narayana Multispeciality Hospital, Suraram, Hyderabad. This study is prospective observational in nature and the subjects enrolled in this study were about 200. Informed consent was obtained from all the subjects. The stages of Chronic Kidney Disease were determined using eGFR value by CKD-EPI equation.[9] The quality of life of subjects were assessed by using SF-36 HS scale.[2] **Results:** This study identifies the percentage of population at risk of chronic kidney disease in Diabetes, stages of Chronic Kidney Disease and quality of life of subjects. A total of 200 diabetes patients were observed among them 77 subjects (37.99%) were with Chronic Kidney Disease, of which stage-5 (End Stage Renal Disease) was prominent. 24.53% of subjects were under dialysis. Quality Of Life is categorized into 9 activities, out of which role limitations due to physical health is more effected with a percentage of 22.5%**. Conclusion:**

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SYSTEMATIC EVALUATION OF EXCLUSIVE FACTORS ASSOCIATED WITH NON-ADHERENCE TO TREATMENT IN IBD PATIENTS

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ABSTRACT

Adherence to treatment is a key condition in preventing relapses in inflammatory bowel disease. This study was contrived with the aim to evaluate the exclusive factors associated with non-adherence to treatment in Inflammatory Bowel Disease. A total population of 150 patients were evaluated for this study from Asian Institute of Gastroenterology, to find out the factors causing non-adherence to treatment. A questionnaire concerning demographic, clinical, patient related, medication related, physician related, socioeconomic and psychological assessment of patients were evaluated by using Microsoft Excel 2007. Out of 150 patients 89(59.3%) men and 61(40.6%) women completed the questionnaire. Patients with Crohn's disease 73(48.6%), indeterminate colitis 4(2%), and ulcerative colitis 73(48.6%). In patient related factors, non-adherence causing co-factors were diminished quality of life 91(60.67%), full time employment 81(54%), and lack of understanding the drug use 80(53.3%). In medication related factors, high cost 102(68%), non-availability of medication 78(52%), heavy pill burden 76(50.6%). In physician related factors, lack of explanation about side-effects 91(80.67%). In psychological assessment, health dependent on medication 97(64.66%), prefer once daily medication 96(64%), effect of medicine on future health 89(59.33%), mystery to take medication 46(30.66%). In socioeconomic factors, lack of participation in sports/activity 44(29.33%), going out socially 45(30%), worried about future income 63(42%) causing non adherence in patients. **Conclusion:** In this prospective observational study, socioeconomic factors were causing the

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RATIONALITY ASSESSMENT OF ANTIBIOTIC USE IN MEDICAL AND SURGICAL UNITS AT A MULTISPECIALTY HOSPITAL

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ABSTRACT

This study was contrived with the aim to evaluate antibiotics prescribed for their rationality and appropriateness. The research was conducted to assess the antibiotic prescribing pattern of the physicians in renowned hospital in Hyderabad. This study is descriptive in nature. The population took under study was from the different wards of Care Hospitals, Nampally. The 307 respondents were the patients from which 202 patients were ambushed with different organ and tissue infections admitted in different medical wards were evaluated for rationality according to standard guidelines and remaining 105 patients were scheduled for surgical treatment admitted in different surgical units of the hospital were monitored to scrutinise the conformance to policy framed by the hospitals Infection control Committee. The specially designed data collection forms aided ward round survey method was used to fetch the data and analyzed by the help of Microsoft Excel 2007.The results of 202 patients evaluation shows that more than 50% patients receive the antibiotics empirically, Less than 20 % are to be witnessed to be receiving antibiotics prophylactically, Less than 20% patients received antibiotic inappropriately and only the limited numbers of patients are able to have received antibiotics specifically. The 105 prophylactic conformity audit shows more than 60% disagreement with the policy. As most of the antibiotics are used empirically, perceivable count of inappropriately prescribed

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New Method Development and Validation for Simultaneous Determination of Atazanavir and Cobicistat in Bulk and Tablet Dosage Form by UPLC

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ABSTRACT

The present analytical work is a unique method development and validation for the simultaneous determination of Atazanavir and Cobicistat by using reverse phase ultra-performance liquid chromatography (UPLC) with isocratic elution technique. Here the stationary phase used was C18 HSS column (2.1 × 100 mm, 1.8 µm) mobile phase was 45% OPA (0.1%) and 55% Acetonitrile. pH of the mobile phase was maintained at 3.0, flow rate 0.2 ml/minute. Eluted material underwent for monitoring at the detector wavelength of 254 nm. Retention time for Atazanavir and Cobicistat was found to be 0.536 minutes and 1.366 minutes, linearity range was 75 µg/ml to 450 µg/ml and 37.5 µg/ml to 225 µg/ml respectively. The new method was evaluated according to ICH guideline and as far as validation results are concern correlation coefficient value was 0.999 for both of the compounds, LOD 0.76 and 0.37, LOQ 0.2.30 and 1.11, percentage recovery 99.74% and 99.34%, repeatability results relative

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DEVELOPMENT AND OPTIMIZATION OF SUSTAINED RELEASE ABACAVIR MATRIX TABLETS

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ABSTRACT
The aim of the present study was to develop and characterize Abacavir sustained release tablets. These Abacavir solid unit dosage forms were prepared by using direct compression technique and by utilizing synthetic polymers such as ethyl cellulose, eudragit and sodium alginate. Abacavir drug is used in the treatment of human immunodeficiency virus (HIV) infection. It is nucleoside reverse transcriptase inhibitors (NRTIs). The prepared tablets were characterized for hardness, thickness, disintegration time and drug release studies. Optimized formulation of drug delivery was 98.70% in 8 hours along with satisfactory results. It was noted that A5 formulation was the best formulation compared with the other formulations based on the drug release studies and physical parameters.

KEYWORDS: Abacavir, Hydroxypropyl methyl cellulose, sodium alginate, direct compression technique, in-vitro drug release studies.

INTRODUCTION
Oralroute is the most preferred route for administration o f drugs. Tablets are the most popular oral formulations available in the market and preferred by the patients and physicians alike. In long- term therapy for the treatment of chronic disease conditions, conventional formulations are required to be administered in multiple doses, and therefore have several disadvantages.[1] Sustained release (SR) tablet formulations are much desirable and preferred for such therapy because they offer better patient compliance, maintain uniform drug levels, reduce dose and side effects, and increase safety margin for high-potency drugs.[2]

Direct compression method had been applied for preparation of matrix tablet that involved simple blending of all ingredients used in the formulations and then underwent direct compression. It required fewer unit operations, reduced number of personnel and reduced processing time, increased product stability and faster production rate.[3] Abacavir as a nucleoside and nucleotide reverse transcriptase inhibitors active against Human Immunodeficiency Virus Type 1. It is the treatment of HIV infection in combination with other antiretroviral agents.[4] Oral drug delivery systems have progressed from immediate release to site specific delivery over a period of time.[5] Abacavir is a carbocyclic synthetic nucleoside analogue used for the treatment of HIV/AIDS. To reduce the frequency of administration and to improve patient compliance, a sustained release formulation of Abacavir is developed.[6] The main objective of the present work was to develop sustained release matrix tablets of Abacavir using different polymers.

MATERIALS AND METHOD
Materials: Abacavir was collected as a gift sample from Hetero labs, Hyderabad, Sodium alginate, eudragit and other excipients were purchased from AR chemicals.

Methodology[7,8]
Drug-excipient compatibility studies: The IR absorption spectra of the Abacavir and with various polymers were taken in the range of 3500-3000 cm^{-1} utilizing KBr disc technique, 1-2 mg of the substance to be examined was triturated with 300-400 mg, specified quantity, of finely powered and dried potassium bromide. These quantity are generally enough to give a disc of 10-15mm diameter and pellet of appropriate strength by a hydraulic press.

FORMULATION AND EVALUATION OF VILAZODONE FAST DISSOLVING TABLETS

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FORMULATION AND EVALUATION OF VILAZODONE FAST DISSOLVING TABLETS

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ABSTRACT

The purpose of the present study was to formulate solid dispersion incorporated fast dissolving tablet of vilazodone to improve the aqueous solubility, dissolution rate and to facilitate faster onset of action. Solid dispersion of vilazodone was prepared with various carrier in different drug:carrier ratio using solvent dispersion technique. The objective of the study was to formulate and evaluate fast dissolving tablet of Viladazone. Direct compression method was used to formulate orally disintegrating tablet of Viladazone by employing solid dispersion, magnesium stearate (lubricant), Talc (glidant). These prepared formulations were then evaluated. In vitro Dissolution tests were performed using USP apparatus II and ultraviolet spectrophotometry, respectively. All formulations showed compliance with pharmacopeia standards. The effect of carrier concentration and direct compression method on drug release profile was studied. Release profile of F2 were found to be satisfactory comparing to other formulations. F2 Formulation as processed excipient was found to be the best carrier for the preparation of Viladazone fast dissolving tablets formulations. Due to it has exhibited faster disintegration time and best dissolution profile when compared to other formulations.

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FORMULATION AND INVITRO EVALUATION OF GASTRORETENTIVE FLOATING MATRIX TABLETS OF ETODOLAC

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ABSTRACT

In the present work, an attempt has been made to develop *In vitro* Evaluation of Gastroretentive Floating Matrix tablets of Etodolac. Novel method of Gastroretentive Floating Matrix technology was employed to formulate the tablets. All the formulations were prepared by direct compression method using 8mm punch on 8 station rotary tablet punching machine. The blend of all the formulations showed good flow properties such as angle of repose, bulk density, tapped density. The prepared tablets were shown good post compression parameters and they passed all the quality control evaluation parameters as per I.P limits. Among all the formulations F4 was considered as best formulation after considering all the evaluation parameters. *In vivo* evaluations were performed later for the selected best formulation.

KEYWORDS: Etodolac, Gastroretentive Floating Matrix, Blend, Direct compression, quality control, parameters.

INTRODUCTION

The gastro-intestinal (GI) tract is diversified in its composition at several locations in anatomy, biochemical environment, microbial flora, expression of transporters and absorption characteristics. There are several processes such as chemical/ enzymatic/ bacterial degradation, absorption, precipitation, efflux by P-glycoprotein pump and metabolism by Cytochrome P450 enzymes may occur simultaneously following drug release from a dosage

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Evaluation of phytosomes containing Ethanolic extract of Aerial parts of *Mukia maderaspatana*

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Abstract : The aim of the present investigation was to formulate *Mukia maderspatana* loaded Phytosome for improved delivery. Phytosomal formulations were developed using different concentration of Cholesterol (1-3%) then optimized and characterized. Particle size, entrapment efficiency and vesicular shape were determined by Malvern Zetasizer, and Scanning Electron Microscopy, respectively. Particle size varied from 175 to 510 nm depending on the concentrations of Cholesterol. Entrapment efficiencies were exhibited of 38.42-84.26%, where it increased with concentration of cholesterol increased. Photomicrographs revealed that optimized Phytosomes were spherical in shape and uniform in size. Based on minimum particle size and maximum entrapment efficiency F9 (3% of Cholesterol concentration and 40% of ethanol concentration) was selected as optimization Phytosomal formulation.

Key Words : *Mukia maderspatana*, Optimization, Characterization, Phytosome.

Introduction:

Mukia maderaspatana, *Cucumis maderaspatana* or *Mukia scabrella* (family: Cucurbitaceae) is an annual monoecious herb, densely covered with white hairs. It is found throughout India ascending up to 1800 m in the hills. Mukia is rich in sugars, namely, arabinose, fructose, glucose, mannose, sucrose, xylose, galactose and ribose, together with uncharacterized steroids, triterpenes, alkaloids, phenols, glycoflavones, catechins and saponins[1]. Folklore medicine claims that it is a good diuretic, stomachic, antipyretic, and antiflatulent, antiasthmatic, and antibronchitis, hepatoprotective[2] and immunomodulatory effects[3] and antiarthritic activity properties[4]

Phytosome are more bioavailable as compared to simple herbal extracts owing to their enhanced capacity to cross the lipid rich biomembranes and finally reaching the blood. The lipid-phase substances employed to phytoconstituents, lipid compatible are phospholipids from so, mainly phosphatidylcholine (PC). Phospholipids are complex molecules that are used in all known life forms to make cell membranes. They are cell membrane building blocks, making up the matrix into which fit a large variety of proteins that are enzymes, transport proteins, receptors and other biological energy converters. In humans and other higher animals the

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Formulation development and comparative evaluation of multiple and single unit tablets of omeprazole magnesium

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Abstract : The aim of the present study was to develop multiple unit particulate system and single unit tablets of omeprazole magnesium as a delayed release dosage form and study the in-vitro release pattern of test product by comparing with the marketed reference product. The work was carried out to delay the release of omeprazole magnesium by using enteric polymer methacrylic acid copolymer type-C. The optimized formula of omeprazole magnesium delayed release tablets were prepared using wet granulation technique for single unit tablets and pellet technology for multiple unit particulate system. The multiple unit pellets and single unit tablets were found to be satisfactory with respect to physical as well as chemical characteristics. The dissolution profiles of these were compared with that of the reference product - Prilosec® and the comparisons of the drug release profiles were found to be satisfactory. Single unit tablet process would be an effective, low cost and simple alternative approach compared with the use of more expensive process like fluidization process and adjuvant in the formulation of oral dosage tablets.
Key-words : Omeprazole magnesium; Delayed release pellets and tablets, Enteric polymer; Fluidization process.

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FORMULATION AND EVALUATION OF TRAMADOL POROUS TABLETS

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ABSTRACT

The present research work was aimed to develop a porous tablet of tramadol using various polymers. The formulation was optimized by using various concentrations of the disintegrants and other excipients. Menthol was used as the sublimating agent. Absorption maxima was determined to be 272nm and the calibration curve was plotted using the absorbance values of various concentration of the drug. Prior to tablet making, the formulation bled was subjected to preformulation studies which were found to be within the acceptance range indicating the powder has good flow properties. Among all the eight formulations, sixth formulation (F6) having cross carmelose in the concentration of 25mg has the highest release rate where 100.26% of the drug was release within 30 mins similar to eighth formulation but sixth formulation was considered as optimized due to low sublimating agent concentration. Moreover, FT-IR spectrum obtained showed no drug-excipient incompatibility used in preparing the formulations. Therefore, the optimized formulation F6 can be employed for scale up process as the method is simple, easy and cost effective and hence can be used during large scale production.

KEYWORDS: Porous tablet, tramadol, absorbtion maxima, preformulation studies, post formulation studies, stability.

INTRODUCTION

Tramadol is chemically (1R,2R)-2-[(dimethylamino)methyl]-1-(3-methoxyphenyl)cyclohexan-1-ol with the molecular formula C16H25NO2 and molecular weight of 263.381g/mol.[1] It is a synthetic analogue of codeine[2] which has significantly lower affinity for opioid receptors than codeine. It is a narcotic analgesic which acts as selective weak OP3-receptor agonists.[3-5] It exists as a racemic mixture and the mean peak plasma concentration occurs two hours after its oral administration.[6] It is used to treat postoperative[7-9], dental[10], cancer[11-12] and acute musculoskeletal pain[13] and as an adjuvant to NSAID therapy in patients with osteoarthritis.[14-15] Literature study reveals various formulations of tramadol and its evaluation.[16-22] However, there was no study in the preparation of tramadol porous tablet. Therefore, the present study was aimed to formulate a porous tablet of tramadol using direct compression method with menthol as sublimating agent and evaluate their pre and post formulation parameters.

MATERIALS AND METHODOLOGY

Materials and Instrumentation

Tramadol standard drug was obtained as a gift sample from Chandra labs, Hyderabad, India. Cross povidone, cross caramelose and sodium starch glycolate were purchased from MYL CHEM, Mumbai, India. Micro crystalline cellulose, magnesium stearate and talc were obtained from S.D Fine chem. LTD, Mumbai where as Avicel pH 102 and menthol were obtained from FMC Biopolymer and Fine chem laboratories respectively.

Drug excipients compatibility studies were studied using FTIR spectrophotometer of Per Kin Elmer, USA and a double beam UV-Visible spectrophotometer was used to obtain the absorbance values at 272nm. Single punch compression machine of Cadmach was used to formulate tablet. Post formulation studies were performed using Schleuniger hardness tester, friability test apparatus and bulk density apparatus of Electrolab. Dissolution test was performed using tablet dissolution USP apparatus –I (Basket Method) of Distek, Dissolution system 2100C.

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EVALUATION OF NOOTROPICACTIVITY OF NEWLY SYNTHESIZED GABA DERIVATIVE IN MICE

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Abstract:

Objective*: This study was aimed to "Evaluate the Nootropic activity of newly synthesized GABA derivative in Mice"*

Methodology*: The activity of the Test drug studied using the Actophotometer test model in swiss albino mice. Learning and memory parameters were evaluated using Open field test. The Test drug was administered in dose of50mg/kg body weight i.p. to the respective groups. Piracetam (200mg/kg,i.p.) was used as astandard nootropic agent.*

Results*: It was observed Test drug at a dose of 50mg/kg (i.p.) was administered and subjected to locomoter activity in Actophotometer Test, exhibited a significant behavioral activity in Actophotometer test and Open field test. Its effect is clearly seen by the decreased in motility rate i.e., response to the decreased in activity is said to be depressant, anxiolytic and inhibitory effects on the CNS.*

Conclusion*:N-plthaloyl GABA derivativehas inhibitory effects which may be processed by the GABAnergic action of the drug. Enhancement of GABA by the drug under study may prove to be a useful memory restorative agentinthe treatment of dementia seen in Alzheimer's disease. Hence, further studies are required to know the exact mechanism.*

Key Words: *N-pthaloyl GABA, Alzheimer's disease, Picrotoxin, Nootropic.*

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Research Article

EFFECT OF FORMULATION FACTORS ON ORODISPERSIBLE TRIPTAN FORMULATIONS – NOVEL APPROACH IN TREATMENT OF MIGRAINE

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ABSTRACT

Objective: The present research work is an attempt to determine the effect of various diluents and superdisintegrants on drug release of eletriptan orodispersible tablets and designs an optimized formulation using 2^2 factorial design. Further, evaluate the tablets for various pre-compression and post-compression parameters.

Methods: The drug excipient compatibility study was conducted by infrared spectroscopy, differential scanning colorimetry and X-ray diffraction studies were conducted to test the purity of the drug. The tablets were formulated by direct compression method using spray dried lactose, mannitol, microcrystalline cellulose, starch as diluents and crospovidone, croscarmellose sodium, and sodium starch glycolate as superdisintegrants. The powder formulations were evaluated for pre-compression parameters such as bulk density, tapped density, Carr's Index, Hausner's ratio, and angle of repose. The tablets were evaluated for post-compression parameters such as the hardness, thickness, friability, weight variation, and disintegrating time in the oral cavity, *in vitro* drug release kinetics studies, and accelerated stability studies. The formulations were optimized by 2^2 factorial design.

Results: The drug and excipients were compatible, and no interaction was found. The drug was pure, and all the pre-compression parameters were within Indian Pharmacopoeial Limits. Post-compression parameters were also within limits. The disintegration time was found to be 27 s for the formulation F_{29} containing Croscarmellose sodium (5%) and Mannitol as diluent, and *in vitro* drug release was found to be 99.67% in 30 min and follows first-order kinetics. This was also the optimized formulation by 2^2 factorial design with a p=0.013.

Conclusion: The orodispersible tablets of eletriptan were successfully formulated, and the optimized formulation was determined that can be used in the treatment of migraine.

Keywords: Eletriptan, Crospovidone, Croscarmellose sodium, Sodium starch glycolate, Microcrystalline cellulose, Lactose, Starch, Magnesium stearate, Talc, Aerosil, Aspartame.

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INTRODUCTION [1]

Oral route of drug administration is perhaps most useful and important route for drug delivery. Tablets are the most favored oral solid dosage form mainly because of several advantages such as ease of administration, good chemical and microbiological stability, lowest cost among all another solid dosage form, dose precision and least content variability, ease of packing, self-medication, and patient compliance. Orodispersible tablets are solid unit dosage forms like conventional tablets, but are composed of superdisintegrants, which help them to dissolve the tablets within a minute in the mouth in the presence of saliva without any difficulty of swallowing. In such cases, bioavailability of the drug is significantly greater than those observed from the conventional tablet dosage form. Migraine is a neurological disease characterized by recurrent moderate to severe headaches often in association with a number of autonomic nervous system symptoms. Triptans are a family of tryptamine-based drugs used as abortive medication in the treatment of migraines and cluster headaches. Thus, the aim of present research work was to formulate oral disintegrating tablets of Eletriptan to overcome the adverse effects of conventional tablets in the treatment of migraine.

METHODS

Eletriptan was obtained as a gift sample from Sun pharma ltd, Hyderabad, croscarmellose sodium, sodium starch glycolate, cross-povidone, microcrystalline cellulose, mannitol, spray-dried lactose, and starch were obtained from Signet chemical corp. Mumbai, aspartame, aerosil, talc, and magnesium stearate were obtained from S.D fine chemicals, Mumbai, and potassium dihydrogen orthophosphate and sodium hydroxide were obtained from Narmada chemicals.

Calibration curve for eletriptan in 6.8 phosphate buffer [2]

About 100 mg of Eletriptan was accurately weighed into 100 ml volumetric flask and dissolved in a small quantity of methanol. The volume was made up to 100 ml with pH 6.8 phosphate buffer to get a concentration of (1000 µg/ml) SS-I. From this, 1 ml was withdrawn and diluted to 100 ml with 6.8 phosphate buffer to get a concentration of (10 µg/ml) SS-II. From the standard stock solution (SS-II), 2 ml, 4 ml, 6 ml, and 8 ml were withdrawn, and volume was made up to 10 ml with 6.8 phosphate buffer to give a concentration of 2,4,6, and 8 µg/ml. Absorbance of these solutions was measured against a blank of 6.8 phosphate buffer at 221 nm, and values are tabulated in Table 4 and shown in Fig 1.

Drug-excipient compatibility studies by infrared (IR)[3]

IR spectroscopy is one of the most powerful analytical techniques to identify functional groups of a drug. The pure drug and its formulation were subjected to IR studies. In the present study, the potassium bromide disc (pellet) method was employed. The graphs are shown in Fig. 2 and 3.

Formulation of orodispersible tablets of Eletriptan[3]

All the ingredients were weighed accordingly and passed through#60 mesh sieve separately. The drug and diluents were mixed by adding a

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A Validated HPTLC Method for the Quantification of B-Sitosterol In Leaves, Bark of Putranjiva Roxburghii Wall

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ABSTRACT

Objective: A simple and sensitive high-performance thin-layer chromatography method was developed and validated for the determination of β-sitosterol in Putranjiva roxburghii Wall leaf and bark
Methods: Analysis of samples was performed on TLC aluminium precoated plate (60F 254) by using mobile phase toluene: ethyl acetate: formic acid (9:1:0.1v/v/v). TLC plate derivatized with vanillin sulphuric acid reagent. The method was validated using International Council for Harmonization (ICH) guidelines, including linearity, precision, accuracy, and robustness.
Results: A good linearity relationship was found to be with correlation coefficient (r2) value of 0.9951 for β-sitosterol, from calibration curve it shows presence of 0.16%w/w for β-sitosterol in leaf extract, 0.07% w/w in bark extract of Putranjiva roxburghii Wall (Family:Euphorbiaceae). Limit of detection and limit of quantitation was found to be 0.04, 0.13 ng spot-1 respectively for β-sitosterol. The interday and intraday precision was found to be 1.33%, 1.99% (%RSD). Accuracy of the method was performed by recovery studies at three different concentration levels and the average percentage recovery was found to be 98.05% for β-sitosterol.
Conclusion: The proposed method for the quantitation of β-sitosterol was found to be simple, specific, accurate and robust in Putranjiva roxburghii Wall.
Keywords: Putranjiva roxburghii Wall; Euphorbiaceae; β-sitosterol; HPTLC; Method validation.

I. INTRODUCTION

Euphorbiaceae family having 220 genera and 4,000 plant species found in various tropical regions of India [1-2]. Following genera of Euphorbiaceae are reported as medicinal plants: *Acalypha, Aleurites. Bridelia, Jatropha, phyllantus, Putranjiva, Ricinus* [2-3,4]. The species commonly seen in India is *Putranjiva roxburghii* Wall which is known as child's amulet tree or child-life tree [5]. *Putranjiva roxburghii* is evergreen tree with drooping branches with corky bark coriaceous leaves, dioeciously flowers [6].

Most frequently recorded folk remedy claims of *Putranjiva roxburghii* Wall mentioned that the plant leaf, bark, seed, nuts are medicinally useful. Paste of seeds of *Putranjiva roxburghii* applied on forehead to check pain. The seeds of this plant species are given daily for one month to women for conception [6]. The bark and the seeds are usefull in antidotal treatment of snake-bite. Its leaves and fruits, stones of this plant have been traditionally used for the treatment of fever, muscle twisting, aphrodisiac, arthralgia and rheumatism [7-9]. It is also used as antinociceptive, antipyretic, anti-inflammatory, antioxidant [10]. This plant has reported various phytoconstituents such as putranjivanonol, putranjic acid, friedelin, putranjivadione, friedelanol and roxburgholone from the trunk bark of *Putranjiva roxburghii* [11-13]. Roxburghonic acid, putraflavone were isolated from the alcoholic extract of *Putranjiva roxburghii* leaves [14].

β-Sitosterol is a dietary supplements, found in a variety of plants and plant oils. Phytosterols are similar in structure to cholesterol except some minor structural differences [15]. β-Sitosterol was estimated by HPLC in

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Data Article

Dataset on leaf surface and elemental study of four species of Bignoniaceae family by SEM-EDAX

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Tabebuia
Tecoma gaudichaudi DC
Tecoma capensis (Thunb.) Lindl
Tecoma stans (L.) Juss.ex Kunth
Tabebuia rosea (Bertol)
Scanning electron microscopy
Elemental analysis

ABSTRACT

The data presented in this article are related to the scanning electron microscope and elemental studies in the four species of Bignoniaceae namely *Tecoma gaudichaudi* DC (Sample 1), *Tecoma capensis* (Thunb.) Lindl. (Sample 2), *Tecoma stans* (L.) Juss.Ex Kunth (Sample 3), *Tabebuia rosea* (Bertol.) (Sample 4). The SEM images were obtained for permanent record. The abaxial and adaxial surfaces of each species were carefully studied. In addition to this, the consistent occurrence of anomocytic stomata in all four species of this family shows that morphological and taxonomically all the species are very close and intimate.

The elemental data on leaf samples of all four species were performed and total eight important components were present such as C, O, Mg, Al, Si, Cl, K, Ca. These elements are useful, so identification of inorganic components of these species defiantly helps to promote as dietary elements.

Abbreviations: BSI, botanical survey of India; SEM-EDS, scanning electron microscopy- Energy dispersive spectroscopy

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Quality of Life Assessment in Cancer Patients of Regional Centre of Hyderabad City

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Cancer; Quality of life; Hyderabad city; EORTC QLQ- C-30 questionnaire; chemotherapy.

ABSTRACT

The present study was carried out to determine the quality of life in regional cancer patients of Hyderabad city with an objective to create awareness about the various health related issues and financial problems underlying the disease. So that possible measures can be taken by the society and the government in advance to improve the quality of life in cancer patients. The complete data for the present study has been collected for a period of 2 months from Mehdi Nawaz Jung Institute of Oncology and Regional Cancer Centre, Red Hills, Hyderabad, Telangana, India from 192 Females and 32 Males in the age group between 18-70 years. The quality of life of the cancer subjects was assessed using EORTC QLQ- C-30 questionnaire. The observations have shown that the cancer patients in spite of having better functioning and minimum symptoms, their perception was that they had poor quality of life. It is concluded that the therapy should be individualized for each patient not just based upon the type or stage of cancer but also based on the patient's priorities, concerns and symptoms along with treating the disease. In simple words it can be said that the therapy should be patient oriented rather than disease oriented.

INTRODUCTION

Having a potentially life-threatening disease like cancer often makes people to examine their lives and look for meaning. In fact, this search for meaning can be the aspect of cancer that most often has a positive influence on life (Th-iboldeaux and Golant., 2012). The fear of death that affects most people when they are diagnosed with cancer, often makes them to think about what they will leave behind and what they would like to do with the time left. It can make people feel that it's the quality of life (QoL), not just the quantity, which matters the most (Finelli., 2017).

Today in many cultures and societies, cancer remains a taboo and the people suffering with cancer are subjected to stigma and discrimination which prevents them from seeking care (Valerie et al., 2015). The cancer disease can have a severe impact on a person's physical, mental and emotional states and also keep them at more risk of diminished quality of life for several years after diagnosis (Harden et al., 2008). The physiologic effects of some cancer treatments such as hair loss, sexual dysfunction, impaired fertility and weight gain can also leads to stigma and discrimination and sometimes can be the cause of partner rejection (Aubin and Perez, 2015). The psychological toll for caring a cancer living person can also be enormous as many care givers experiences distress and declines in their physical and mental health (Adler and Page, 2008). The pain of cancer experienced due to inadequate access to pain relieving medicines has wide implications in the quality of life of cancer patients and is frequently linked to psychological distress, including higher levels of anxiety, depression and fear (Wells et al., 2008).

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A Review on Various Formulation Methods in preparing Colon targeted mini-tablets for Chronotherapy

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ABSTRACT

Rheumatoid arthritis disease, according to its circadian rhythms shows early morning peak symptoms. Sometimes, single unit (ex. larger tablets) and multiple units (ex. granules, pellets) colon targeted drug delivery systems are not always an efficient treatment option. Because single unit larger tablets may possess the disadvantages of unintentional disintegration of the formulation due to GI variation or manufacturing deficiency leading to complete dose dumping. Even the multiple unit drug delivery systems such as granules and pellets also have many drawbacks because of their irregular weights, shapes and sizes. Thus, a tight, reproducible *in-vitro* and *in-vivo* release profile can't be achieved. In an attempt to overcome the problems presented by these delivery systems, advanced system such as multiple unit mini-tablets have developed. This is an approach towards achieving critical factors such as better patient compliance and convenience. In the present review, a concerted try has made to summarize the details of different formulation methods used in preparing mini-tablets of lornoxicam and naproxen drugs for colon targeted delivery in chronotherapy. The techniques formulated and evaluated as core-mini-tablets filled pulsincap drug delivery system (using time dependent polymers), matrix-mini-tablets filled capsule drug delivery system (using microsomal enzyme dependent and pH dependent polymers) and coated-mini-tablets filled capsule drug delivery system (using pH dependent polymers). All these methods were successful in targeting Anti-inflammatory drugs at colonic junction. Hence, the mentioned formulation methods can be successfully used in the chronotherapeutic treatment of Rheumatoid arthritis.

INTRODUCTION

Drugs have become the order of day for many people across the world. There is hardly anyone who has not taken a medicine in his/her life, but many times the people who take tablets rarely give importance to the timing of its intake. There are about 60 diseases including Arthritis, Asthma and Cancer for which drugs can be more effective when they are taken at the right time of the day. Because, ideal therapy results only when right portion of the drug is delivered to the right targeted organ at the most suitable time. Thus, many adverse effects can also be reduced when a drug is not given when actually it is not required (Hrashesky, 1994; Drelaywaja, 2010; Smolensky and Peppar, 2007; Suresh and Pathak, 2005).

Further, the biochemistry and physiology of a human being is not constant during the 24 hour period, but varies according to the peak timing and trough of body's circadian processes and functions. Many human body systems such as pulmonary, cardiovascular, hepatic and renal vary in their functions throughout a day. It has become obvious through clinical and epidemiological studies that even the disease activity levels of a number of disorders such as Asthma, Arthritis, Peptic ulcer, Hypertension, etc., have a pattern related to body's biological clock as stated to circadian rhythms. When the normal biological processes are influenced according to the time of the day, they affect the pathophysiology of the disease and its treatment. Thus, many human physiological processes differ in a rhythmic manner

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