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Recent Insights into Some Emerging Natural Resources with Remarkable Hepatoprotective Potentials

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Abstract

Liver an accessory digestive organ present in vertebrates results in detoxification of the metabolites, synthesis of protein, generation of necessary biochemicals such as bile, as well an energy reservoir in form of glycogen. Liver disease also named as hepatic disease creates a toll in the hepatic management causing an effect on overall functions of Liver. The motto of our present study is based on the hepatotoxicity management of liver based on traditional herbal medicine. Liver diseases has hundreds of symptoms among which we addressed specifically oxidative stress, anomaly in protein distribution, fat related peripheral catabolism, concurrent viral hepatitis, increased redox ratio, retention of liver cell water and viral proteins, effected cell mediated immunity, fibrogenesis, and inflammation. This review article describes the various natural resources (plant extracts) of diverse families having hepatoprotective effects and the active constituents responsible for it.

Keywords: Liver, Natural, Plants, Extracts, Hepatotoxicity, Hepatoprotective

1. Introduction

Liver has three well-known properties to get involve in metabolism, have a high potential of regeneration and recovery from injury. The acute and severe cases of liver injury lead to life-threatening clinical syndromes including jaundice, severe coagulopathy, and increased rates of mortality. Still developing, medical tasks for elucidating the pathophysiological mechanisms and development of efficient therapy are going under consideration especially for severe hepatic injury [1]. Traditionally, various herbal medicine is studied to maintain the health, to prevent the disease condition and also proven for the cure of diseases. As the hepatotoxicity is very common in case of liver and can occur due to different causes which are studied before the management. Liver function tests should be performed for the proper diagnosis. In clinical practice, to recognize the hepatotoxicity, and for the preventive measures, steps are taken [2].

2. Monitoring of the symptoms

Symptoms like nausea, anorexia, malaise, fatigue, and right upper abdominal discomfort. Specific symptoms such as itching or jaundice should prompt consideration of hepatotoxicity while using the drug [3].

3. Considering a careful history

Clinical history of the patients should be checked along with the drugs being used, and a detailed history for the use of prescribed and non-prescribed over-the-counter herbal and other medications or remedies, with dates and amounts [4].

4. Drug-induced hepatic injury

If a drug gives allergic reaction during the therapy, it needs immediate withdrawal of suspected drugs. If in the use of allergy corticosteroids, which are not under controlled trial for efficacy, hence with that urodiol is given frequently for the cholestatic liver injury. But only N-acetyl cysteine is used for the acetaminophen poisoning. Liver transplanting was the final solution if coagulopathy or encephalopathy of liver is present [5].

5. Mechanisms of Liver damage

5.1) Increasing oxidative stress

Oxygen metabolism is the basic process for the liver functions and its mechanism. Alcohol toxicity may be associated with increased oxidative stress and free radical associated injury. Generation of oxygen metabolites such as superoxide (O_2^-) hydrogen peroxide (H_2O_2) and hydroxyl radicals (OH^-) are believed to be important in the

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(REVIEW ARTICLE)

**Green synthesis of pyranopyrazole using microwave assisted techniques**

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Article DOI: <https://doi.org/10.30574/gscbps.2020.10.2.0026>**Abstract**

The process of drug discovery involves the identification of lead molecule, synthesis, characterization, screening, assay for therapeutic efficacy. The Pyrano[2,3-*c*] pyrazole are important roles in the field of pharmacological and medicinal chemistry. The pyranopyrazole are important class of heterocyclic ring prepared by a diverse range of synthetic procedure. The water as a green solvent is most environmentally friendly, safe and inexpensive choice to decrease pollution, toxicity and cost of reaction. The Microwave irradiation to eliminate the requirement of heat, enhance the rate of reaction and decreased total time is a widely applicable technique and has been used for the synthesis of pyranopyrazole. The synthesis prepared by pyrazolone, aldehyde and malononitrile are allowed to react together under different reaction condition to form a variety of pyranopyrazoles. The Pyranopyrazoles in general are biologically active and have remarkable antimicrobial, anticancer, anti-inflammatory, analgesic, antifungal etc.

Keywords: Drug discovery; Pyranopyrazole; Microwave irradiation; Green synthesis; Biological activity.**1. Introduction**

In the past most drugs have been discovered either by identifying the active ingredient from traditional remedies or by serendipitous discovery. The process of drug discovery involves the identification of lead molecules, synthesis, characterization, screening, assays for therapeutic efficacy. Once compound has shown its value in these tests, it will begin the process of drug development prior to clinical trials[1].

Pharmaceutical chemistry is the core branch of pharmacy education and research. It can be categorized as synthesis of new drug molecule, its analysis and pharmacological studies. The identification of suitable lead which would form a focal point around which a group of compound may be built. Search of therapeutically effective safer medicinal agents in treatment of various diseases in continued struggle since ages. Such searches is long process yielded potent and effective drugs.

The heterocyclic compounds are widely spread in nature and play an important role in life. Due to the characteristic properties, the heterocyclic compounds hold a large area in medicinal chemistry [2]. The chemistry of heterocyclic chemistry has been explored widely in the past two– three decades [3]. The synthesis and the application of heterocyclic compounds of medium size rings became popular [4, 5]. During the recent years, there has been intense research on fused heterocyclic compounds with pharmacological importance. Among the heterocyclic of pyranopyrazole class has drawn the attention. Pyranopyrazoles refer to a fused five member pyrazole ring to a six member pyran ring. The pyranopyrazole nucleus is a versatile source of biologically important molecules. There are four possible isomers of pyranopyrazole-pyrano[2,3-*c*]pyrazole, pyrano[4,3-*c*]pyrazole, pyrano[3,2-*c*]pyrazole and pyrano[3,4-*c*]pyrazole. The pyrano[2,3-*c*]pyrazoles (**1**) are the most popular with pharmacological importance and

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(RESEARCH ARTICLE)



In silico screening and molecular docking of bioactive agents towards human coronavirus receptor

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Abstract

Coronavirus infection has turned into pandemic despite of efforts of countries like America, Italy, China, France etc. Currently India is also outraged by the virulent effect of coronavirus. Although World Health Organisation initially claimed to have all controls over the virus, till date infection has coasted several lives worldwide. Currently we do not have enough time for carrying out traditional approaches of drug discovery. Computer aided drug designing approaches are the best solution. The present study is completely dedicated to in silico approaches like virtual screening, molecular docking and molecular property calculation. The library of 15 bioactive molecules was built and virtual screening was carried towards the crystalline structure of human coronavirus (6nzk) which was downloaded from protein database. Pyrx virtual screening tool was used and results revealed that F14 showed best binding affinity. The best screened molecule was further allowed to dock with the target using Autodock vina software. The results of docking of F14 with target using autodock vina revealed the binding affinity of -10.6. The interaction study with discovery studio visualize revealed the molecular interaction with serine, histidine, asparagine, leucine, tyrosine, lysine, isoleucine, threonine. The molecular properties of F14 were also calculated. The study helped us understand that 3-amino-2-phenylquinazolin-4(3H)-one molecule can act as a potent parent structure for treating pandemic of coronavirus. This might be an essential tool for the medicinal chemist for designing novel molecule for treatment of coronavirus infection.

Keywords: Coronavirus; Virtual screening; Molecular docking; Autodock vina; Molinspiration

1. Introduction

Respiratory disorders are very common in country like India. The major reason for such disorders is pollution. The emissions from automobiles and several industries are degrading the quality of air. Currently the world is fighting against coronavirus disease [1]. The origin of this virus is from china and has currently spread all over the world. COVID-19 is an infectious agent responsible for the disease. The coronavirus has entered the periphery of Indian borders through several migrants. The contagious and infectious nature of the virus has lead to spreading among several individuals [2].

People infected with the COVID-19 virus experiences mild to moderate respiratory illness, older people, and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness.

At this time, there are no specific vaccines or treatments for COVID-19. However, there are many ongoing clinical trials evaluating potential treatments. WHO will continue to provide updated information as soon as clinical findings become available [3].

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Quality by Design (QbD): An Emerging Trend in Improving Quality & Development of Pharmaceuticals

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Abstract

As pharmaceutical industries now a days concerns with the safety and continuously enhance the quality of the drug products. The development of pharmaceutical industries is based on the innovation of the product as well as the manufacturing process by keeping quality in the mind. In earlier times, the development of pharmaceutical products shows the failure in the quality and hence alters the therapeutic effect of the product. Quality by test (QbT) was the only way to maintain the quality of the drug product before the FDA launches the current Good Manufacturing Practices (cGMP), which was an approach without understanding the processes. So FDA decided to applied the several Design of Experiments (DoE) in the pharmaceutical fields. QbD (Quality by design) was one of the design experiment approved by the FDA to maintain the quality of the drug products before reaching to the market. In pharmaceutical industry, QbD brings cost-efficiency and simplicity of manufacturing process into reality. QbD is a systematic risk-based, proactive approach to pharmaceutical development that begins with predefined objectives and emphasizes product and process understanding and process control based on sound science and quality risk management. The main aim of this review is to discuss the concept of pharmaceutical Quality by Design and describe how it can be helpful to ensure pharmaceutical quality & drug development.

Keywords: Quality by design (QbD), current Good Manufacturing Practices (cGMP), Design of Experiments (DoE), quality, FDA, pharmaceutical products.

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INTRODUCTION

Quality by design (QbD) is a concept first invented by the quality scientist Dr. Joseph M. Juran [1]. Dr. Juran believed that quality should be designed into a product, and that most quality crises and problems relate to the way in which a product was designed in the first place. Woodcock defined a high-quality drug product as a product that should be free from contamination and reliably delivering the therapeutic response promised in the label to the consumer [2]. The US Food and Drug Administration (FDA) encourages risk-based approaches and the adoption of QbD principles in drug product development, manufacturing, and regulation. FDA's emphasis on QbD began with the recognition that increased testing does not necessarily improve product quality. Quality must be built into the product.

The concept of QbD was mentioned in the ICH Q8 guidance, which states that "quality can not be

tested into products, i.e., quality should be built in by design".

International conference on hominization (ICH) Q8 (R1) guideline defines QbD as "a systematic approach to development that begins with predefined objectives and emphasizes product and process understanding and process control, based on sound science and quality risk management" [3].

DEFINITION:

Quality by Design

QbD is a systematic approach that helps in the development of the pharmaceutical product by improving the quality. It begins with the predefined objectives and process understanding and process control, based on sound science and quality risk management [4].

Quality



DEVELOPMENT OF NOVEL PROCESS FOR SYNTHESIS OF 2-PHENYL-4H-3,1-BENZOXAZIN-4-ONE THROUGH MICROWAVE SYNTHESIZER

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ABSTRACT

The microwave assisted synthesis approaches comply to all 12 principles of green chemistry. The enhanced penetration power of microwaves are supposed to be the main troubleshooter in field of synthetic chemistry. The Quality by Design (QbD) approach has been used by several formulation chemist but we implemented this approach in synthetic chemistry. The novel proposed method was firstly developed using Quality by Design approach and then the method was improvised for wet lab synthesis. The statistical validation of the method was and finally spectral analysis confirmed the structure of the synthetic compound. The validation of the proposed method was carried out and these validated batches were simultaneously compared with the conventional procedure for synthesis of 2-phenyl-4H-3,1-benzoxazin-4-one. The results of the spectral data, validation and comparison showed that the proposed method was more economical than that of conventional method and also followed green approaches.

KEYWORDS: Microwave assisted synthesis, Quality by Design (QbD), benzoxazinones.

INTRODUCTION

The microwave region of electromagnetic spectrum has been developed and improvised in several technologies since 1970's but these have been used in the field of organic synthesis since 1980's. Several reports have been published in past decades that claims the efficacious role of Microwave technology^[1] in chemistry. The slow uptake of the technology has been attributed to its initial lack of controllability and reproducibility, coupled with a general lack of understanding of the basics of microwave dielectric heating. However, in the past few years, heating chemical reactions by microwave energy has been an increasingly popular theme in the scientific community. Since the first published reports on the use of microwave irradiation to carry out organic chemical transformations by the groups of Gedye and Giguere/Majetich in 1986.^[2] The microwave assisted synthesis uses all the 12 principles of green chemistry and transforms the chemistry approaches towards E-Chemistry where "E" stands for Easy, Effective, Eco-friendly and Economic.^[3]

MATERIAL AND METHODS

The chemicals used for the synthesis were of LOBA and identified for its purity before use. The microwave synthesizer^[4] was used for synthesis of compounds. Design Expert[®] was used for designing the experiment

Development and optimization of process by Quality by Design (QbD)

The novel method was first developed using the QbD^[5] approach so that the optimization is possible. The 3 level factorial design model was used which consisted of 2 factors. Power and Time were the two factors that were selected for QbD. Lower, Higher and Average were the 3 levels based on which the model were developed. The model was operated at power of (100 watt, 200 watt, 300 watt) and for time of (5 min, 10 min, 15 min). The complete work of optimization was done at the pharmaceutical chemistry lab of Priyadarshini J. L. College of Pharmacy, Nagpur on Design Expert[®].^[6] The statistically approved batches were further approved for wet lab synthesis.

Statistical Validation of Process

Any process developed needs approval through the statistical parameters as ANOVA. Design expert provide in-built protocol for calculation of ANOVA, correlation values, P values etc. These statistical parameter were calculated and scrutinized for each models developed and comparison were reported.

Synthesis of 2-phenyl-4H-3, 1-benzoxazin-4-one

The 2-phenyl-4H-3,1-benzoxazin-4-one are widely used parent structures for the synthesis of several biologically active compounds.

**CURRENT UPDATES ON RECURRENT APHTHOUS STOMATITIS:
ETIOLOGY, PATHOGENESIS AND MANAGERMENTS****Kirti D. Charde*, Kanchan P. Upadhye, Yogesh N. Gholve and Dinesh R. Chaple**Priyadarshini J. L. College of Pharmacy, Electronic Zone Building, MIDC, Hingna Road,
Nagpur- 440016, India.Article Received on
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440016, India.**ABSTRACT**

"Apthous" began from the Greek word "aphtha", the significance of which is ulcer Apthous Stomatitis is one of most basic ulcerative illness related principally with the oral mucosa described by the incredibly agonizing, repeating single, various ulcers in the upper throat and oral pit. Intermittent Apthous stomatitis is a delicate and regularly repetitive provocative procedure of the oral mucosa that can seem auxiliary to different all around characterized illness forms. The ulcers have been normally portrayed to ordinarily show up first in adolescence and will in general lessen around the third decade of life. Finding is on clinical grounds alone, and must be separated from other reason for repetitive ulceration, especially Behcet infection a

foundational issue in which apthous like ulcers are related with genital ulceration, and eye illness. The board stays inadmissible, as topical corticosteroids and most different medications just lessen the seriousness of the ulceration, yet don't stop repeat. There are a few treatment choices both neighborhood and foundational for the board of apthous stomatitis. No single treatment has been seen as reliably solid in all patients with Recurrent Apthous stomatitis, it might be basic to attempt a few sorts of meds for ideal reaction and avoidance of repeat. As dental clinicians and explores become better prepared in oral medication and stomatology, it is foreseen that the pathophysiology, anticipation and treatment of intermittent apthous ulceration will improve later on.

KEYWORDS: Recurrent Apthous stomatitis, Oral Cavity, Etiology, Pathogenesis, Management.



MICROSPONGE AS A NOVEL DRUG DELIVERY SYSTEM: A FUTURISTIC APPROACH

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ABSTRACT

Microsponge are polymeric drug delivery systems made out of permeable microspheres. They are little sponge like circular with an enormous permeable surface. The microsponge delivery system (MDS) is a unique innovation, for controlled release of topical specialists and comprises of macroporous beads, commonly 10-25 μ m in measurement, loaded with active agent. Microsponges discharges its active ingredients on period mode, when applied to the skin and furthermore in response to other stimuli(rubbing, pH, etc.). Conventional preparations have some disadvantages like unsavory smell, oiliness and skin aggravation. These problems are overcome by microsponge delivery system. Microsponge innovation is being utilized right now in

makeup, over time counter (OTC) healthy skin cares, sunscreen and prescription products. Microsponge can give expanded viability to topical active agents with upgraded wellbeing, extended stability and improved aesthetic properties in an effective and novel way.

KEYWORDS: Microsponge, polymer-based, preparation, topical, oral, biopharmaceutical delivery.

INTRODUCTION

Now a day the biggest challenge faced by the pharmaceutical industry is to control the delivery rate of active pharmaceutical ingredient to a pre-determined site in human body. So the researchers are focused on designing different controlled release drug delivery systems to improve efficacy and patient compliance.^[1]



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Fast Dissolving Sublingual Film of Rizatriptan Benzoate for Management of Migraine



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Keywords: Oral dosage form, Sublingual film, Rizatriptan, Gum Carrageenan, pectin

ABSTRACT

The present article explores the study about formulation and evaluation of fast dissolving sublingual film using natural polymer. Fast dissolving sublingual film of Rizatriptan Benzoate was prepared by the solvent casting method using different concentrations of polymers including Gum Carrageenan and pectin. The batches containing various concentration of drug and polymer were made. The study showed a significant rapid dissolution of fast dissolving sublingual film which disintegrates in 45 seconds where the optimized formulation A4 showed a disintegration time of 26 ± 0.20 seconds and % drug content of 98.01 ± 0.06 . The study demonstrated that Gum Carrageenan can be used as a very good film-forming agent and used for fast dissolving film formulation.



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RECENT UPDATES ON ANTICANCER ACTIVITIES OF POMEGRANATE**Dhanashree Wasu* and Kanchan P. Upadhye**Department of Pharmaceutics, Priyadarshini J. L. College of Pharmacy,
Electronic Zone, MIDC, Hingna Road, Nagpur-440016, Maharashtra, India.**ABSTRACT**

Natural and some synthetic compounds can prevent, suppress, or reverse the progression of cancer. Natural products have proven to be the most effective in terms of their ability to alter the function of proteins relevant to cancer. Pomegranate (*Punica granatum* L.) is considered as an ancient, mystical, unique known edible fruit borne on a small, long-living tree cultivated throughout the whole globe and is the symbolic of abundance and prosperity. For thousands of years, many cultures have believed that pomegranate have beneficiary effects on health, fertility, longevity and rebirth. The synergistic action of the pomegranate constituents appears to be superior to that of single constituents. In the past decade, numerous studies on the various properties of pomegranate constituents have been published, focusing on treatment and prevention of cancer, cardiovascular disease, diabetes, dental conditions, erectile dysfunction, bacterial infections and antibiotic resistance, and ultraviolet radiation-induced skin damage, infant brain ischemia, Alzheimer's disease, arthritis, and obesity. Present review article highlights current and updates on the use and application of pomegranate for prevention and treatment of various types of cancer.

Keywords: Anti-inflammatory activity, cancer, pomegranate, prevention.

INTRODUCTION

Pomegranate, *Punica granatum* L., an ancient, mystical and highly distinctive fruit, is the predominant member of two species comprising the Punicaceae family.¹ Pomegranate is a widely used plant having medicinal properties. It is a nutrient dense fruit rich in phytochemical compounds.² Pomegranate has been used for thousands of years to cure a wide range of diseases across different cultures and civilizations. It has great nutritional values and numerous health benefits. The pomegranate has been used in natural and holistic medicine to treat sore throats, coughs, urinary infections, digestive disorders, skin disorders, arthritis and to expel tapeworms. However, modern research suggests that pomegranates might be useful in treating such serious conditions as prostate cancer, skin cancer, osteoarthritis, and diabetes. Studies also show that pomegranate seeds might help get rid of the fats of the digestive system. Clinical research shows that pomegranates, when part of a healthy diet, might help prevent heart disease, heart attacks and strokes. This is because pomegranates have the potential to thin the blood, increase blood flow to the heart, reduce blood pressure, reduce plaque in the arteries, and reduce bad cholesterol while increasing good cholesterol. A decoction of seed is used to treat syphilis. Juice used to treat jaundice and diarrhoea. Juice of flower is used to treat nose bleeds.

The fruit pulp and the seed are stomachic. Dried, pulverized flower buds are employed as a remedy for bronchitis.³

In preliminary laboratory research and clinical trials, juice of the pomegranate may be effective in reducing heart disease risk factors, including LDL oxidation, macrophage oxidative status and foam cell formation. In mice, "oxidation of LDL by peritoneal macrophages was reduced by up to 90% after pomegranate juice consumption. In December, 2010 scientists identified components in pomegranate juice that inhibit the movement of cancer cells. Researchers at the University of California found that these components also weaken cancer cells' attraction to a chemical signal that promotes the metastasis of prostate cancer to the bone and pomegranate juice helps fight prostate cancer.

In the ancient Ayurveda system of medicine, the pomegranate has extensively been used as a source of traditional remedies for thousands of years. The rind of the fruit and the bark of the pomegranate tree is used as a traditional remedy against diarrhoea, dysentery and intestinal parasites. The seeds and juice are considered a tonic for the heart, throat and eyes and for a variety of purposes, such as stopping nose bleeds and gum bleeds, toning skin, firming-up sagging breasts and treating haemorrhoids. In the past decade, numerous studies on the antioxidant, anti-carcinogenic and anti-inflammatory properties

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**COMPARISON OF EVALUATION PARAMETERS OF
DIFFERENT BRANDS OF MARKETED TOOTHPASTE**

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ABSTRACT

The fundamental point of the current work is to assess and look at changed brands Marketed toothpaste. All the advertised tooth glues which had been assessed conformed to the norms indicated by the Bureau of Indian Standards. The plans were exposed to different assessment tests like pH, Spreadability, abrasiveness, frothing capacity, cleaning capacity, fineness, dampness and unstable substance, tube inactivity test. The primary point of this examination work is to assess the normalization parameters of various brands of showcased toothpaste. To decide the security and viability of the various brands of toothpaste. Toothpaste having a stressed job in the keeping up the oral sterile nature just as forestalling dental caries. In view of this writing, a premium make to assess and contrast the six showcased toothpaste with get plan increasingly steady. In the current examination, six business toothpaste, for example, Colgate Maxfresh, Meswak, Dantkanti, Pepsodent, Closeup, and Babool have been assessed for their quality.

INTRODUCTION

Toothpastes have been utilized since the antiquated past and are one of fundamental imperative segments of oral human services. The structure of toothpaste plans started in China and India, as 300-500 BC. During that period, crushed bone, pounded egg and shellfish shells were used as abrasives as a piece of tooth cleaning.^[1] Current toothpaste definitions were created in the nineteenth century. Later on, chalk and cleanser were fused to those definitions. After 1945, a few detailing progressions of various cleansers had started, sodium lauryl sulfate had been utilized as emulsifying specialist. As of late, the center has moved towards the arrival of dynamic fixings during detailing advancements to forestall and/or treat oral illness.^[2]

Toothpaste is a dentifrice used to clean, keep up and improve the soundness of teeth. Toothpaste is primarily used to advance oral tidiness and furthermore goes about as a rough that assists with forestalling the dental plaque and nourishment particles from the teeth, helps in the

evacuating as well as veiling of halitosis, and discharges dynamic fixings, for example, fluoride to help in forestalling tooth and gum infection (eg. Gum disease). Most of the cleaning is performed by the mechanical usage of the toothbrush with the assistance of excipients utilized in toothpaste. The primary point of this examination is to assess the Herbal toothpaste definitions and contrasting and three mainstream business toothpastes.^[3]

Oral cleanliness is a significant key to keep up great appearance, impression of an individual and gives certainty. The tooth comprises of two sections, crown and the root. The crown of the tooth is secured by external surface called finish and it is the hardest tissue in the tooth. The significant creation of lacquer is hydroxyl apatite other than that it comprises of water and keratin. Dentine is the underneath part of the veneer, which is a composite of hydroxyl apatite. It additionally comprises of 70% of the collagen water. Fluorine is the significant segment of dentine.^[4] Oral



GREEN SYNTHESIS OF SOME QUINOLINE DERIVATIVES: A REVIEW

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ABSTRACT

Microwave assisted organic synthesis has emerged as a new “lead” in field of organic synthesis which makes the chemistry to follow approaches of green chemistry. The green chemistry links with safer approaches for process and product development. This technique has provided the excellent momentum for many chemists to switch from conventional methods to microwave assisted chemistry. There has been a dramatic uptake in the use of microwaves as an energy source to promote synthetic transformations. Microwave-assisted synthesis is clearly a method by which the medicinal chemist can achieve goals in a lesser fraction of the time as compared to traditional conductive heating methods. In the present article an attempt was made to focus on basics of microwave assisted synthesis and its improvisations in recent synthetic development of quinolone derivatives. Quinoline is one of the most important N-based heterocyclic aromatic compounds. Quinoline recently is one of the priorities in lead selection by researchers because of its broad range of activities and also for their wide applications.

KEYWORDS: Green Chemistry, Microwave, Quinoline, microwave irradiation, Microwave energy.

INTRODUCTION

Microwave synthesis is a method which is used as the source of heating in the organic synthetic reactions. Many organic reactions *can* be conducted very rapidly under microwave irradiation was demonstrated by Gedye et al⁴ and Giguere et al.⁵ In 1986.^[1] Microwaves are in the form of electromagnetic energy which lies in electromagnetic spectrum which corresponds to wavelength of 1cm to 1m and frequency of 30GHz to 300MHz. This places it between infrared radiation and radiowaves. For the industrial applications the typical bands are 915 ± 15 and 2450 ± 50 MHz. The shorter wavelength in the range 1-25cm is for radar, whereas remaining section are devoted to telecommunication. The entire microwave region is therefore not available for heating applications and equipment operating at 2.45GHz is most commonly used. Microwave energy consist of both electric as well as magnetic field.^[2] The difference between microwave energy and other forms of radiation, such as X- and γ -rays, is that microwave energy is non-ionizing and therefore does not alter the molecular structure of the compounds being heated – it provides only thermal activation. Dielectric polarization causes the heating effect utilized in microwave assisted organic transformations. When a molecule is irradiated with microwaves, it aligns itself with the applied field. The rapidly changing electric field (2.45×10^9 Hz) affects the molecule and consequently the molecule

continually attempts to align itself with the changing field and energy is absorbed.^[3]

Understanding status of PCOS in Nagpur city: A survey based study**Prashant Amale¹, Shilpa Deshpande^{2*}, Varsha Barethia³**¹Assitant Professor, ²Associate Professor, ³M. Pharma Student, Dept. of Pharmacology, Priyadarshini J. L. College of Pharmacy, Nagpur, Maharashtra, India***Corresponding Author: Shilpa Deshpande**

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Abstract**Objective:** To study the status of Polycystic Ovarian Syndrome (PCOS) in nagpur city along with the creation of its awareness.**Materials and Methods:** This questionnaire based survey was conducted in Nagpur city which included the female subject between 12-60 years of age. A questionnaires consisting of 27 questions related to PCOS prepared in accordance with the available literature and gynecologist's opinion. Questionnaires were circulated and collected data were analyzed.**Results:** Present study revealed that participants surveyed from age group I (12-20 yrs), II (21-40 yrs) exhibit most while group III (41-60 yrs) exhibit less symptoms similar to that of PCOS. In addition, age group II participants found to have diagnosed PCOS condition.**Conclusion:** Age group I may be most susceptible while group II is at high risk for the development of PCOS and associated problems.**Keywords:** Polycystic Ovarian Syndrome (PCOS), Questionnaire, Hirsutism, Hyperandrogenism.**Introduction**

Polycystic Ovarian syndrome (PCOS) or Polycystic Ovarian Disorder (PCOD) is a triangle of Obesity, Amenorrhoea and Hirsutism.¹ PCOS is also referred to as the 'Syndrome O' due to Overproduction of insulin, Over-nourishment, Ovulatory disruption and Ovarian confusion. Women with PCOS have higher rates of endometrial cancer, cardiovascular disease, dyslipidemia, type-2 diabetes mellitus and infertility.² It is a complex condition characterized by elevated androgen levels, menstrual irregularities, multiple small ovarian cysts, obesity, acne, hypertension, diabetes, hirsutism, and infertility.^{2,3} It is the most common lifestyle disorder affecting approximately 2-8% women in between 18-44 years of (reproductive) age worldwide and having 9.13% prevalence rate in India.⁴⁻⁷

polycystic ovaries, menstrual irregularity, genetic predisposition, sedentary lifestyle, obesity, intrauterine exposure, lack of physical exercise, the use of oral contraceptives, long term use of the seizure medicines, hypertension, diabetes, smoking, and alcoholism.⁸

PCOS can be diagnosed by observing above symptoms and laboratory investigations. Treatment for PCOS comprises of non pharmacological and pharmacological approach. The former approach includes identification of condition and lifestyle modification while the latter involves the use of oral contraceptives, antiandrogens, antidiabetic, anti-obesity and statins. A surgical procedure which is a final option for cure involves ovarian drilling.⁹⁻¹⁴

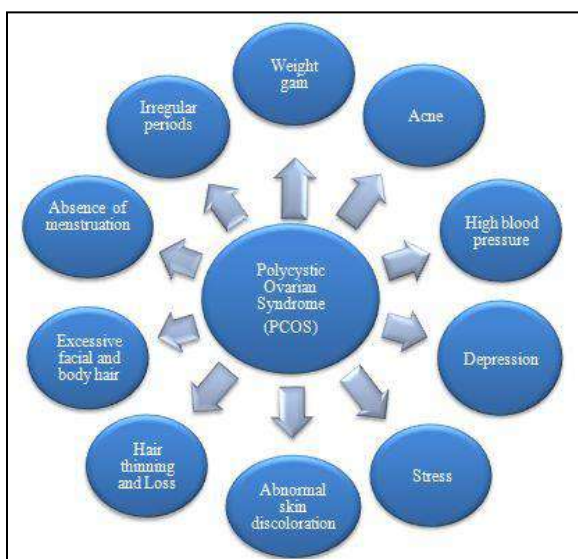
Studies on PCOS are performed only in hostel girls of reproductive age (15-44 year) from same residence but not in the age group more than 45 years and from different localities.⁸ Hence, the aim of present study was to know the status of PCOS in females (12-60 years) of Nagpur city along with the creation of awareness among the population regarding the occurrence, cause, and risk factors of PCOS.

Materials and Methods

The questionnaire survey was conducted in females of 12-60 years of age to check the status of PCOS in Nagpur city. The voluntarily participated females are categorized into three different age groups which are as follows:

Table 1: Total numbers of participants surveyed

S. No.	Age Groups (years)	Category/group	Total no. of participants surveyed
1.	12 - 20	I	141
2.	21 - 40	II	128
3.	41 - 60	III	38

**Fig. 1:** Signs and symptoms of polycystic ovarian syndrome

PCOS may be caused due to several factors like hyperandrogenism, neuroendocrine abnormalities,

In this survey study, questionnaire containing 27 questions relevant to PCOS was prepared and given to the individual (girl student and women) volunteer from various

INTRODUCTION TO AMYLOIDOSIS**Mrunali A. Bhongade*, Dr. Mrs. M. P. Yeole, Neha Kushwaha and Mohd. Sajjad Khan**

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Maharashtra, India.**ABSTRACT**

Amyloidosis is a multisystem disorder characterized by decomposition of protein as insoluble fibrils, which disrupt tissue structure and function. In this review we discuss about amyloids fibrillar amyloidosis. First time this word amyloidosis is use by the German physician scientist Rudolph Virchow. The term 'amyloidosis' makes reference to a heterogeneous group of diseases characterized by the deposition of a proteinaceous material-amyloid in various tissues and organs. Due to in light microscope appearance of amyloid is traditionally described as a 'homogeneous and eosinophilic substance.

KEYWORDS: Homogeneous and eosinophilic substance.**INTRODUCTION**

Amyloidosis is a multisystem disorder characterized by decomposition of protein as insoluble fibrils, which disrupt tissue structure and function.^[1] It is a generic term that surrounds a large group of diverse diseases rather than a single disease entity. The only diagnosis of amyloidosis is morphological assessment of cytological/histological or postmortem material. It is characterized by the extracellular deposition and accumulation of insoluble fibrillar proteins, with concurrent destruction of normal tissue structure and function. Amyloid fibrils are arranged in an antiparallel conformation with a β pleated sheet structure.^[2]



Hand Sanitizers: An Essential Commodity in A Busy Life

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ABSTRACT

Nosocomial infection (NI) also known as hospital acquired infections, has increased attention due to the significant morbidity and mortality caused by NI worldwide. Transmission of NI is believed to occur predominantly via the mode of pathogen exchange to and from contaminated hands. Thus, maintaining clean and microbe free hands gains a lot of scientific and clinical scope. Hand sanitizer is for "hand hygiene". It is a vital principle in the prevention, control, and reduction of any acquired infection. Mainly hand sanitizer can stop the chain of transmission of micro-organisms and other bacteria from hand to different parts of our body. Hand hygiene is important and one of the most critical steps in food production, food service as well as in homes and other day care preparations. Hand sanitizer avoids adverse effects like itching, irritation, dermatitis etc. Hand sanitizer are even more important in places where there is not always going to be soap and water or at the office, in the classroom, or in any space with lots of foot traffic, germs spread quickly and other people's germs can affect you or when a health care worker has so many patients to attend to and does not have the time to wash the hands after attending to each patients. The present review was aimed to discuss the advantages, limitation and antibacterial efficacy of various hand sanitizer such as alcoholic, non- alcoholic and herbal sanitizer. The efficiency of a sanitizer depends on the concentration and grade of its active ingredient.

Keywords: Nosocomial infection, herbal hand sanitizer, herbal extract, hand hygiene, anti-microbial activity.

INTRODUCTION

Hands are primary mode of transmission of harmful germs and infections, hand hygiene is therefore the most important measure to avoid the transmission of microbes and prevent the infections. Hand hygiene is the single most important very simplest method and least expensive means of preventing nosocomial infections.¹ Contaminated hands can serve as vectors for the transmission of microorganisms. Pathogenic microorganisms accountable for outbreaks are spread from the hands of the food handler to others when the food handler contaminates his/her hands and then passes these microorganisms to consumers via hand contact with food or drinks. The consumer is exposed following the ingestion of these microorganisms, which may cause gastro intestinal illness.

Hand contact with ready-to-eat foods represents a very essential mechanism by which pathogens or microorganism may enter the food supply. Food handlers whose work involves touching unpacked foods to be consumed raw or without further cooking or other forms of dealing have been identified as a particular risk group.² To protect the skin from harmful micro-organisms and to prevent spreading of many contagious diseases, hand washing is absolutely an important precaution. Food production workers and foodservice personnel must be taught to use correct hand and fingertip washing by management in preparation for work.³



Figure 1: Gel hand sanitizer

(A person using gel hand sanitizer)

Any health-care worker or person involved in direct or indirect patient care needs to be concerned about hand cleanliness and should be able to perform it appropriately and at the right time.⁴ Last time we checked, you cannot take a sink on the go in those situation where you need to wash your hands, there is not always going to be soap and water available. You can slip a small bottle of hand rub disinfectant in your glove compartment, a purse or even your pocket for situation where you might want to wash your hands but either cannot find a sink or waiting for one is inconvenient. It is perfect for when you are grabbing a snack at a sporting event or have just left a public space like the grocery store. At the office, in the classroom, or in any space with lots of foot traffic, germs spread quickly and even if you are not getting ready to eat or taking out the garbage, other people's germs can affect you. That is why



A Review on Ion Exchange Resins as Drug Delivery System

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ABSTRACT

Ion exchange resins (IER) are cross-linked water insoluble polymer carrying ionizable functional groups. Ion exchange resin have received attention from the pharmaceutical scientists because of their considerable properties as the drug delivery vehicles. The efficacy of ion exchange resins mainly depends upon their physical properties such as degree of exchange capacity, cross-linkage, ionization, porosity and swelling, particle size and form, purity, toxicity and equilibrium rate. Research over the last several years has revealed that ion exchange resin are equivalently suitable for drug delivery technologies, including the controlled release, usually in transdermal, nasal, topical, oral and taste masking. The drawback of sustained release or extended release is dose dumping, resulting in increased risk of toxicity. The use of ion exchange resin has an important place in the development of the controlled or sustained release systems because they have effective drug-retaining properties and the prevention of dose dumping. Synthetic ion exchange resins have been used in the pharmacy and medicine for taste masking or controlled release of drug. Drug resin complexation generally converts drug to amorphous form leading to improve the drug dissolution. Some of the system studies have reported the use of IER for drug delivery at the desired site of action. Sulfonated and carboxylic resins with a polystyrene backbone are generally used in clinical medicine. This review addresses various types of ion exchange resin, its properties as well as its applications.

Keywords: Ion exchange resin, taste masking, resin drug complex.

INTRODUCTION

Ion exchange resins (IER) are cross-linked, synthetic, high molecular weight, water insoluble polymers, usually white or yellowish, fabricated from the organic polymer having an ionizable functional group. Novel drug delivery systems are gaining momentum in the last two decades as they offer decrease frequency of dosing and patient compliance. One of the best techniques for modified drug delivery systems is the use of ion exchange resins (IER) as carriers for such systems¹.

IER are insoluble polymers which carry acidic or basic functional groups and that have the capability to exchange counter-ions within aqueous solutions surrounding them. An ion exchange resin is like a small bead with a diameter in between 1-2 mm. These are generally white or yellowish and it is fabricated from an organic polymer substrate backbone². Ion exchange is a reversible process in which ions of like sign are exchanged in between liquid and solid when in contact with the highly insoluble body³. The drug is released from the resinate by exchanging with ions in the gastrointestinal fluid followed by drug diffusion⁴. Due to the appearance of high molecular weight water insoluble polymers, the resins are not absorbed by the body and are therefore inert. The effectiveness of ion exchange resins mainly depends upon their physical properties such as degree of exchange capacity, cross-linkage, ionization, porosity and swelling, particle size and form, purity and toxicity, equilibrium rate. Drug resinates are usually formulated with purified resins and drugs^{5,6}.

Research over the past some years has revealed that the IER are equivalently suitable for delivery technologies, together with controlled release, transdermal, nasal, topical, oral and taste masking. Synthetic ion exchange resins have been used in pharmacy and medicine for masking the taste of the drug or controlled release of drug as early as 1950. Ion-exchange systems are beneficial for drugs that are highly susceptible to degradation by enzymatic process. An important advantage of this ion exchange system is the low running cost^{7,8}.

Advantages

- Economic and readily available.
- Free from local and systemic toxicities.
- Drug-resinates can be formulated into various dosage forms like tablets, capsules, suspensions etc.
- Can be used for several purposes such as taste masking, sustained and rapid release.
- Effectively useful in low concentration (5-20%w/w).
- Need for less dosing
- Resins have high drug loading⁹.

Clinical Advantages

- Reduction in frequency of drug administration
- Improved patient compliance



**ROLE OF TOCOPHEROL IN THE PREVENTION AND TREATMENT
OF VARIOUS DISORDERS****Gulkari V. D.* and Lakhe D. B.****Priyadarshini J. L. College of Pharmacy, Electronic Zone Building, MIDC, Hingna Road,
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The "Vitamin E" was genuinely gotten from a blend word made up by Polish specialist Casimir Funk from goal and amine, which implies amine of life. Vitamin E is the noteworthy lipid-dissolvable malignant growth anticipation specialist in the cell support system and is exclusively gained from the eating schedule. Vitamin E guarantees polyunsaturated unsaturated fats and various portions of cell movies and low-thickness lipoproteins from oxidation by free radicals. It is found fundamentally inside the phospholipid bilayer of cell layers. Different wellsprings of supplement E are nut species around the globe, the almond pieces were the fundamental. Supplement E is ingested into the lymphatic system from the stomach related organs

and enters the blood as a fragment of the chylomicrons. The majority of supplement E in plasma is in the low-thickness lipoproteins. Alpha-tocopherol is the huge tocopherol in grown-up plasma and records for around 87% of the all tocopherols center. Vitamin E levels in plasma run from 0.5-mg/dl in regular masses. The diverse pharmacological utilities of Vitamin E are cell reinforcement, insusceptible, anticancer and hostile to provocative development. The diverse evaluation parameters agreeing the WHO and Pharmacopoeial Index are summed up in this overview.

KEYWORDS: Tocopherol, Alpha Tocopherol, Vitamin E.**1. INTRODUCTION**

Tocopherol is a natural compound required as a supplement in little sums by a creature. At the end of the day, a natural substance compound (or related arrangement of mixes) is known as a Tocopherol. At the point when it can't be incorporated in adequate amounts by a living



Pharmacognostic studies of leaves, roots, stem, and fruits of *Uraria picta*

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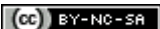
ABSTRACT

This study presents the detailed Macro and microscopical evaluation of leaves of crude drug *Uraria picta* belonging to family Leguminosae, Papilionaceae. The study was help to identify and establish the authenticity of *Uraria picta*. The parameters also help to standardize the crude drug and minimize the drug adulteration. The quality control parameters for the crude drugs as raw materials were established with the help of several official determinations based on morphology and microscopy studies. These studies were aimed at ensuring standardization of herbal drug under investigation. Morphological examination of drugs refers to evaluation of drugs by colour, odour, taste, size, shape and special features, like touch, texture etc. All these parameters were recorded for leaves, root, stem, fruit and seed of the plant *Uraria picta*. These were helpful in primary identification of *Uraria picta*. Paracytic type stomata and curve apex covering trichomes, a dense reticulate venation pattern, spongy mesophyll are the differential character, Calcium oxalate crystals of prismatic and rhomboidal shape, types are fairly abundant in the leaf which is the identification characters.

Keywords: *Uraria picta*, Prishnaparni, Herbal drugs, Microscopy, Macroscopy

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**CARBOHYDRATE POLYMERS: BEYOND THE TITLE.**

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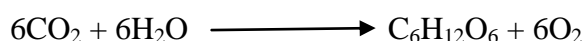
Fariha Afsar Ali Syed

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Starch is the main carbohydrate in plants & important role in nutrition. The awareness about effects the use of harmful raw material & their associated toxicity to the environment. The polymers of carbohydrate like starch and cellulose gives unique opportunity to explore raw material. Application of carbohydrate polymers in industrial processes such as adsorption, fuel cell etc.

KEYWORDS: Carbohydrate polymers, adsorption, fuel cells.**1) INTRODUCTION**

Carbohydrates are Poly-hydroxylated aldehydes or ketones and their derivatives (Khowala *et al.*, 2008). In nature carbohydrates are the most abundant and diverse class of organic compounds (Steve., 2005). These are the main source of energy that is ingested by the human body (Asif *et al.*, 2011). Carbohydrates are linked with amino acid polymers these are proteins forming glycoproteins and with lipids are glycolipids (Khowala *et al.*, 2008). During the process of photosynthesis carbohydrates are produced: (Steve., 2005).



In food carbohydrates, starch is in a unique position. Starch plays major part in providing the metabolic energy to do the different functions of body (Steve., 2005). Carbohydrates are classified into four types these are: Mono-saccharides, Di-saccharides, Oligo-saccharides and Poly-saccharides (Table.1) Mono-saccharides cannot be hydrolyzed into simple sugars. Di-saccharides gives two mono-saccharides by hydrolysis and and poly-saccharides may be the Homo-polysaccharides or Hetero-polysaccharides (Asif *et al.*, 2011).

REVIEW ARTICLE

**A COMPREHENSIVE UPDATED REVIEW ON GINGIVAL
CREVICULAR FLUID: CHARACTERISTICS, COLLECTION
AND ESTIMATION**

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ABSTRACT

Gingival crevicular fluid is an exudate released by the gums that can be found in the split arranged at where the gum line meets the teeth. The centralizations of this fluid are commonly low, anyway during aggravation the GCF stream augmentations and its amalgamation starts to take after that of a provocative exudate. It has an exceptional influence in keeping up the structure of junctional epithelium and the antimicrobial barrier of periodontium. A portion of the speculated periodontal pathogen, for example, *Porphyromonasgingivalis* and *Treponemadenticola* produce wide range nonpartisan proteinases as a major aspect of their harmfulness weapons store. These proteinases might be distinguished in plaque and gingival crevicular liquid examples of patients with periodontitis. the liquid part of gingival crevicular liquid is gotten essentially from microvascular spillage. There are particular favourable circumstances and difficulties of utilizing gingival crevicular liquid as an indicative test for periodontal ailment. Because of confinements in its assortment, which incorporates volume size and defilement, gathering strategies need further work. This article targets looking into quickly about the GCF and its job as a symptomatic marker in periodontal sickness. The essential point of the present examination was to research contrasts between gingival crevicular liquid inspecting procedures in particular assortment by Absorbent filter paper strips, micropipettes or capillary tubing technique, pre-weighed twisted thread, crevicular washing technique, and Curette collection technique.

**CURRENT UPDATES ON NATURAL
SUPERDISINTEGRANTS IN THE DEVELOPMENT OF FAST
DISSOLVING TABLETS**

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ABSTRACT

Superdisintegrants are a rising example in the Pharmaceutical field. In the application oral separating tablets (ODTs), snappy dispersible tablets, holders, mouth-dissolving films superdisintegrants have seen as a noteworthy nearness especially for ODTs and fast dispersible tablets. Usage of customary superdisintegrants in the improvement of orally stalling tablets has different focal points, for instance, artificially lethargic, non-harmful, progressively reasonable, biodegradable and extensively available. Distinctive ordinary superdisintegrants utilized in the improvement of orally separating tablets have in like manner been discussed. Today, the whole world is continuously interested by trademark meds and excipients. These normal materials have advantage over fabricated ones since they are artificially inert, nontoxic, increasingly moderate, biodegradable and for the most part available. In this way these plans consistently accomplished a superior patient consistence in the event of Pediatric, Geriatric or Psychiatric patients experiencing Dysphagia as Dysphagia has grown to be a disturbing concern everywhere throughout the Globe. Right now, accentuation is given on various kinds of superdisintegrants utilized in mouth dissolving tablets, their components and applications. Manufactured crumbling specialists are accessible as a profoundly prudent and less compelling when contrasted with normal breaking down operators. Thusly regular disintegrants fill in as the best choice to beat the issues of these engineered substances. Because of their various focal points over manufactured items they are broadly utilized in the pharmaceutical field as a cover, disintegrants, gums, and adhesives.



A REVIEW ON ORAL CONTROLLED DRUG DELIVERY SYSTEM: A MODERN FORMULATION APPROACH

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ABSTRACT

Controlled-release (CR) formulations have been introduced into drug therapy with two main purposes, to reduce the number of single dose per day improving patient compliance of treatment and to decrease the fluctuations of plasma levels, in order to obtain better therapeutic efficacy and lower toxicity. The basic goal of therapy is to achieve a steady state blood level that is therapeutically effective and non-toxic for an extended period of time. The design of proper dosage regimens is an important element in accomplishing this goal. Controlled release, extended action, timed release, depot and respiratory dosage forms are terms used to identify drug delivery systems that are designed to achieve a prolonged therapeutic effect by continuously releasing

medication over an extended period of time after administration of single dose. In the case of orally administered dosage forms, the period is measured in hours and critically depends on the residence time of the dosage form in the gastrointestinal tract. Controlled release also denoted systems which can provide some control whether this is of a temporal or spatial nature or both for drug release in the body. The system attempts to control drug concentrations in the target tissues or cells. Prolonged or sustained release systems only prolonged therapeutic blood or tissue levels of the drug for an extended period of time.

KEYWORDS: Oral controlled release drug delivery system, matrix system, factors influencing oral CRDDS, Current and future development.



RECENT TRENDS OF POLYMER USAGE IN THE FORMULATION OF ORODISPERSIBLE TABLETS

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ABSTRACT

Orally separating tablets have eliminated a tremendous position among the oral drug movement systems inferable from their improved patient consistence especially in the geriatrics and pediatrics. These tablets offer different liberal good conditions over standard portion structures by virtue of improved feasibility, bioavailability and quick start of movement. The oral course is the most advantageous course for organization of strong measurements structure, about 85% of strong dose directed by oral course on account of favorable circumstances over others. Superdisintegrants are used to improve the practicality of solid estimation structures. This is practiced by decreasing the separating time which accordingly improves sedate deterioration rate.

Disintegrants are substances or mix of substances incorporated the drug definition that supports the partition or disintegrating of tablet or compartment content into more diminutive particles that separate more rapidly than without disintegrants. Superdisintegrants are generally used at a low level in the solid portion structure, commonly 1-10 % by weight near with the hard and fast weight of the estimation unit. The present examination incorporates the various sorts of disintegrants and superdisintegrants, which are being used in the specifying to give the more secure, convincing prescription transport with patient's consistence. Ongoing pattern toward the utilization of plant based and characteristic items requests the supplanting of manufactured added substances with common ones.

KEYWORDS: Orally disintegrating tablets, Superdisintegrants, Disintegration, Orodispersible tablets, Natural Superdisintegrant, Mucilage.



CURRENT UPDATES ON BIOCHEMICAL IDENTIFICATION METHODS OF GINGIVAL CREVICULAR FLUID MICROFLORA OF SEVERE PERIODONTITIS PATIENT

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ABSTRACT

Bacteria are meant to be omnipresent and are mostly involved in lots of human microbial infections. Such bacterial infections can be identified by the different properties of this microorganism. Bacteria are bearing several inherent properties. By using these properties we can differentiate, can check their presence and absence, can check their gram negative and gram positive nature and many more. The present review is therefore focused to combine different biochemical tests in one article. The identification of unknown bacteria produces benefits for many aspects of the research of microorganisms and helps physicians correctly treat patients. Multiple biochemical tests were performed to provide the fermentation abilities, presence of certain

enzymes, and certain biochemical reactions. Qualitative observations were made on the tests, which were compared to unknown bacteria identification keys to aid with the identification process. The identification is required so as to cure the illness or the infection caused due to the bacteria by using appropriate antibiotics. Identification also holds significance for epidemiological purposes.

KEYWORDS: Bacteria, biochemical test, micro-organisms, bacterial identification.

INTRODUCTION

Bacteria are present in most habitats on Earth, growing in soil, acidic, radioactive waste,^[1] and deep in the Earth's crust, as well as in organic matter and the live bodies of plants and animals, providing outstanding examples of mutualism in the digestive tracts of humans,



COVID-19: Recent Updates on its Mechanism and Treatment

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ABSTRACT

Toward the finish of 2019 a novel infection, serious intense respiratory condition coronavirus 2 (SARS-CoV-2), causing extreme intense respiratory disorder extended all inclusive from Wuhan, China. In March 2020 the World Health Organization announced the SARS-Cov-2 infection a worldwide pandemic. We played out an account audit to depict existing writing with respect to Coronavirus Disease 2019 (COVID-19) the study of disease transmission, pathophysiology, finding, the executives and future point of view. MEDLINE, EMBASE and Scopus databases were scanned for important articles. Albeit just when the pandemic finishes it will be conceivable to evaluate the full wellbeing, social and financial effect of this worldwide fiasco, this survey speaks to an image of the present best in class. Specifically, we center around general wellbeing sway, pathophysiology and clinical appearances, analysis, case the executives, crisis reaction and readiness. This audit expects to sum up early findings on the study of disease transmission, clinical highlights, analysis, treatment, the executives, and anticipation of COVID-19.

Keywords: COVID-19, epidemiology, mechanism and treatment, prevention.

INTRODUCTION

In mid 2020, another infection started creating features everywhere throughout the world in view of the remarkable speed of its transmission. From its starting points in a nourishment advertise in Wuhan, China, in December 2019 to nations as distant the United States and the Philippines, the infection (authoritatively named SARS-CoV-2) has influenced several thousands, with a rising loss of life now more than 17,000. The ailment brought about by a contamination with SARS-CoV-2 is called COVID-19, which represents coronavirus infection 2019.

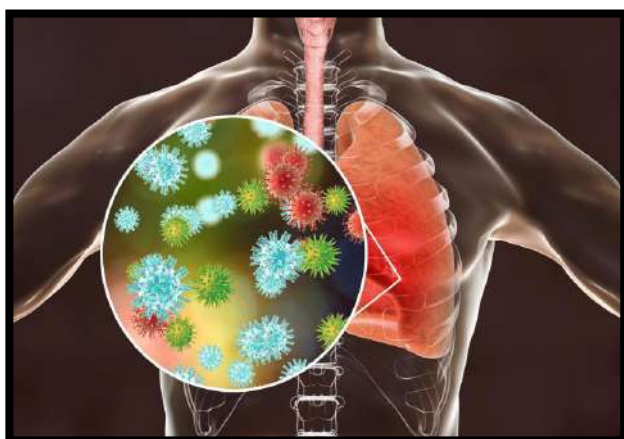


Figure 1: COVID-19

Coronavirus (CoV) is a huge group of positive-sense, single-stranded RNA infections that have a place with the Nidovirales request. The request incorporates Roniviridae, Arteriviridae, and Coronaviridae families. The Coronaviridae family is partitioned into Torovirinae and Coronavirinae subfamilies. Coronavirinae is further sub

arranged into alpha-, beta-, gamma-, and delta COVs.¹ Phylogenetic grouping represents the characterization of these subtypes of infections. Their viral RNA genome ranges from 26 to 32 kilo bases long. They can be detached from various creature species. These incorporate feathered creatures, domesticated animals, and warm blooded creatures, for example, camels, bats, veiled palm civets, mice, hounds, and cats.² The across the board appropriation and infectivity of COV make it a significant pathogen.

An infection has a characteristic and zoonotic starting point: two situations that can conceivably clarify the cause of SARS-CoV2 are: (i) common choice in a creature have before zoonotic exchange; and (ii) regular determination in people following zoonotic transfer.³ Clinical highlights and hazard factors are profoundly factor, making the clinical seriousness go from asymptomatic to fatal.⁴ Comprehension of COVID-19 is on-going.

This audit expects to sum up early findings on the study of disease transmission, clinical highlights, analysis, treatment, the executives, and anticipation of COVID-19.

Pathophysiology and Clinical Manifestation

To address the pathogenetic components of SARS-CoV-2, its viral structure and genome must be thought of. Coronaviruses are encompassed positive strand RNA infections with the biggest known RNA genomes—30–32 kb—with a 50-top structure and 30-poly-A tail. Beginning from the viral RNA, the union of polyprotein 1a/1ab (pp1a/pp1ab) in the host is realized.⁵ The interpretation works through the replication-translation complex (RCT) composed in twofold film vesicles and by means of the combination of subgenomic RNAs (sgRNAs) arrangements. Of note, translation end happens at



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(RESEARCH ARTICLE)



In silico screening and molecular docking of bioactive agents towards human coronavirus receptor

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Abstract

Coronavirus infection has turned into pandemic despite of efforts of countries like America, Italy, China, France etc. Currently India is also outraged by the virulent effect of coronavirus. Although World Health Organisation initially claimed to have all controls over the virus, till date infection has coasted several lives worldwide. Currently we do not have enough time for carrying out traditional approaches of drug discovery. Computer aided drug designing approaches are the best solution. The present study is completely dedicated to in silico approaches like virtual screening, molecular docking and molecular property calculation. The library of 15 bioactive molecules was built and virtual screening was carried towards the crystalline structure of human coronavirus (6nzk) which was downloaded from protein database. Pyrx virtual screening tool was used and results revealed that F14 showed best binding affinity. The best screened molecule was further allowed to dock with the target using Autodock vina software. The results of docking of F14 with target using autodock vina revealed the binding affinity of -10.6. The interaction study with discovery studio visualize revealed the molecular interaction with serine, histidine, asparagine, leucine, tyrosine, lysine, isoleucine, threonine. The molecular properties of F14 were also calculated. The study helped us understand that 3-amino-2-phenylquinazolin-4(3H)-one molecule can act as a potent parent structure for treating pandemic of coronavirus. This might be an essential tool for the medicinal chemist for designing novel molecule for treatment of coronavirus infection.

Keywords: Coronavirus; Virtual screening; Molecular docking; Autodock vina; Molinspiration

1. Introduction

Respiratory disorders are very common in country like India. The major reason for such disorders is pollution. The emissions from automobiles and several industries are degrading the quality of air. Currently the world is fighting against coronavirus disease [1]. The origin of this virus is from china and has currently spread all over the world. COVID-19 is an infectious agent responsible for the disease. The coronavirus has entered the periphery of Indian borders through several migrants. The contagious and infectious nature of the virus has lead to spreading among several individuals [2].

People infected with the COVID-19 virus experiences mild to moderate respiratory illness, older people, and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness.

At this time, there are no specific vaccines or treatments for COVID-19. However, there are many ongoing clinical trials evaluating potential treatments. WHO will continue to provide updated information as soon as clinical findings become available [3].

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(REVIEW ARTICLE)



Review on synthetic study of benzotriazole

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Abstract

Benzotriazole is nitrogen containing heterocycle derivative containing three nitrogen atoms at 1st, 2nd, 3rd positions. Lone pairs of each nitrogen atom are present in unshared form. The unshared lone pair of electrons enables five-membered ring to exhibit that can exist in tautomeric forms. Benzotriazole belongs to a fused heterocycles, which has a benzene ring fused with with a triazole ring. Benzotriazole and its derivatives have great significance in medicinal chemistry. The derivatives are used by several chemists for therapeutic conditions. The current paper concise several synthetic methods utilized for synthesizing derivatives which acts as antimicrobials, antibacterial, antifungal, antiviral, antitubercular, anticancer, anti-inflammatory, anticonvulsant, analgesic and antioxidant agents. The article will also help the researchers to understand the structure activity relationships and improvise the concepts in their researches.

Keywords: Benzotriazole; Antimicrobial; Anticancer; Antifungal; Fused heterocycles

1. Introduction

As the micro-organisms are rapidly undergoing genetic changes and developing resistance against many antibiotics and therapeutic agents for various diseases more quickly than new drugs are being made available so the war against the infectious diseases has become a never ending process. Over the past few decades, there are great interest of triazole class arising due to their wide use in industry and agriculture. Benzotriazole and its derivatives have great significance in medicinal chemistry [1].

The incorporation of the Benzotriazole nuclei is an important synthetic strategy in drug discovery. The high therapeutic properties of the related drugs have encouraged the medicinal chemists to synthesize the large number of novel chemotherapeutic agents [2].

In general, nitrogen and sulfur containing organic compounds and their metal complexes display a wide range of biological activity as antitumor, antibacterial, antifungal and antiviral agents [3]. Benzotriazoles are often used as corrosion inhibitors, radioprotectors, and photo stabilizer in the production of plastic, rubber and chemical fiber 3. Along with these activities, benzotriazole is also important as a precursor in the synthesis of peptides, acid azides, preparation of 3-hydroxymethyl-2,3-dihydrobenzofurans and 3-hydroxymethylbenzofurans [4].

N-Substituted benzotriazoles exist as two isomers: 1H- and 2H-substituted. It is generally agreed that 1H-substituted dominated in solid and solution, whereas the proportion of the 2H-tautomer increased in the gas phase [5]. However, the energy difference between the two isomers is very little [6]. Similarly, benzotriazoles containing Mannich bases have recently been synthesized also by amine exchange reactions, from the N,N-dimethylaminopropiophenone hydrochlorides and benzotriazole, respectively [7].

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SYNTHESIS AND EVALUATION OF MUTUAL PRODRUGS OF IBUPROFEN AS NON STEROIDAL ANTI-INFLAMMATORY DRUGS WITH ANTIOXIDANTS

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ABSTRACT

Mutual prodrug are form of prodrug in which two pharmacologically active compounds are in such a manner that one drug acts as carrier for each other. Inflammation is usually defined as the series of changes that occur in living tissues following by injury and is associated with redness, itching and swelling. Non-Steroidal Anti-inflammatory Drugs (NSAIDs) are commonly used for treatment of the inflammation. These drugs are used alone or in combination with other drugs. These drugs are associated major side effects like gastro intestinal irritation due to presence of carboxylic acid group in the structure. The local generation of various 'reactive oxygen species' play a significant role in the formation of gastric ulceration associated with NSAIDs therapy.

This indicates antioxidants may prevent gastric ulceration due to NSAIDs. Mutual prodrugs of Ibuprofen were planned for treatment of inflammation along with antioxidants property. Ibuprofen as mutual prodrugs and their physiological characterization of synthesized products were carried out Analgesic, anti-inflammatory and ulcerogenic activities were evaluated for synthesized compounds. The synergistic property of mutual prodrugs leads to potent biological actions i.e. treatment of inflammation.

KEYWORDS: Mutual prodrug, NSAIDs, Reactive oxygen species, Ibuprofen, ulcerogenic.

INTRODUCTION

The concept of "mutual prodrug" is relatively in medicinal chemistry, pharmaceuticals and drug delivery. Mutual prodrug is from if prodrug in which two pharmacologically active

FORMULATION AND EVALUATION OF ANTIFUNGAL HERBAL HAIR GEL

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ABSTRACT

Medicinal plants have been a major source of cure for human diseases since time immemorial. It is no wonder that the world's one-fourth population i.e. 1.42 billion people, are dependent on traditional medicines for the treatment of various ailments. *Murraya koenigii*, belongs to the family Rutaceae, Commonly known as curry-leaf tree, Carbazole alkaloids, the major constituents of plant are known to have cytotoxic, antioxidant, antimutagenic and anti-inflammatory activities. The leaves are rich in mono-terpenoids and sesquiterpenoids which exhibited antimicrobial activities. *Azadirachta indica*, also known as Neem, Nimtree and Indian Lilac is a tree in the mahogany family –

Meliaceae. Neem contains several fatty acids such as linoleic acid, stearic acid, oleic acids that nourishes and revitalize rough hair to a smooth silky texture. Curry leaves has antibacterial antifungal and anti-inflammatory properties which fights against dandruff and infections of the scalp.

KEYWORDS: mono-terpenoids and sesquiterpenoids.

INTRODUCTION

Recently considerable attention has been paid to utilize eco-friendly and bio-friendly plant based products for the prevention and cure of different human diseases. It is documented that most of the world's population has taken in traditional medicine, particularly plant drug for the primary health care. Antimicrobial properties of certain Indian medicinal plants were reported based on folklore information and only few reports are available on inhibitory activity against certain pathogenic bacteria and fungi.



PREPARATION AND EVALUATIONS OF DIATRIZOATE SODIUM LIQUID ORAL FORMULATION

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ABSTRACT

X-ray diagnostic agents (contrast media) are widely used as adjuncts to diagnostic visualization techniques as they help to illustrate the differences between tissues by introducing them to the area of interest to increase its density and absorption of X-rays. Diatrizoic acid is radio opaque ionic contrast media utilized orally and parentally for symptomatic purpose. The goal of this investigation is to develop a liquid oral contrast media and evaluate the physicochemical parameter were compared with the changes in accelerated stability testing for the documentation of these plan nearby with FTIR information. Quality of final solution was evaluated with the parameters: pH, iodine iodide test and drug content. Three batches were formulated of the solution. All the batches were evaluated for physicochemical parameters, pH and drug content. The formulated batches under gone stability studies, no turbidity were observed for 60 days studies. All the batches assure the reproducibility and each parameter were complying with specifications.

KEYWORDS: Diatrizoate sodium, oral liquid formulation, contrast media.

1. INTRODUCTION

Diatrizoic acid is a contrast agent used during X-rays. This incorporates when envisioning veins, the urinary framework, spleen, and joints, just as during PC tomography (CT filter). It is controlled by oral, parenteral, and so forth. Diatrizoic acid is an iodinated ionic radiocontrast operator with high osmolality with USP standard medication.^{[1][2]} The IUPAC name of medication is Sodium 3,5-diacetamido-2,4,6-triiodobenzoic acid. It's a fluid oral detailing containing one or more active ingredients in a suitable vehicle; they may in some cases consist simply of a liquid active ingredient used as such.^[3] The reason for this examination is that to archived the plan based documentation and with strategy for arrangement and their assessment parameters. The motivation behind this investigation is that to reported the definition based documentation and with strategy for planning and their

assessment parameters. By the solvency, stability, drug content (assay) and FT-IR study.^[4]

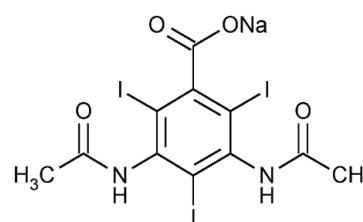


Figure 1: Structure of Diatrizoic Acid.

2. Experimental Work^[5]

2.1 Formulation of Diatrizoic Acid

The ingredients utilized for plan depends on mechanical cluster producing record (BMR) information, with monetarily acknowledged and utilizing seasoning operator for patients convince.

Table 1: Formulation of Diatrizoic Sodium.

Sr. No.	Ingredient	Uses	Quantity Taken
1.	Diatrizoic Acid USP	Active Ingredient	87.50 g
2.	Sodium Hydroxide	Base	5.42 g
3.	Sodium Citrate	Acidity Regulator	0.50 g
4.	Disodium EDTA	Chelating agent/ Stabilizer	90.02 g
5.	Methyl Paraben	Preservative	q.s.



SARS coronavirus: A review of threat in global world

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Abstract

The coronavirus the cause of an outbreak of respiratory illness in Wuhan, Hubei Province, China beginning in December 2019. This virus appears to be a new human pathogen to causes Severe Acute Respiratory Syndrome (SARS) and get quickly spread to all over world before it was controlled. Initially, the new virus was called 2019-nCoV. Subsequently, the task of experts of the International Committee on Taxonomy of Viruses (ICTV) termed it the SARS-CoV-2 virus. Human corona viruses most commonly spread from an infected person to others through respiratory droplets, close personal contact with an infected person or by touching an object or surface infected with the corona virus and then touching the same hand to mouth or eye. Till now, there is no approved antiviral drug or vaccine for the management of infection by coronavirus. However, from earlier experience, many therapeutic agents are being used in the treatment of SARS-CoV-2 virus. The World Health Organization announced that the outbreaks of the novel coronavirus have constituted a public health emergency of international concern. Infection control measures are necessary to prevent the virus from further spreading and to help control the epidemic situation. This article, based on available literature evidence, introduces coronavirus through its structure, pathogenesis, etiology, diagnosis, clinical features, and prevention and control and therapeutic options.

Keywords: SARS coronavirus, structure, pathogenesis, clinical features, diagnosis, therapeutic options

1. Introduction

In corona virus, the word corona represents crown-like spikes on the outer surface of the virus; thus it was named as a corona virus. These are minute in size ranging from 65-125 nm in diameter, and contain a single stranded RNA ranges in size 26-32kbs in length ^[1]. 36 corona viruses belongs to the family Coronaviridae within the order Nidovirales, which are responsible for causing respiratory infections or intestinal infections in the humans or animals. SAR-CoV belongs among these 36 corona viruses, responsible for severe respiratory infections ^[2].

There are mainly four types of genera of coronaviridae family which include Alfacoronavirus, Betacoronavirus, Deltacoronavirus and Gamacoronavirus as well as it include several subgenera and species. The variety of corona viruses are mainly found in humans and animals. There are different types of Human Coronaviruses (HCoVs) are present which include HCoV-229 and HCoV-NL63 which come under the genus alfacoronavirus, at the same time HCoV-OC43 and HCoV-HKU1 which are belongs to the subgenus Embecovirus of genus betacoronavirus. In 1960s, the human coronaviruses were firstly isolated in cell culture from person with upper respiratory infections. These were later designated as HCoV-229E and HCoV-OC43. Also in early 2000s, the HCoV-NL63 and HCoV-HKU1 were discovered from person suffering from bronchiolitis and pneumonia. Later in 2002, Severe Acute Respiratory Syndrome related coronavirus (SAR-CoV) (the name taken from severe respiratory disease) was originated from a betacoronavirus in lineage B (subgenus: Sarbecovirus) from bats and then spread through civets to human in the Guangdong province of southern china. In 2012 the name Middle East Respiratory Syndrome related coronavirus (MERS-CoV) which have similar clinical syndrome as like SARS which

spread from camel to human in Saudi Arabia ^[3]. The mammals are mainly affected by the alpha and betacoronavirus, while gamma and deltacoronavirus infect the birds but in some cases they found to infect the mammals. The respiratory illness in humans and gastroenteritis in animals usually cause due to alfa and betacoronaviruses. In humans, the severe respiratory syndrome cause due to highly pathogenic viruses i.e. SAR-CoV and MERS-CoV and the mild upper respiratory disease in immunocompete hosts cause due to other four human coronaviruses include CoV-NL63, HCoV-229E, HCoV-OC43 and HCov-HKU1; although some of them are also responsible for severe infections in infants, young children and elderly individual ^[4]. World Wide, the reason of increase in fatality rate and pulmonary failure is due to highly pathogenic viruses like SAR-CoV, H5N1 influenza A, H1N1 2009 and MERS-CoV which cause acute lung injury (ALI) and acute respiratory distress syndrome (ARDS) ^[1]. In China, at the end of 2019, the first fifty days were epidemic because within those days, Wuhan an emerging business hub of China experienced an outbreak of a novel coronavirus that killed more than eighteen hundred and infected over seventy thousand individuals. Initially, the researchers focused on spreadability and infectivity of virus and on that basis it was suggested that the patients suffering from coronavirus firstly induce pneumonia in China, may have visited to the seafood market where live animals were sold or may have used infected animals or birds as a source of food. However, further investigations revealed that some individuals also get infected even they were not visiting to seafood market. These observation indicated that virus have capability to spread from human to human, which was subsequently reported in more than 200 countries in the world. The activities like close contact with infected person



A REVIEW: ON HERBAL DRUGS USED IN COGNITIVE IMPAIRMENT

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ABSTRACT

Cognitive impairment is the CNS related disorder which causes the disbalance of the individual memories. Dysfunctioning of the brain may be caused due to the several reasons like psychosis condition, depression, diabetic medication, malfunctioning of endocrine glands, etc. Various treatments are available to treat this state of mind occurs due to the impairment of brain conditions. Some conventional drugs used for the treatment of the cognitive impairment may result into the side effects. To avoid these side effects, there is a need to develop a medication using herbal drugs. Hence, the presented review article shows the detail study about the herbal drugs used as an alternative for conventional drugs which leads to the decrement of the associated side effects of the conventional synthetic drugs.

KEYWORDS: brain dysfunction, herbal drug, conventional drug, cognitive impairment, memory.

INTRODUCTION

Cognition

The word cognition comes from the Latin verb cognosco (con with and gnosco know) meaning to conceptualize or to recognize.^[1]

Cognition is the set of all mental abilities and processes associated to knowledge, attention, memory and working memory, decision and assessment, reasoning and calculation, problem resolving and decision making, understanding and production of language.^[2]

REVIEW ARTICLE

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**AN OVERVIEW STUDY ON NASAL AND
INTRANASAL DELIVERY SYSTEM OF DRUG**

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ABSTRACT

Researchers and scientists make an incredible attempt to deliver the active medicaments in the various dosage forms for getting an effective therapeutic action. Several routes for drug administration are available presently with their promising effects and acceptance by the patients. Among this various drug delivery systems, nasal and intranasal route of drug delivery is found to be more promising as it is minimizing the shortcomings of oral and parenteral route. It is the only drug delivery systems which delivered the active medicament to the brain. It is found more valuable to treat the brain related disorders by administering the drug through the intranasal route. Hence, this delivery system is having a large surface area and found effective at low concentration of drug doses with the ease of drug administration, convenient and better patient compliance.

INTRODUCTION

In the current scenario, there are a several sort of dosage forms are available in the market for the administration of the pharmaceutical products to urge a faster therapeutic effectiveness. Each and every dosage form is having a plenty of advantages and that they are found to be more effective to deliver drug and complete their therapeutic purposes. Oral route is the most acceptable, easiest way and suitable route of drug administration for all kind of population due to their ease of manufacture and administration and enhance bioavailability. Inadequate absorption through the GI tract and hepatic metabolism effect cause the necessity to seek out an alternate route of drug delivery like parenteral route, transdermal route, subcutaneous route, etc. Among all the route of drug administration,

nasal route of drug administration found more useful for the delivery of the drugs which are active in low doses and having less oral bio-availability like proteins and peptides. The history of development of nasal drug delivery dates back to earlier topical applications of drugs intended for local effects ^[1]. In the first 1980s the introduction of the nasal route comes out as a most promising systemic delivery which substituted the other conventional drug delivery routes. Nasal therapy, has been recognized sort of treatment within the Ayurvedic systems of Indian medicine, it's also called "NASAYA KARMA". In addition, nasal mucosa is found to be highly permeable for more compounds than the alimentary canal because of the absence of gastric juices, pancreatic and gastric



Screening of super disintegrants by formulating and evaluating fast dissolving tablets of ondansetron hydrochloride

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Keywords: Fast dissolving tablets, super disintegrants, Ondansetron Hydrochloride

ABSTRACT

For a fast dissolving tablet to show fast disintegration, super disintegrants play a vital role. The objective of the present study is to screen three super disintegrants namely Cross carmallose sodium, Sodium starch glycolate and Cross povidone by formulating fast dissolving tablets and evaluating them. First, the tablet blends were subjected to pre compression parameters (bulk density, tapped density, angle of repose, Hausner's ratio and Car's index). Then the tablet blends were formulated in fast dissolving tablets of 200 mg each of Ondansetron Hydrochloride by direct compression method. The tablets of various batches had varied concentrations of the three super disintegrants individually. The tablets were then evaluated for various post compression parameters (weight variation, thickness, hardness, friability, wetting time, water absorption ratio, disintegration time, drug content and *in-vitro* drug release). Out of all the batches the formulation T8 showed best results which implied that Cross Povidone can be considered as a good super disintegrant and that batch was optimised.

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 ABSTRACT

Formulation and development of osmotic drug delivery system using push-pull techniques for BSC Class I drug

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Conflicts of Interest: None declared.

ABSTRACT

Background: Oxybutynin HCL is a muscarinic antagonist indicated for the treatment of overactive bladder with symptoms of urge urinary incontinence, urgency, and frequency. Push-pull osmotic pump can be used for delivery of drugs having extremes of water solubility. Drug along with osmogens is present in the upper compartment whereas the lower compartment consists of polymeric osmotic agents. **Objective:** Osmotic drug delivery system based on push-pull technique has been formulated in the form of bilayer tablets using wet granulation method. **Method:** The tablets were coated with semi permeable membrane of cellulose acetate followed by film coating. Precompressional parameters of matrix tablets (bulk density, tapped density, Carr's, index Hausner's ratio, and angle of repose) are in the range of official standard, indicated that granules prepared. The post-compression parameters of extended release tablets (hardness, friability, weight variation, thickness, and drug content) were within the limits. The tablets were evaluated physico-chemically. **Results:** In FTIR study showed, there were no any interaction between the Oxybutynin HCL drug into HPMC, butylated hydroxyl toluene polymers, and into the all excipients at molecular level. The drug release pattern of final formulation was tested over the period of 18 h and it was found to be 81% which was comparable to that of reference product. The formulation F8 follows first-order release kinetics and the drug release mechanism was found to be non-Fickian anomalous diffusion. Oxybutynin release from the developed formulations was inversely proportional to the osmotic pressure of the release media, confirming osmotic pumping to be the major mechanism of drug release. **Conclusion:** The optimized formulation was found stable at accelerated and long-term conditions.

Keywords: BCS Class 1, bilayer, controlled release, osmogen, oxybutynin HCL, push pull system

Introduction

The pharmaceutical industry over the past decades has been facing tough challenges in bringing (NCEs) to market for prevention and treatment of existing and newer diseases. Furthermore, the cost of developing NCEs is continually rising, and today it costs around US \$ 1 billion to bring one NCE to market.^[1] The earliest studies in the field of controlled drug delivery date back to the 1950s. Since then, a large number of drug products with controlled release (CR) characteristics, have been introduced. The incredible growth can be attributed to several advantages that these products offer, including improved patient compliance, better therapeutic efficiency, potential for cost saving, patentability, and opportunity for extending product

lifecycle. Various technologies have been investigated to achieve different kinds of modified release, for example, sustained, delayed, pulsatile, targeted, and programmed release. Regardless of the delivery type, the main mechanisms associated with drug transport in these systems include diffusion, swelling, erosion, ion exchange, and osmotic effect.^[2] Among the various CR drug delivery systems available in market, oral CR systems hold the major market share because of their obvious advantages of ease of administration and better patient compliance.^[3] A number of design options are available to control or modulate the drug release from an oral dosage form. The majority of oral CR dosage forms falls in the following categories, matrix systems, reservoir systems, and osmotic systems. In matrix systems, the drug is embedded in a polymer matrix and the release takes place by partitioning of drug into the polymer matrix and the release medium. In contrast, reservoir systems have a drug core surrounded/coated by a rate controlling membrane. However, factors such as pH, presence of food, and other physiological factors may affect drug release from conventional CR systems (matrix and reservoir). Osmotic systems utilize the principles of osmotic

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A Novel Herbal Topical Formulation for Wound Healing

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Abstract

Wound healing is dynamic and complex process which requires suitable surrounding to promote healing. Routine wound healing management is tedious and time consuming to promote wound healing. Crocullus hirsutus is used traditionally as anti-inflammatory, antimicrobial and antioxidant. The extract is having gelling and film forming property. This can be utilized for making medicated films for the therapy of wound healing activity. But there is no scientific evidences to prove these activities with the help of preclinical in-vivo screening. There is no marketed dosage form of the selected extract. Hence the objective of the present study is to formulate the topical film for management of wound.

Methodology: The ethanolic extract of leaves was pharmacologically evaluated and showed significant anti-inflammatory, antioxidant and antimicrobial activity. The films were prepared by incorporating inert excipients in ethanolic extract and wound healing activity was evaluated in experimental animals by excision method. It is observed that the excision wound was significantly recovered with the help of formulated film.

Keywords: Wound healing, crocullus hirsutus

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**FORMULATION AND EVALUATION OF ANTIFUNGAL HERBAL
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Corresponding Author*Dr. Vijay Gulkari**Priyadarshini J.L. College of
Pharmacy, Electronic Zone,
Hingna, Nagpur (India).**ABSTRACT**

Medicinal plants have been a major source of cure for human diseases since time immemorial. It is no wonder that the world's one-fourth population i.e. 1.42 billion people, are dependent on traditional medicines for the treatment of various ailments. *Murraya koenigii*, belongs to the family Rutaceae, Commonly known as curry-leaf tree, Carbazole alkaloids, the major constituents of plant are known to have cytotoxic, antioxidant, antimutagenic and anti-inflammatory activities. The leaves are rich in mono-terpenoids and sesquiterpenoids which exhibited antimicrobial activities. *Azadirachta indica*, also known as Neem, Nimtree and Indian Lilac is a tree in the mahogany family –

Meliaceae. Neem contains several fatty acids such as linoleic acid, stearic acid, oleic acids that nourishes and revitalize rough hair to a smooth silky texture. Curry leaves has antibacterial antifungal and anti-inflammatory properties which fights against dandruff and infections of the scalp.

KEYWORDS: mono-terpenoids and sesquiterpenoids.**INTRODUCTION**

Recently considerable attention has been paid to utilize eco-friendly and bio-friendly plant based products for the prevention and cure of different human diseases. It is documented that most of the world's population has taken in traditional medicine, particularly plant drug for the primary health care. Antimicrobial properties of certain Indian medicinal plants were reported based on folklore information and only few reports are available on inhibitory activity against certain pathogenic bacteria and fungi.



PREPARATION AND EVALUATIONS OF DIATRIZOATE SODIUM LIQUID ORAL FORMULATION

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ABSTRACT

X-ray diagnostic agents (contrast media) are widely used as adjuncts to diagnostic visualization techniques as they help to illustrate the differences between tissues by introducing them to the area of interest to increase its density and absorption of X-rays. Diatrizoic acid is radio opaque ionic contrast media utilized orally and parentally for symptomatic purpose. The goal of this investigation is to develop a liquid oral contrast media and evaluate the physicochemical parameter were compared with the changes in accelerated stability testing for the documentation of these plan nearby with FTIR information. Quality of final solution was evaluated with the parameters: pH, iodine iodide test and drug content. Three batches were formulated of the solution. All the batches were evaluated for physicochemical parameters, pH and drug content. The formulated batches under gone stability studies, no turbidity were observed for 60 days studies. All the batches assure the reproducibility and each parameter were complying with specifications.

KEYWORDS: Diatrizoate sodium, oral liquid formulation, contrast media.

1. INTRODUCTION

Diatrizoic acid is a contrast agent used during X-rays. This incorporates when envisioning veins, the urinary framework, spleen, and joints, just as during PC tomography (CT filter). It is controlled by oral, parenteral, and so forth. Diatrizoic acid is an iodinated ionic radiocontrast operator with high osmolality with USP standard medication.^{[1][2]} The IUPAC name of medication is Sodium 3,5-diacetamido-2,4,6-triiodobenzoic acid. It's a fluid oral detailing containing one or more active ingredients in a suitable vehicle; they may in some cases consist simply of a liquid active ingredient used as such.^[3] The reason for this examination is that to archived the plan based documentation and with strategy for arrangement and their assessment parameters. The motivation behind this investigation is that to reported the definition based documentation and with strategy for planning and their

assessment parameters. By the solvency, stability, drug content (assay) and FT-IR study.^[4]

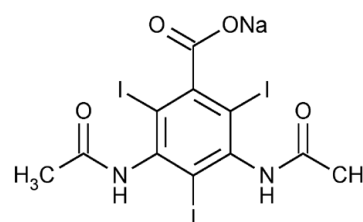


Figure 1: Structure of Diatrizoic Acid.

2. Experimental Work^[5]

2.1 Formulation of Diatrizoic Acid

The ingredients utilized for plan depends on mechanical cluster producing record (BMR) information, with monetarily acknowledged and utilizing seasoning operator for patients convince.

Table 1: Formulation of Diatrizoic Sodium.

Sr. No.	Ingredient	Uses	Quantity Taken
1.	Diatrizoic Acid USP	Active Ingredient	87.50 g
2.	Sodium Hydroxide	Base	5.42 g
3.	Sodium Citrate	Acidity Regulator	0.50 g
4.	Disodium EDTA	Chelating agent/ Stabilizer	90.02 g
5.	Methyl Paraben	Preservative	q.s.



SARS coronavirus: A review of threat in global world

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Abstract

The coronavirus the cause of an outbreak of respiratory illness in Wuhan, Hubei Province, China beginning in December 2019. This virus appears to be a new human pathogen to causes Severe Acute Respiratory Syndrome (SARS) and get quickly spread to all over world before it was controlled. Initially, the new virus was called 2019-nCoV. Subsequently, the task of experts of the International Committee on Taxonomy of Viruses (ICTV) termed it the SARS-CoV-2 virus. Human corona viruses most commonly spread from an infected person to others through respiratory droplets, close personal contact with an infected person or by touching an object or surface infected with the corona virus and then touching the same hand to mouth or eye. Till now, there is no approved antiviral drug or vaccine for the management of infection by coronavirus. However, from earlier experience, many therapeutic agents are being used in the treatment of SARS-CoV-2 virus. The World Health Organization announced that the outbreaks of the novel coronavirus have constituted a public health emergency of international concern. Infection control measures are necessary to prevent the virus from further spreading and to help control the epidemic situation. This article, based on available literature evidence, introduces coronavirus through its structure, pathogenesis, etiology, diagnosis, clinical features, and prevention and control and therapeutic options.

Keywords: SARS coronavirus, structure, pathogenesis, clinical features, diagnosis, therapeutic options

1. Introduction

In corona virus, the word corona represents crown-like spikes on the outer surface of the virus; thus it was named as a corona virus. These are minute in size ranging from 65-125 nm in diameter, and contain a single stranded RNA ranges in size 26-32kbs in length ^[1]. 36 corona viruses belongs to the family Coronaviridae within the order Nidovirales, which are responsible for causing respiratory infections or intestinal infections in the humans or animals. SAR-CoV belongs among these 36 corona viruses, responsible for severe respiratory infections ^[2].

There are mainly four types of genera of coronaviridae family which include Alfacoronavirus, Betacoronavirus, Deltacoronavirus and Gamacoronavirus as well as it include several subgenera and species. The variety of corona viruses are mainly found in humans and animals. There are different types of Human Coronaviruses (HCoVs) are present which include HCoV-229 and HCoV-NL63 which come under the genus alfacoronavirus, at the same time HCoV-OC43 and HCoV-HKU1 which are belongs to the subgenus Embecovirus of genus betacoronavirus. In 1960s, the human coronaviruses were firstly isolated in cell culture from person with upper respiratory infections. These were later designated as HCoV-229E and HCoV-OC43. Also in early 2000s, the HCoV-NL63 and HCoV-HKU1 were discovered from person suffering from bronchiolitis and pneumonia. Later in 2002, Severe Acute Respiratory Syndrome related coronavirus (SAR-CoV) (the name taken from severe respiratory disease) was originated from a betacoronavirus in lineage B (subgenus: Sarbecovirus) from bats and then spread through civets to human in the Guangdong province of southern china. In 2012 the name Middle East Respiratory Syndrome related coronavirus (MERS-CoV) which have similar clinical syndrome as like SARS which

spread from camel to human in Saudi Arabia ^[3]. The mammals are mainly affected by the alpha and betacoronavirus, while gamma and deltacoronavirus infect the birds but in some cases they found to infect the mammals. The respiratory illness in humans and gastroenteritis in animals usually cause due to alfa and betacoronaviruses. In humans, the severe respiratory syndrome cause due to highly pathogenic viruses i.e. SAR-CoV and MERS-CoV and the mild upper respiratory disease in immunocompete hosts cause due to other four human coronaviruses include CoV-NL63, HCoV-229E, HCoV-OC43 and HCov-HKU1; although some of them are also responsible for severe infections in infants, young children and elderly individual ^[4]. World Wide, the reason of increase in fatality rate and pulmonary failure is due to highly pathogenic viruses like SAR-CoV, H5N1 influenza A, H1N1 2009 and MERS-CoV which cause acute lung injury (ALI) and acute respiratory distress syndrome (ARDS) ^[1]. In China, at the end of 2019, the first fifty days were epidemic because within those days, Wuhan an emerging business hub of China experienced an outbreak of a novel coronavirus that killed more than eighteen hundred and infected over seventy thousand individuals. Initially, the researchers focused on spreadability and infectivity of virus and on that basis it was suggested that the patients suffering from coronavirus firstly induce pneumonia in China, may have visited to the seafood market where live animals were sold or may have used infected animals or birds as a source of food. However, further investigations revealed that some individuals also get infected even they were not visiting to seafood market. These observation indicated that virus have capability to spread from human to human, which was subsequently reported in more than 200 countries in the world. The activities like close contact with infected person



A REVIEW: ON HERBAL DRUGS USED IN COGNITIVE IMPAIRMENT

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ABSTRACT

Cognitive impairment is the CNS related disorder which causes the disbalance of the individual memories. Dysfunctioning of the brain may be caused due to the several reasons like psychosis condition, depression, diabetic medication, malfunctioning of endocrine glands, etc. Various treatments are available to treat this state of mind occurs due to the impairment of brain conditions. Some conventional drugs used for the treatment of the cognitive impairment may result into the side effects. To avoid these side effects, there is a need to develop a medication using herbal drugs. Hence, the presented review article shows the detail study about the herbal drugs used as an alternative for conventional drugs which leads to the decrement of the associated side effects of the conventional synthetic drugs.

KEYWORDS: brain dysfunction, herbal drug, conventional drug, cognitive impairment, memory.

INTRODUCTION

Cognition

The word cognition comes from the Latin verb cognosco (con with and gnosco know) meaning to conceptualize or to recognize.^[1]

Cognition is the set of all mental abilities and processes associated to knowledge, attention, memory and working memory, decision and assessment, reasoning and calculation, problem resolving and decision making, understanding and production of language.^[2]

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mucociliary clearance, CNS
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**AN OVERVIEW STUDY ON NASAL AND
INTRANASAL DELIVERY SYSTEM OF DRUG**

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Priyadarshini J.L. College of Pharmacy, Nagpur, Maharashtra, India

ABSTRACT

Researchers and scientists make an incredible attempt to deliver the active medicaments in the various dosage forms for getting an effective therapeutic action. Several routes for drug administration are available presently with their promising effects and acceptance by the patients. Among this various drug delivery systems, nasal and intranasal route of drug delivery is found to be more promising as it is minimizing the shortcomings of oral and parenteral route. It is the only drug delivery systems which delivered the active medicament to the brain. It is found more valuable to treat the brain related disorders by administering the drug through the intranasal route. Hence, this delivery system is having a large surface area and found effective at low concentration of drug doses with the ease of drug administration, convenient and better patient compliance.

INTRODUCTION

In the current scenario, there are a several sort of dosage forms are available in the market for the administration of the pharmaceutical products to urge a faster therapeutic effectiveness. Each and every dosage form is having a plenty of advantages and that they are found to be more effective to deliver drug and complete their therapeutic purposes. Oral route is the most acceptable, easiest way and suitable route of drug administration for all kind of population due to their ease of manufacture and administration and enhance bioavailability. Inadequate absorption through the GI tract and hepatic metabolism effect cause the necessity to seek out an alternate route of drug delivery like parenteral route, transdermal route, subcutaneous route, etc. Among all the route of drug administration,

nasal route of drug administration found more useful for the delivery of the drugs which are active in low doses and having less oral bio-availability like proteins and peptides. The history of development of nasal drug delivery dates back to earlier topical applications of drugs intended for local effects ^[1]. In the first 1980s the introduction of the nasal route comes out as a most promising systemic delivery which substituted the other conventional drug delivery routes. Nasal therapy, has been recognized sort of treatment within the Ayurvedic systems of Indian medicine, it's also called "NASAYA KARMA". In addition, nasal mucosa is found to be highly permeable for more compounds than the alimentary canal because of the absence of gastric juices, pancreatic and gastric



Screening of super disintegrants by formulating and evaluating fast dissolving tablets of ondansetron hydrochloride

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Keywords: Fast dissolving tablets, super disintegrants, Ondansetron Hydrochloride

ABSTRACT

For a fast dissolving tablet to show fast disintegration, super disintegrants play a vital role. The objective of the present study is to screen three super disintegrants namely Cross carmallose sodium, Sodium starch glycolate and Cross povidone by formulating fast dissolving tablets and evaluating them. First, the tablet blends were subjected to pre compression parameters (bulk density, tapped density, angle of repose, Hausner's ratio and Car's index). Then the tablet blends were formulated in fast dissolving tablets of 200 mg each of Ondansetron Hydrochloride by direct compression method. The tablets of various batches had varied concentrations of the three super disintegrants individually. The tablets were then evaluated for various post compression parameters (weight variation, thickness, hardness, friability, wetting time, water absorption ratio, disintegration time, drug content and *in-vitro* drug release). Out of all the batches the formulation T8 showed best results which implied that Cross Povidone can be considered as a good super disintegrant and that batch was optimised.

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 ABSTRACT

Formulation and development of osmotic drug delivery system using push-pull techniques for BSC Class I drug

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Source of Support: Nil.

Conflicts of Interest: None declared.

ABSTRACT

Background: Oxybutynin HCL is a muscarinic antagonist indicated for the treatment of overactive bladder with symptoms of urge urinary incontinence, urgency, and frequency. Push-pull osmotic pump can be used for delivery of drugs having extremes of water solubility. Drug along with osmogens is present in the upper compartment whereas the lower compartment consists of polymeric osmotic agents. **Objective:** Osmotic drug delivery system based on push-pull technique has been formulated in the form of bilayer tablets using wet granulation method. **Method:** The tablets were coated with semi permeable membrane of cellulose acetate followed by film coating. Precompressional parameters of matrix tablets (bulk density, tapped density, Carr's, index Hausner's ratio, and angle of repose) are in the range of official standard, indicated that granules prepared. The post-compression parameters of extended release tablets (hardness, friability, weight variation, thickness, and drug content) were within the limits. The tablets were evaluated physico-chemically. **Results:** In FTIR study showed, there were no any interaction between the Oxybutynin HCL drug into HPMC, butylated hydroxyl toluene polymers, and into the all excipients at molecular level. The drug release pattern of final formulation was tested over the period of 18 h and it was found to be 81% which was comparable to that of reference product. The formulation F8 follows first-order release kinetics and the drug release mechanism was found to be non-Fickian anomalous diffusion. Oxybutynin release from the developed formulations was inversely proportional to the osmotic pressure of the release media, confirming osmotic pumping to be the major mechanism of drug release. **Conclusion:** The optimized formulation was found stable at accelerated and long-term conditions.

Keywords: BCS Class 1, bilayer, controlled release, osmogen, oxybutynin HCL, push pull system

Introduction

The pharmaceutical industry over the past decades has been facing tough challenges in bringing (NCEs) to market for prevention and treatment of existing and newer diseases. Furthermore, the cost of developing NCEs is continually rising, and today it costs around US \$ 1 billion to bring one NCE to market.^[1] The earliest studies in the field of controlled drug delivery date back to the 1950s. Since then, a large number of drug products with controlled release (CR) characteristics, have been introduced. The incredible growth can be attributed to several advantages that these products offer, including improved patient compliance, better therapeutic efficiency, potential for cost saving, patentability, and opportunity for extending product

lifecycle. Various technologies have been investigated to achieve different kinds of modified release, for example, sustained, delayed, pulsatile, targeted, and programmed release. Regardless of the delivery type, the main mechanisms associated with drug transport in these systems include diffusion, swelling, erosion, ion exchange, and osmotic effect.^[2] Among the various CR drug delivery systems available in market, oral CR systems hold the major market share because of their obvious advantages of ease of administration and better patient compliance.^[3] A number of design options are available to control or modulate the drug release from an oral dosage form. The majority of oral CR dosage forms falls in the following categories, matrix systems, reservoir systems, and osmotic systems. In matrix systems, the drug is embedded in a polymer matrix and the release takes place by partitioning of drug into the polymer matrix and the release medium. In contrast, reservoir systems have a drug core surrounded/coated by a rate controlling membrane. However, factors such as pH, presence of food, and other physiological factors may affect drug release from conventional CR systems (matrix and reservoir). Osmotic systems utilize the principles of osmotic

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A Novel Herbal Topical Formulation for Wound Healing

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Abstract

Wound healing is dynamic and complex process which requires suitable surrounding to promote healing. Routine wound healing management is tedious and time consuming to promote wound healing. Crocullus hirsutus is used traditionally as anti-inflammatory, antimicrobial and antioxidant. The extract is having gelling and film forming property. This can be utilized for making medicated films for the therapy of wound healing activity. But there is no scientific evidences to prove these activities with the help of preclinical in-vivo screening. There is no marketed dosage form of the selected extract. Hence the objective of the present study is to formulate the topical film for management of wound.

Methodology: The ethanolic extract of leaves was pharmacologically evaluated and showed significant anti-inflammatory, antioxidant and antimicrobial activity. The films were prepared by incorporating inert excipients in ethanolic extract and wound healing activity was evaluated in experimental animals by excision method. It is observed that the excision wound was significantly recovered with the help of formulated film.

Keywords: Wound healing, crocullus hirsutus

JEL Classification: I

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