3.2.1

Summary of papers published per teacher in the Journals notified on UGC care list for AY 2023-24

Summary of papers published per teacher in the Journals notified on UGC care list for AY 2023-24

Sr. No	Name of Teacher	Number of papers published per teacher in the Journals notified on UGC website	Total no of papers
1	Dr.Niraj S.Vyawahare	01	18
2	Dr. (Mrs.) S. P. Chaudhari	02	
3	Dr.(Mrs.) Pallavi M. Chaudhari	01	
4	Dr. Shubhangi Daswadkar	01	
5	Mr. Mukesh Mohite	01	
6	Dr. Vaibhav Vaidya	01	
7	Dr.Revan Karodi	01	
8	Dr.Ashish Kulkarni	01	
9	Ms. Jyotsna Chopde	01	
10	Dr.Sarika Nikam	02	
11	Ms. Pranita Shankaratti	01	
12	Dr. Ramdas Shinde	01	
13	Dr.Sanket Kadam	01	
14	Ms.Pallavi Gholap	01	
15	Ms. Poonam Mulay	01	
16	Ms. Kalyani Chande	01	

Dr N S Vyawahare

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3.2.1 SUMMARY OF PAPERS PUBLISHED IN UGC CARE JOURNALS

Sr. No	Title of paper	Name of the author/s	Year of publication
1	Neuroprotective action of Smilax china ethanolic bark extract in treatment of a prominent aging disorder:Parkinson's disease induced by rotenone	Dr.Niraj S.Vyawahare	2023
2	Optimization of Green Synthesized Black Tea Nanoparticles using Central Composite Design	Dr. (Mrs.) S. P. Chaudhari	2023
3	Resveratrol-Loaded Microsponge Gel for Wound Healing: In Vitro and In Vivo Characterization	Dr. (Mrs.) S. P. Chaudhari	2023
4	Impact of Mobile Radiations on Gliclazide Tablet Formulation	Dr.(Mrs.) Pallavi M. Chaudhari	2023
5	Synthesis and Pharmacological Screening of Novel 5-Nitro Benzimidazole Derivatives as an Anti-Inflammatory Agents	Dr. Shubhangi Daswadkar	2023
6	Impact of Mobile Radiations on Gliclazide Tablet Formulation	Mr. Mukesh Mohite	2023
7	Molecular Docking and In Silico Admet Studies of Potential Ingredients of Zingiber officinale Extract as an Anti-Migraine Compounds	Dr. Vaibhav Vaidya	2023
8	Formulation and Development of Microsponges Loaded Topical Formulation Containing Non Steroidal Anti- Inflammatory Drug	Dr.Revan Karodi	2023
9	Neuroprotective action of Smilax china ethanolic bark extract in treatment of a prominent aging disorder: Parkinson's disease induced by rotenone	Dr.Ashish Kulkarni	2023
10	Total Polyphenolic Content, Antioxidant Activity and Chromatographic Profiling of Extracts of Ardissia solanacea	Ms. Jyotsna Chopde	2023
11	Optimization of Green Synthesized Black Tea Nanoparticles using Central Composite Design	Dr.Sarika Nikam	2023
12	Formulation and Development of Microsponges Loaded Topical Formulation Containing Non-Steroidal Anti-Inflammatory Drug	Dr.Sarika Nikam	2023

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13	The Development of a Formulation of Topical Nanoemulgel of Eberconazole Nitrate	Ms. Pranita Shankaratti	2023
14	The Development of a Formulation of Topical Nanoemulgel of Eberconazole Nitrate	Dr. Ramdas Shinde	2023
15	The Development of a Formulation of Topical Nanoemulgel of Eberconazole Nitrate	Dr.Sanket Kadam	2023
16	The Development of a Formulation of Topical Nanoemulgel of Eberconazole Nitrate	Ms.Pallavi Gholap	2023
17	The Development of a Formulation of Topical Nanoemulgel of Eberconazole Nitrate	Ms. Poonam Mulay	2023
18	The Development of a Formulation of Topical Nanoemulgel of Eberconazole Nitrate	Ms. Kalyani Chande	2023

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Future Journal of Pharmaceutical Sciences

RESEARCH Open Access

Neuroprotective action of *Smilax china* ethanolic bark extract in treatment of a prominent aging disorder: Parkinson's disease induced by rotenone

Ayesha Sayyaed[1], Nikita Saraswat[1*], Ashish Kulkarni[1] and Neeraj Vyawahare[1]

Abstract

Background Tremors, psychological difficulties, mental health issues, depression, impulsive acts, and other behavioral abnormalities are all symptoms of Parkinson's disease, a neurodegenerative disorder of the central nervous system. *Smilax china* ethanolic extract was tested for its anti-Parkinson's activity using a Wistar rat model of rotenone-induced Parkinson's disease. Spectroscopic, acute toxicity and pharmacognostic analyses were performed.

Result Brownish, the bark of *Smilax china* included vascular bundles and fibers upon microscopic inspection and alkaloids, carbohydrates, and phenolic substances upon phytochemical analysis. Acute toxicity testing as per Organization for Economic Corporation and Development 423 (OECD 423) on male Wistar rats revealed no harmful effects. The biochemical analysis of rotenone-induced groups revealed a disproportion. Improved body weight, mobility, coordination, and a lower incidence of catalepsy were seen in animals treated with *Smilax china* ethanolic extract (100 and 200 mg/kg). *Smilax china* 200 mg/kg extract substantially lowered motor defects determined by catalepsy score using bar test 17.061.74/s against rotenone-induced group 67.593.27/s. It also prevented the brain from oxidative stress by enhancing superoxide dismutase (SOD) levels to 5.440.01 units/mg protein compared to 2.050.104 units/mg protein in the rotenone-induced group. The vagus nerve, substantia nigra, and basal ganglia of the treated groups indicated a reduction in inflammation and alpha-synuclein destruction.

Conclusion Based on our research, an ethanolic extract of *Smilax china* bark provides an effective antioxidant with promising neuroprotective properties in male Wistar rats induced with Parkinson's disease.

Keywords Biochemical, Brain, CAT, GSH, Histopathology, MDA, Parkinsonism, *Smilax china*, SOD, Spectroscopy, Substantia nigra, TLC, Toxicity, Vagus nerve

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Dr N S Vyawahare

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Original Article

Optimization of Green Synthesized Black Tea Nanoparticles using Central Composite Design

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ABSTRACT

Objectives: Traditional method of optimization is lengthy and time consuming while response surface methodology evaluates the effects of multiple factors and their interactions on one or more response variables with fewer experiments. The aim of present study is optimization of green synthesized black tea nanoparticles using central composite design. **Materials and Methods:** 5, 15, and 25% black tea concentrations were reacted with 5, 10, and 15 mM Silver nitrate ($AgNO_3$). An optimization study was carried out to optimize the levels of the independent factors like concentration of extract, solution of Silver nitrate, stirring speed, and stirring time. 30 numbers of experiments were performed and evaluated for responses like particle size and % yield. Characterization of silver nanoparticle was done by UV-visible spectroscopy, zeta sizer, XRD, FTIR, FESEM, etc. **Results:** Nanoparticles formation was revealed by color transformation from light yellow to brown. Prepared particles were monodisperse with Z-Average: 137.8 nm, polydispersity index 0.278, and Zeta potentials 22.7 mV. Electrophoretic Mobility Mean was 0.000176 cm 22/Vs, indicating the stability of silver nanoparticle suspension. **Conclusion:** Optimized parameters offered by Central Composite Design were 10mM $AgNO_3$, 10% extract of black 150 min, and 700 rpm. 3D plots revealed that the metal salt concentrations and stirring rate showed a direct relationship whereas extract concentration and stirring time showed indirect relationship with particle size. % yield was highest with mid level of solution of metal salt (A) and concentration of extract (B) Stirring time (C) and stirring speed had no impact on % yield.

Keywords: Black tea, Silver nanoparticle, Green synthesis, Central composite design, Design expert, Response surface method.

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INTRODUCTION

Green synthesis of nanoparticle is one of the tactics to develop metal nanoparticles. Plant extract and biological micro-organisms are used in green synthesis for development of nanoparticles. Green synthesis of metal nanoparticles is cost effective, easy to scale up and nature friendly method.[1] In metal nanoparticles synthesis reducing agents reduces metal ions and stabilizing and capping agents offers stability to the preparation.[2] Silver nanoparticles show strong biocidal effect against different micro-organisms, also used in prevention and treatment of many diseases and infections.[3] Apart from therapeutic applications, silver nanoparticles are increasingly employed in apparel, food, implant coatings, and other applications.[4] *Camellia sinensis* is an original Chinese plant, which provides the leaves for the tea brew.[5] Due to its wide usage and cost-effectiveness, black tea infusion is being used in this study, with this trying to estimate the effectiveness of black tea in the development of AgNPs. The major component present in tea is polyphenols, which make up 20–35% of its dry weight.[6] The fermentation process causes changes in the amount of polyphenol in leaves which gives the dark red color to black tea.[7] The polyphenols are separated into two different primary component types. The first is catechins and the second group is phenolic acids like Gallic acid.[8] Polysaccharides, alkaloids, caffeine, amino acids, and saponins are other compounds present in the tea infusion.[9,10] The amount of various phytochemicals in the leaves is highly influenced by the processing used during manufacture, as well as the age and origin of the plant.[11] In the present study, silver nanoparticle structures were successfully generated by using black tea extract.

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MATERIALS AND METHODS

Materials

Black Tea powder was procured from the local market of Pune. The analytical grade silver nitrate ($AgNO_3$) and all other chemicals used in the experiment were acquired from Research Lab Fine Chemicals Ltd., Mumbai, India, and were used exactly as received. Freshly prepared double distilled water was used in

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ORIGINAL ARTICLE

Resveratrol-Loaded Microsponge Gel for Wound Healing: *In Vitro* and *In Vivo* Characterization

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[2]Datta Meghe Institute of Medical Sciences (Deemed to be University), Datta Meghe College of Pharmacy, Maharashtra, India
[3]Dr. D.Y. Patil College of Pharmacy, Department of Pharmaceutics, Pune, India

ABSTRACT

Objectives: The study was aimed to formulate resveratrol (RSV) loaded microsponges to deliver drug at the wound site and incorporate it in the *Moringa oleifera* Lam. (Moringaceae) gel base to provide an appropriate moist environment for wound management. RSV, a stilbenoid that activates sirtuins and cell-signaling regulators involved in the process of wound healing.

Materials and Methods: Microsponges were prepared by oil in oil emulsion solvent diffusion method by optimizing the independent variables; drug: polymer ratio and volume of internal phase solvent and their effects on entrapment efficiency and particle size. Formulation batches were evaluated for drug content, production yield, entrapment efficiency, and *in vitro* drug release. The microsponges were further incorporated into *M. oleifera* gum gel, which was then evaluated for spreadability, viscosity, *ex vivo* diffusion study and *in vivo* studies using an excision wound model in rats.

Results: Scanning electron microscopy revealed spherical and porous nature of the microsponges *in vitro*-release study of the optimized batch of RSV microsponges showed 80.88% drug release within 8 h. Differential scanning calorimetry results revealed no drug and polymer interaction during the formation of microsponges. An *ex vivo* diffusion study through goat skin revealed sustained release of RSV through porous microsponges embedded in the gel base at the wound site. An *in vivo* study performed using an excision wound model showed wound healing and closure within day 8. Histopathology showed increased re-epithelization and reduced ulceration in RSV microsponge gel-treated group compared with sham operated.

Conclusion: RSV microsponge gel delivered the drug at the wound site and the gel base provided a moist environment and influenced cell adhesion, thereby promoting faster wound healing.

Key words: Resveratrol, microsponges, wound healing, *Moringa oleifera* gum, excision wound model

INTRODUCTION

Microsponges are polymeric drug delivery systems composed of porous structure.[1,2] These are tiny porous, sponge-like spherical particles with a surface area of 5 to 150 mm. The major advantages of microsponges are good entrapment efficiency with good stability at high pH and temperature. Due to their porous structure, they can extend the drug release.[3] Emulsion solvent diffusion, suspension polymerization, or oil in oil emulsion solvent diffusion methods are used for the formulation of microsponges.[4] Microsponges encapsulate the drug and this technique of microencapsulation helps control drug release rates and prolong the release time.[5]

To formulate microsponges, one of the preferred polymers is Eudragit RL 100 to control the drug release of the formulation. Eudragit RL 100 is methacrylic acid esters possessing hydrophilic properties due to the presence of more amounts of quaternary ammonium groups compared to Eudragit RS 100. This nature of Eudragit RL 100 helps improve the water uptake capacity, which is required for the rapid absorption of exudates from wound, maintaining its ability to preserve water required for wound healing.[6] The cationic nature of Eudragit RL helps it interact strongly with the negatively charged mucins *via* electrostatic attraction, increasing its bio-adhesivity.[7] Also, Eudragit RL 100 is reported to permit water vapor and oxygen permeation, which is required for wound healing.[8]

Resveratrol (RSV) (3,5,40-trihydroxy-*trans*-stilbene), a natural polyphenolic compound present in grape skin, peanuts, and red wine.[9,10] It belongs to Biopharmaceutical Classification System

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Original Article

Impact of Mobile Radiations on Gliclazide Tablet Formulation

Mukesh Tatyarao Mohite[1], Pankaj Sharma[2], Jaya Sharma[2], Pallavi Chaudhari[1], Sagar Kore[3]

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ABSTRACT

Introduction: Mobile radiation, also known as non-ionizing radiation, has been shown to have an impact on the formulation of Gliclazide tablets. The study's objective was to examine the impact of mobile phone radiation on the physical and chemical characteristics of Gliclazide, an oral medication utilized to manage type 2 diabetes by boosting insulin production from the pancreas. **Materials and Methods:** The tablets were exposed to mobile radiation for different periods, and the effects were evaluated using various analytical techniques such as UV-spectrophotometer and Mass spectrophotometer. The study found that the physical and chemical properties of Gliclazide tablets were significantly affected by mobile phone radiation. The tablets exposed to mobile radiation for longer periods showed a change in stability. **Results:** Furthermore, mobile radiation caused changes in the properties of the tablets, leading to changes in effectiveness. The study also found that mobile radiation caused a decrease in the dissolution rate of Gliclazide tablets, which can affect the bioavailability of the medication. The conclusion of the study revealed that mobile phone radiation significantly impacted the physical and chemical properties of Gliclazide tablets, potentially altering the medication's bioavailability. **Conclusion:** Therefore, it is important to consider the potential impact of mobile radiation on the formulation of Gliclazide tablets and other similar medications. More research is needed to understand the full extent of the effects of mobile radiation on medication formulations and to develop methods to protect medications from the effects of mobile radiation.

Keywords: Mobile radiation, Gliclazide, Stability, UV-spectrophotometer, Mass spectrophotometer.

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INTRODUCTION

India, the country with the largest population in the world, is facing rapidly growing epidemics of diabetes and heart disease along with other Asian countries. In urban areas, the incidence of type 2 diabetes in Indian adults has risen from less than 3% in the 1970s to over 12% in 2000, making India the country with the largest number of diabetic patients. The prevalence of coronary heart disease in Indian adults has increased from 2% to around 10% over the past 25 years and is predicted to be the leading cause of death among adults by 2025. It is estimated that India will have 60 million diabetic patients by 2025 and that one in five diabetics worldwide will be Indian, with three out of four coming from developing countries.

As the use of mobile phones by the general public continues to grow, there has been a trend of conflicting reports about the potential health effects of exposure to Electromagnetic Fields (EMF) from mobile phones. Given the large number of mobile phone users, even small negative impacts on health could have significant public health consequences. This review covers the current understanding of the medical effects of mobile phone radiation exposure. Health issues that have been linked to mobile phone use include certain types of cancer, alterations in brain activity, and effects on hearing. The numerous epidemiological studies examining the relationship between exposure to electromagnetic fields and cancer have produced conflicting results. Patients with conditions such as diabetes, cancer, and hypertension need to carry their medication with them to ensure they can take the required doses. This review summarizes the determination of whether the Radiofrequency Fields (RF) energy used in mobile phones for communication may impact the dosage formulation used for these diseases. It is clear that Electromagnetic Waves (EMW) have an effect on human health and that the effects vary based on the frequency of the waves.[1-4]

This research has a direct connection to public health for individuals living near mobile phone towers. Hence, this study

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ORIGINAL ARTICLE **OPEN ACCESS**

Synthesis and Pharmacological Screening of Novel 5-Nitro Benzimidazole Derivatives as an Anti-Inflammatory Agents

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ABSTRACT

Anti-inflammatory illnesses are ailments or disorders that cause persistent inflammation in different body regions, the immune system's natural response to damage, infection, or foreign substances is inflammation. As a result, finding efficient and secure anti-inflammatory drugs is necessary since the treatment of inflammation is still a top focus in contemporary pharmacotherapy. In this present study, a new series of 5-Nitro Benzimidazole containing benzaldehyde moiety have been designed and synthesized and studied in vivo for their anti-inflammatory potential. 5-Nitro Benzimidazole is a bicyclic aromatic ring which is a flexible lead molecule for designing potent biologically active agents The in-silico research revealed several binding interactions of synthetic drugs in order to locate the binding receptors. The structure of the synthesized derivatives was elucidated by spectral analytical methods such as ^{1}H NMR, ^{13}C NMR, FT-IR, HRMS. In vivo anti-inflammatory activity has been carried out using the carrageenan induced paw oedema model. In vivo and in silico studies proved that all the synthesized derivatives show the promising anti-inflammatory activity, when compared with Indomethacin which is referred as standard.

Keywords: *5-nitro benzimidazole, Cyclooxygenase-2, Anti-inflammatory.*

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INTRODUCTION

The 3 out of 5 people die from chronic inflammatory conditions like diabetes, chronic respiratory ailments, heart problems, stroke, being overweight, and cancer globally. According to World Health Organization (WHO), around 1% of the worldwide population suffers from Rheumatoid arthritis, a type of chronic inflammatory disorder. The Global Asthma Report 2019 estimates that 339 million people globally suffer from asthma [1]. The human body's inflammatory reaction has an enormous effect on the treatment and rehabilitation of injuries, which can be referred to as inflammatory responses. Inflammatory illnesses come in both acute and chronic forms. Acute inflammation is the rapid reaction to tissue injury, and it is facilitated by the creation of several autacoid, such as histamine, serotonin, leukotrienes, and thromboxane. An acute case of inflammation often shows symptoms including discomfort, redness, swelling, heat, and immobility [2]. A particular component of the chronic inflammation process is the production of numerous mediators, particularly the development of tumours, interferon, interleukins, and cytokines. This sort of inflammatory response requires these mediators to function [3]. Inflammation that is ongoing can lead to the

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Advances in Bioresearch

ORIGINAL ARTICLE

Molecular Docking and *In Silico* Admet Studies of Potential Ingredients of *Zingiber officinale* Extract as an Anti-Migraine Compounds

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ABSTRACT
The peptide known as calcitonin gene-related peptide (CGRP) is a migraine initiator. In the current research. We assessed the CGRP receptor crystal structure binding of our active ligands found in ginger extract using the molecular docking approach and compared their binding energy and affinity with other reference anti-migraine medications/ligands available on the market. Four bioactive chemicals found in ginger have been shown to lower nitric oxide synthase (NOS), which in turn inhibits the production of nitric oxide (NO), which has been linked to a reduction in migraine discomfort. Nitric oxide is inhibited, which causes the intracranial blood vessels to vasoconstrict and lessen migraine pain. a high-throughput screening that includes molecular docking, predictions for absorption, distribution, metabolism, excretion, toxicity, log P values, and the percentage of oral absorption in humans.
Keywords: *Migraine; Calcitonin gene-related peptide; Ginger Extract; In silico studies; ADMET.*

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INTRODUCTION

A neurological disorder called migraine is distinguished by the overexcitation of several active proteins, which causes inflammatory pain in particular parts of the brain. Women are three times as likely than men to have it. Claims that a brain malfunction that activates and sensitizes the trigeminovascular system, notably the trigeminal nociceptive afferents innervating (meninges) and causing headache, is the cause of migraine. [1] The dysfunction in the central nervous system that results in migraine is associated with the release of inflammatory mediators such as calcitonin gene-related peptide (CGRP), substance p, and neurokinin a that mediate vasodilation and mast cell degranulation which further leads to the release of pro-inflammatory agents. These pro-inflammatory agents mediate sensitization and excitation of trigeminal nerves that promote neurogenic inflammation and generation of painful stimuli. [2] In 1938, Harold wolf established the first migraine proposition known as the vascular proposition. Wolff set up that cases with migraines had extracranial vasodilation that could be treated by using vasoconstrictors. Wolff concluded that vasodilation results in migraine pain and vasoconstriction could be used to palliate the pain. [3] after this finding, DeVries suggested that vascular palpitation leads to the activation of stretch receptors causing the release of neuropeptides similar to calcitonin gene-related peptide (CGRP) from perivascular jitters. Strong vasodilators like CGRP can cause migraine discomfort. [4] Numerous studies have demonstrated that ginger can reduce migraine discomfort by inhibiting NO. Additionally, ginger has been shown to operate as a partial 5-HT_{1A} agonist, which inhibits chemicals (CGRP, substance P, and NO) from the trigeminal nerve and causes redistribution of blood flow, reducing inflammation and alleviating migraine discomfort.[5]. Both fresh and dried ginger have been found to have at least 115 different components. [6] at least 14 different bioactive chemicals can be extracted from ginger., including 6 paradol, 14 shogaol, 6 shogaol, 8 gingerol, 8-gingerol, 10-gingerol, 8-gingerol, and 1-dehydro- 1,7-bis-(4′

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Formulation and Development of Microsponges Loaded Topical Formulation Containing Non Steroidal Anti-Inflammatory Drug

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KEYWORDS

Microsponges,

Quasi emulsion method,

Controlled release,

Topical preparation

ABSTRACT:

Introduction: Arthritis is a chronic inflammatory condition affecting millions worldwide, leading to extreme pain and inflammation. Available therapies include surgery, laser, and drug treatments like corticosteroids and methotrexate. However, these drugs often cause itching, redness, and heart-related issues. Celecoxib, a COX-2 inhibitor, is used to block inflammation and pain. Microsponge Drug Delivery Systems offer advantages over other technologies like microencapsulation and liposomes, improving solubility of poorly water-soluble drugs like celecoxib. These microsponges are converted into a cream formulation to enhance applicability and patient compliance.

Objectives: The objective was to prepare and assess creams with celecoxib microsponges, a nonsteroidal anti-inflammatory drug for arthritis symptoms. We used the quasi-emulsion solvent diffusion method with Eudragit RS-100 to prepare microsponges with different drug-polymer ratios.

Methods: Drug-loaded microsponges were prepared using the Quasi-emulsion solvent diffusion method. Initially, Eudragit RS 100 was dissolved in dichloromethane, followed by drug addition and ultrasonication at 35°C. This inner phase was then mixed with an outer phase containing polyvinyl alcohol, stirred, and left to form rigid microsponges through solvent evaporation. After filtration, washing, and drying, microsponges were obtained. Key variables were optimized using factorial design. Creams were prepared via oil-in-water emulsion, with heating of aqueous and oil phases over a water bath.

Results: The results confirmed that celecoxib microsponges significantly increased solubility and met all required limits. Celecoxib-loaded microsponges, formulated with Eudragit RS100, achieved high production yield and drug content. This formulation exhibited prolonged drug release.

Fourier transform infrared and differential scanning calorimetry studies were carried out for pure celecoxib and microsponges

Conclusions: Polymer-based microsponge delivery systems, developed via quasi-emulsion solvent diffusion, offer controlled release of celecoxib. These systems aim to reduce application frequency, hypersensitivity reactions, and improve bioavailability. Creams containing microsponges provide prolonged drug release, promising relief for arthritis symptoms.

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https://www.phcogres.com

Original Article

Total Polyphenolic Content, Antioxidant Activity and Chromatographic Profiling of Extracts of *Ardissia solanacea*

Jyotsna Chopade, Asha Thomas*, Sohan Chitlange

Department of Pharmaceutical Chemistry, Dr. D. Y. Patil Institute of Pharmaceutical Sciences and Research, Pimpri, Pune, Maharashtra, INDIA.

ABSTRACT

Background: The current study focuses on the preliminary phytochemical analysis, antioxidant potential and identification of phytochemicals in *Ardissia solanacea* leaves extract using chromatography and HR-MS. **Materials and Methods:** The occurrence of phytoconstituents in different extracts of *Ardissia solanacea* were assessed by standard procedures. *In vitro* antioxidant potential was determined by Hydrogen peroxide and DPPH method. The extract was fractionated by Flash Chromatography. The fractions were analysed using HPTLC and further analyzed by HR-MS method to detect and characterize the active phytoconstituents present in it. **Results:** The highest concentration of flavonoids (371.91± 0.167 mg/g of Quercetin Equivalent), phenolics (10.138±0.010 mg/g of Gallic acid Equivalent) and tannins (148.23±0.510 mg/g of Tannic acid Equivalent) was observed in the ethanol extract. The antioxidant activity by DPPH and H_2O_2 assay demonstrated that the ethanolic extract (AsEt) showed highest anti-oxidant potential (74.21% and 83.16% respectively). The ASEt was fractionated by using Flash chromatography. As a result, Out of 11 fractions, one fraction namely AsEt3 was selected further based on HPTLC results. The HR-MS analysis of ASEt3 indicated presence of thirteen compounds wherein bergapten was predominantly identified. **Conclusion:** It was revealed that the leaves of *Ardissia solanacea* possesses high antioxidant potential. The known phytoconstituents namely quercetin and taxifolin along with one unknown compound were identified through the HR-MS study. Using mass library data, we report herein 2 flavonoids and 1 phenolic in the AsEt extract.

Keywords: *Ardissia solanacea*, Antioxidant activity, Flash chromatography, HR-MS analysis.

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INTRODUCTION

The herbal products have gained popularity as a potential therapeutic agents from the past decade. In developed countries, approximately 10-50% of people rely on herbal products for the treatment of various diseases. According to the Experts, the Global Herbal Medicine Market size is expected to reach $ 39.52 bn. by the end of year 2026. The drastic increase in the use of herbal products is due to better tolerance as compared to synthetic drugs. Because of the natural origin, the herbal products are considered to be safer than synthetic products. The herbal medicines are prepared by using diverse portions of the plant like leaves, bark, seeds, oil, berries, and roots. However, the herbal drugs does not deliver the intended standards for purity or dosage due to lack systematic standardization, inadequate scientific evidence of their safety and efficacy. The lack of standardization of raw material, processing methods, and of final product; dosage preparation and non-availability of pre-set criteria's for high quality control are the major constraints for herbal product usage. Currently measures are being undertaken to regularize the guidelines of herbal medicines to safeguard quality, safety, efficacy by using modern practices, applying suitable standards and GMP.[1-6]

Ardissia solanacea (Primulaceae) known as *Shoebutton ardissia* is set up in all regions of India, Pakistan, Sri Lanka and Western China.[7] From ancient times, the various parts of the plant such as leaves, fruit were used to treat several diseases because of rich content of phytoconstituents i.e. flavonoids, phenolics, alkaloids, etc.[8] The fruits can be used to treat diarrheoa and dysentery,[8] possesses stomachic, stimulant, astringent, diuretic property[9] antidiabetic,[10,11] antibacterial, antimicrobial,[12] antioxidant,[12] antispermatogenic and antisteridogenic,[13] anti-inflammatory, antipyretic.[14] Leaves possesses antibacterial, antioxidant, hepatoprotective, anti-inflammatory, insect antifeeding properties,[15,16] anxiolytic, sedative, analgesic.[17,18]

Thorough literature survey indicates that the plant has been explored for different pharmacological activities. However there are no reports of any study on the wound healing potential of the leaves. Also not much attention has being for the identification of possible phytoconstituents accountable for its pharmacological properties. Hence in the present study, the leaves extract of this plant was studied for presence of different phytoconstituents and their possible structures were identified by using different

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The Development of a Formulation of Topical Nanoemulgel of Eberconazole Nitrate

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KEYWORDS:
Eberconazole, nano-emulgel, formulation, skin infection

ABSTRACT
Eberconazole is used to treat invasive Aspergillus and Candida infections, as well as fungal infections caused by Scedosporium and Fusarium species, which can occur in immunocompromised patients. It is also used to treat oropharyngeal candidiasis (OPC), including OPC unresponsive to itraconazole and/or fluconazole. It is also used to treat invasive infections of Candida, Mucor and Aspergillus species in severely immunocompromised patients. Clinical evidence of its usefulness in the treatment of invasive disease (fusariosis) caused by Fusarium species is limited. It appears to be useful in a murine model of naegleriasis. Antifungal therapy is one of the most effective mechanisms for eradicating a fungal infection to improve quality of life. Systemic treatment is usually indicated for nail infections, extensive skin infections, or those that have not responded to topical treatment. Traditional topical dosage forms cannot maintain or control drug transport on the skin for a long time, so they need longer treatment or must be supplemented with oral treatment. Fungal infections require repeated use of conventional dosage forms over a longer period of time. The emulsifier would facilitate long-term contact of the drug with the skin, and it also has the ability to change the properties of the skin, which improves the local treatment of skin fungal diseases. The strategy is to formulate a drug-loaded Nanoemulgel, which regulates the release of the drug on the skin surface within 24 hours.

Introduction-
Topical drug administration is a localized drug delivery system anywhere in the body through ophthalmic, rectal, vaginal and skin as topical routes. Skin is one of the most readily accessible organs on human body for topical administration and is main route of topical drug delivery system [1].

Topical drug delivery can be defined as the application of a drug containing formulation to the skin to directly treat cutaneous disorders (e.g. acne) or the cutaneous manifestations of a general disease (e.g. psoriasis) with the intent of confining the pharmacological or other effect of the drug to the surface of the skin or within the skin. Topical drug delivery systems include a large variety of pharmaceutical dosage form like semisolids, liquid preparation, sprays and solid powders. Most widely used semisolid preparation for topical drug delivery includes gels, creams and ointments [2].
Most of the topical preparations are meant to be applied to the skin. So basic knowledge of the skin and its physiology function are very important for designing topical dosage form. The skin of an average adult body covers a surface area approximately $2m^2$ and receives about one third of the blood circulating through the body [3].

An average human skin surface is known to contain, on the average 40-70 hair follicles and 200-300 sweat ducts on every square centimetre of the skin. The pH of the skin varies from 4 to 5.6. Sweat and fatty acid secreted from sebum influence the pH of the skin surface. The skin can be considered to have four distinct layers of tissue as shown in figure [4].

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