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Sr. no.	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN Number	Link to the recognition in UGC enlistment of the Journal/digital object identifier (doi) number			
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PHARMACEUTICAL CHEMISTRY										
1.	Resveratrol and Its Natural Analogues Inhibit RNA Dependant RNA Polymerase (RdRp) of Rhizopus oryzae in Mucormycosis through Computational Investigations	**Mithun Rudrapal,** Sanjay G. Walode & Dhiraj V. Panke	Pharmaceutical Chemistry	Polycyclic Aromatic Compounds	2023	1563-5333	https://www.tandfonline.com/	https://www.tandfonline.com/doi/abs/10.1080/10406638.2022.2091618	UGC approved and Scopus/WoS indexed	https://doi.org/10.1080/10406638.2022.2091618

2.	Development and evaluation of antifungal soap with herbal antibacterial properties	Vibhavari M. Chatur , Anuj N. Nahata , Prachi S. Pipada , Aniket K. Pacharne , Shubham Patil , Nazma M. Ansari , Dr. Sanjay G. Walode , and Shashikant N. Dhole	Pharmaceutical Chemistry	European Journal of Molecular & Clinical Medicine	2022	2515-8260	https://www.researchgate.net/	https://www.researchgate.net/profile/AnujNahata/publication/374133981_	UGC approved and Scopus/WoS indexed	
3.	Formulation and Evaluation of Polyherbal Cream	Vibhavari M. Chatur, Nazma M. Ansari, Sanket K. Joshi, and Dr. Sanjay G. Walode	Pharmaceutical Chemistry	Journal of Drug Delivery and Therapeutics	2022	2250-1177	https://jddtonline.com	https://www.jddtonline.info/index.php/jddt/article/view/5572	-	http://dx.doi.org/10.22270/jddt.v12i4.5572
4.	Protective Effects of Diets Rich in Polyphenols in Cigarette Smoke(CS)-Induced Oxidative Damages and Associated Health Implications.	Mithun Rudrapal	Pharmaceutical Chemistry	MDPI	2022 - June	2076-3921	https://www.mdpi.com/	https://www.mdpi.com/2076-3921/11/7/1217	UGC approved and Scopus/WoS indexed	https://doi.org/10.3390/antiox11071217

5	Biofabrication of Silver Nanoparticles (AgNPs) using Embelin for Effective Therapeutic Management of Lung Cancer.	Aniket Garud, **Mithun Rudrapal,** and Bhagyashri Warude	Pharmaceutical Chemistry	Nutrition and Food Science Technology	August 2022	1303-5150	www.frontiersin.org	https://www.frontiersin.org/articles/10.3389/fnut.2022.960674/full	UGC approved and Scopus/WoS indexed	https://doi.org/10.3389/fnut.2022.960674
6	Development of gold nanoparticle-based biosensors for COVID-19 diagnosis.	**Mithun Rudrapal** and Rohan R. Patekar	Pharmaceutical Chemistry	Journal of Basic and Applied Sciences	September-2022	2314-8543	https://bjbas.springeropen.com/	https://www.sciencedirect.com/science/article/pii/S0753332220304698	UGC approved and Scopus/WoS indexed	https://doi.org/10.1186/s43088-022-00293-1
7	Drug repurposing– A search for novel therapy in the treatment of diabetic neuropathy.	**Mithun Rudrapal**	Pharmaceutical Chemistry	Biomedicine & pharmacotherapy	Oct-2022	0753-3322	https://www.sciencedirect.com/	https://www.sciencedirect.com/science/article/pii/S0753332222012355	UGC approved and Scopus/WoS indexed	https://doi.org/10.1016/j.biopha.2022.113846
8	Characterization of the binding of MRTX1133 as an avenue for the discovery of potential KRASG12D inhibitors for cancer therapy.	**Mithun Rudrapal**	Pharmaceutical Chemistry	Scientific reports	Oct-2022	2045-2322	https://www.nature.com/	https://www.nature.com/articles/s41598-022-22668-1	UGC approved and Scopus/WoS indexed	https://doi.org/10.1038/s41598-022-22668-1

9	Analgesic and anti-inflammatory potential of indole derivatives.	**Mithun Rudrapal &** Dr. Sanjay G. Walode	Pharmaceutical Chemistry	Polycyclic Aromatic Compounds	Nov-2022	1563-5333	https://www.tandfonline.com	https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Analgesic+and+Anti-Infl+ammatory+Potential+of+Indole+Derivatives&btnG=	UGC approved and Scopus/WoS indexed	https://doi.org/10.1080/10406638.2022.2139733
10	Nano delivery of Dietary Polyphenols for Therapeutic Applications.	**Mithun Rudrapal** & Vishnu S. Neharkar	Pharmaceutical Chemistry	MDPI	Dec-2022	1420-3049	https://www.mdpi.com/	https://www.mdpi.com/1420-3049/27/24/8706	UGC approved and Scopus/WoS indexed	https://doi.org/10.3390/molecules27248706
11	Beforehand and aftermath of plating on Anterior cervical spinal blend	**Mrs. Bhagyashree Warude**, Aniket Garud, and Priyanka Nandlal Chhajed	Pharmaceutical Chemistry	Neuroquantology	October 2022	1303-5150	https://www.researchgate.net/	https://www.researchgate.net/publication/364836712_	UGC approved and Scopus/WoS indexed	doi: 10.14704/nq.2022.20.9.NQ44647
12	Embelin isolated from Embelia ribes derived silver nanoparticles and its application in breast	Aniket Garud & **Bhagyashri Warude**	Pharmaceutical Chemistry	Materials today	August 2022	1369-7021	https://www.sciencedirect.com/	https://www.sciencedirect.com/science/article/abs/pii/S2214785322060	UGC approved and Scopus/WoS indexed	https://doi.org/10.1016/j.matpr.2022.09.265

	cancer nanomedicine							813		
13	Preliminary pharmacognostic, physicochemicl and phytochemical evaluation of Sansevieria cylindrica leaves	**Bhagyashri Warude**	Pharmaceutical Chemistry	Journal of pharmaceutical negative result	October 2022	0976-9234	https://pnrjournal.com/index.php/home/article/1153/930	file:///C:/Users/Lenovo/Downloads/jpnr-2022-S01-153+(1253-1271).pdf	UGC approved and Scopus/WoS indexed	DOI: 10.47750/pnr.2022.13.S01.153
14	Evaluation of novel topoisomerase II inhibitors as anti-cancer agents through advanced computational strategies	**Mrs. Bhagyashree Warude**, Ms. Priyanka Chhajed, and Dr. Aniket Garud	Pharmaceutical Chemistry	NeuroQuantology	Dec 2022	1303-5150	https://www.neuroquantology.com	https://www.neuroquantology.com/search?q=Evaluation%20of%20novel%20topoisomerase%20II%20inhibitors%20as%20anticancer%20agents%20through%20advanced%20computational%20strategies.	UGC approved and Scopus/WoS indexed	doi: 10.48047/nq.2022.20.19.NQ99024
15	Design, docking, MD simulation and *in-silico* ADMET prediction studies of novel indole-	Bhagyashri J. Warude, **Mithun Rudrapal**, Aniket A. Garud, and	Pharmaceutical Chemistry	Pharmacia	May 2023	0428-0296	https://pharmacia.com	file:///C:/Users/Lenovo/Downloads/PHAR_article_100356_en_1%20(1	UGC approved and Scopus/WoS indexed	https://doi.org/10.3897/pharmacia.70.e100356

	based benzamides targeting estrogen receptor alfa positive for effective breast cancer therapy	Vishnu S. Neharkar						).pdf		
16	Design, Docking, Insilco ADME Prediction Of Novel Indole Based Benzamide Scaffolds Targeting For Estrogen Receptor Alfa In Af-2Domain For Effective Anticancer Treatment	**B. J. Warude**, Dr. V. S. Neharkar, Dr. and Dr. A. A. Garud	Pharmaceutical Chemistry	Journal of pharmaceutical negative result	May 2022	0976-9234	https://www.pnrjournal.com/	https://www.pnrjournal.com/index.php/home/article/view/9837/13721	UGC approved and Scopus/WoS indexed	https://doi.org/10.47750/pnr.2022.13.S05.443
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17	Phytochemicals: A Novel Approach for the Management of Coronavirus Disease 2019	**Chatur Vibhavari**	Pharmaceutics	Indian Journal of Pharmaceutical Sciences	June 2022	0250-474x	https://web.s.ebscohost.com /	https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Phytochemicals%3A+A+novel+approach+for+the+management+of+coronavirus	UGC approved and Scopus/WoS indexed	
18	Formulation and Appraisal of innovative	**Mr. Anand Kakde**, and Dr.	Pharmaceut	Neuroquanto	Nov	1303-	https://www.neuroqua	https://www.neuroquantology.com/openac	UGC approved	10.14704/NQ.2022.20.1

	acyclovir emulsion	Aniket Garud	ics	logy	2022	5150	ntology.com/	cess/Formulation+and+Appraisal+of+innovative+acyclovir+emulsion_9904/	and Scopus/WoS indexed	1. NQ66693
19	An Insight into the Potential Mechanism of Bioactive Phytocompounds in the Wound Management	**Manisha Khaire**	Pharmaceutics	Pharmacognosy reviews	Oct 2022	0976-2787	https://www.phcogrev.com/	https://www.phcogrev.com/sites/default/files/PharmacognRev-17-33-43.pdf	UGC approved and Scopus/WoS indexed	10.5530/097627870153
20	Study Of The Properties And Behaviors Of Nanoparticles And Their Potential Applications In Medicine And Catalysis	**Manisha Khaire**	Pharmaceutics	Journal of Pharmaceutical Negative Results	May 2023	0976-9234	https://pnrjournal.com/	https://pnrjournal.com/index.php/home/article/view/9985	UGC approved and Scopus/WoS indexed	https://doi.org/10.47750/pnr.2023.14.03.477
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21	Anthelmintic Potential Of Aqueous And Organic Extract Of Seeds Of Samanea saman (Merr)	**Vishnu S. Neharkar**	Pharmacology	Journal of Pharmaceutical Negative Results	2023	0976-9234	https://pnrjournal.com/	View of Anthelmintic Potential Of Aqueous And Organic Extract Of Seeds Of Samaneasaman (Merr)	UGC approved and Scopus/WoS indexed	https://www.pnrjournal.com/index.php/home/article/view/8722/11896

								(pnrjournal.com)		
22	Development and validation of RP-HPLC method for simultaneous estimation of Amitriptyline Hydrochloride and Propranolol Hydrochloride in pharmaceutical dosage form.	**Vishnu S Neharkar**	Pharmacology	NeuroQuantology	Oct-2022	1303-5150	https://neuroquantology.com/	neuroquantology.com/open-access/?download=true	UGC approved and Scopus/WoS indexed	doi: 10.14704/nq.2022.20.13.NQ88174
23	A Juxtaposition of Anterior Cervical Interbody Anastomosis With And Without Instrumental Blending	Vishnu S. Neharkar and **Aniket Garud**	Pharmacology	NeuroQuantology	Dec-2022	1303-5150	A Juxtaposition of Anterior Cervical Interbody	neuroquantology.com/open-access/	UGC approved and Scopus/WoS indexed	DOI: 10.48047/nq.2022.20.19.NQ99023
24	Antidiabetic Evaluation Of Isolated Compounds From Pomegranates (Punica Granatum) Peels In Alloxan-Induced Diabetic Rat Model	**Vishnu S Neharkar**	Pharmacology	IJFANS International Journal of Food and Nutritional Sciences	Dec-2022	2319 1775	https://www.ijfans.org/	a904ada2535fed7b7bb4ea539847179c.pdf (ijfans.org)		

25	Synthesis, cytotoxicity, PDGFR inhibitory activity and docking Study of novel 2-aminoquinoline-3-carboxamide derivatives as Potential anticancer agents	**Vishnu S. Neharkar**	Pharmacology	European chemical bulletin	Apr-2023	2063-5346	https://www.eurchembull.com/	aa533a8492e582083960248b7b05591d.pdf (eurchembull.com)	UGC approved and Scopus/WoS indexed	aa533a8492e582083960248b7b05591d.pdf (eurchembull.com)
26	Novel Film Forming Spray From Tea Tree Leaves With Special Emphasis On Development, Formulation & Evaluation	**Aniket Garud** and Bhagyashri Warude	Pharmacology	Journal of positive school psychology	2022	2717-7564	https://journalppw.com/	https://journalppw.com/index.php/jpsp/article/view/7495/4893		
27	Waste to Wealth: An approach to HAp synthesis by different methods.	Anuj Nahata and **Dr. Aniket Garud**.	Pharmacology	European chemical bulletin	2023	2063-5346	https://www.eurchembull.com/	https://www.eurchembull.com/uploads/paper/1b6de9398909bef2223e0a698ce4f8a6.pdf	UGC approved and Scopus/WoS indexed	https://www.eurchembull.com/uploads/paper/1b6de9398909bef2223e0a698ce4f8a6.pdf

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28	Common indian medicinal plants as emerging wound healing agents: deep insights into applications and mechanisms	**Shweta P. Ghode** and Harshada H. Puranik	Pharmacognosy	International Journal of Pharmaceutical Sciences and Research	Jan 2023	0975-8232	https://ijpsr.com/	https://ijpsr.com/bft-article/common-indian-medicinal-plants-as-emerging-wound-healing-agents-deep-insights-		http://dx.doi.org/10.13040/IJPSR.0975-8232.14(1).218-47
29	Pharmacognostic standardization and preliminary phytochemical screening of pyrostegia venusta miers (bignoniaceae) leaves	Kolhe Rohini C. and **Ghode Shweta P**.	Pharmacognosy	European Journal Of Pharmaceutical And Medical Research	Feb 2023	2394-3211	https://www.ejpmr.com/			
30	Solubility Enhancement and Preparation of Antifungal Gel of Lawsone	**Shweta P. Ghode**,	Pharmacognosy	Research J. Pharm. and Tech.	April 2023	0974-360X	https://scholar.google.co.in/scholar?hl=en&as_sdt=0%2C5&as_	https://www.proquest.com/openview/a494d4f0910c5ec8beefac40a463fcc9/1?pq-origsite=gscholar&cbl=1096441	UGC approved and Scopus/WoS indexed	10.52711/0974-360X.2023.00292
31	Sonocrystallization: emerging approach for solubility enhancement of	**Shweta P. Ghode**	Pharmacognosy	Neuroquantology	November 2022	1303-5150	https://www.proquest.	https://www.proquest.com/openview/3132d40ea6e3713a98e98	UGC approved and	DOI:10.14704/NQ.2022.20.16.NQ8804

	poorly aqueous soluble drug molecules						com/	5ed63af082e/1?pq-	Scopus/Wo S indexed	1
32	Development and evaluation of antidiabetic polyherbal tablet using medicinal plants of traditional use	**Ms. R. C. Kolhe**	Pharmacog nosy	International Journal Of current pharmaceutic al research	Mar 2023	0975-7066	https://jour nals.innova reacademic s.in/	DEVELOPMENT AND EVALUATION OF ANTIDIABETIC POLYHERBAL TABLET USING MEDICINAL PLANTS		https://dx.doi .org/10.2215 9/ijcpr.2023v 15i2.2095

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Resveratrol and Its Natural Analogues Inhibit RNA Dependant RNA Polymerase (RdRp) of *Rhizopus oryzae* in Mucormycosis through Computational Investigations

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ABSTRACT

Mucormycosis (or black fungus infection) is a life-threatening, but rare fungal infection with predominant occurrence in immunosuppressed patients following the SARS-CoV-2 infection. *Rhizopus oryzae* (*R. O.*) causes about 70% of all cases of mucormycosis. RNA dependent RNA polymerase (RdRp) is a key fungal protein implicated in the genome replication and multiplication of *R. oryzae*. In view of biological significance of resveratrol (RES), rich in grape skin extract, on various microbial infections and inflammatory diseases including gum infections and periodontitis, our present study was aimed at *in silico* investigation of RES and its two natural analogues, piceatannol (3,5,3′,4′-tetrahydroxy-*trans*-stilbene, PIC), and 3,5,4′-trimethoxy-*trans*-stilbene (TMS) for their development as successful antifungal agents targeting the *R. O.* specific RdRp to combat the deadly mucormycosis. Due to the unavailability of the three-dimensional structure of *R. O.* RdRp in the Protein Database Bank (PDB), the protein structure of RdRp was modeled using the target sequence of RT/Duplex (Set-Met) (PDB ID: 6AR3, 3.41 Å) by homology modeling. Using the modeled structure of *R. O.* RdRp, docking and molecular dynamics (MD) simulation studies were carried out in Schrödinger suite version 2021-2 software. The findings of docking, MD simulations and MM-PBSA binding energies conclude that the RES, PIC and TMS possess predictable and stable binding affinity/interactions to the *R. O.* RdRp. These bioactive compounds could potentially inhibit the activity of *R. O.* RdRp. Further, density function theory (DFT) analysis (B3LYP, 6-311 G* basis set) was performed, and results of DFT analysis indicate that the compound PIC could be a more potential inhibitor for *R. O.* RdRp over RES. In *in silico* drug-likeness and ADMET prediction studies, all of the compounds exhibited acceptable drug-likeness, the Lipinski's rule of five and pharmacokinetic parameters. Finally, it can be concluded that RES and its two natural analogues, PIC and TMS are the potential inhibitors of *R. O.* RdRp based on docking, MD and DFT studies.

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Mucormycosis; SARS-CoV-2; *R. oryzae*; RNA dependent RNA polymerase; resveratrol; antifungal

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DEVELOPMENT AND EVALUATION OF ANTIFUNGAL SOAP WITH HERBAL ANTIBACTERIAL PROPERTIES

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ABSTRACT

Herbal products have become increasingly important worldwide in medical and economic terms. Antifungal herbal antibacterial soap of Luliconazole were prepared & evaluated for dermal infection along with the addition of the oils and the extract of A*zadirachtaindica, Ocimum tenuiflorum, Aloe barbadensis miller, Santalum album.* The API used for the preparation of antifungal herbal antibacterial soap belongs to the antifungal class of azoles, inhibits the enzyme lanosterol demethylase, which is required for the production of ergosterol, which is a major component of the fungal cell membrane. It is mainly used in the treatment of skin infections such as athlete's foot, jock itch, and ringworm. The physicochemical parameters of formulations (Physical evaluation, pH, Foaming ability and foam stability) were determined. The results showed that the formulation have pH level nearly equal to skin pH, foaming index was excellent. The %drug release, % drug content, % solid content and microbial study was performed for API.

Keywords: Luliconazole, Herbal soap, Aloe Vera, Dermal infections

INTRODUCTION:

Luliconazole is an azoleantifungal that works by preventing the growth of the fungus. [1]

The skin diseases are common among all age groups and can be due to exposure towards microbes, chemical agents, biological toxin present in the environment, and also to some extend due to malnutrition [2]. Fungal infections are contagious and spread easily just close contact or sharing a comb or hairbrush with the infected person. They can be controlled in their initial stage by proper medications [1]. In this research the herbal medicated soap containing API, aloe vera gel, sandalwood oil, Neem oil, and Tulsi oil has shown the antibacterial and antifungal activity.

Sandalwood (*Santalum album)*

Sandalwood essential oil has many traditional uses. For centuries, East Indian sandalwood oil has been a popular ingredient in Ayurvedic medicine, the folk medicine of India. It's also

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Research Article

Formulation and Evaluation of Polyherbal Cream

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Abstract

Cosmetics made from either natural or synthetic components are almost in regular use universally in many different forms for enhancing the beauty. Azadirachta indica and Nyctanthes arbor-tristis are medicinal plants; these plants are used traditionally from ancient years in various herbal medicinal systems such as Ayurvedic, Homeopathic and Siddha. The dried leaves of Azadirachta indica and dried leaves of Nyctanthes arbor-tristis have antibacterial, anti-inflammatory analgesic activity. The present research is focused on the formulation of polyherbal cream and their evaluation by using various evaluation parameters.

Keywords: Polyherbal cream, Neem, Night Jasmine, Fusion method, Almond oil.

INTRODUCTION

Cream formulation was semisolid formulations intended for topical application. The cream formulations were prepared by using various herbal extracts, herbal oils, and various excipients.

Cosmetic products are used for the protection of skin from various endogenous and exogenous harmful agents along with enhancing the beauty and making skin attractive.[1] The only use of cosmetic is not developing an attractive external appearance but also achieving longevity of good health by reducing skin disorders.[2] The cosmetics which are meant for skin care nourishes the health, texture and moisturizes the skin. [3]

Polyherbal cream is a semisolid formulation intended for topical application. The cream formulation is prepared by using various herbal extracts, almond oil and various excipients.[4]

Nyctanthes arbor-tristis was the oldest holistic, sacred and traditional medicinal plant belongs to family Oleaceae. The plant was mentioned in Vishnu Purana and having great importance to treat varieties of diseases, especially rheumatoid arthritis it reduces pain and inflammation [7]. The fresh leaves are collected and complete shade drying, further powdered by using the mixer. This formed powder was passed through the sieve. The extract was obtained by using a simple maceration process.

Maceration was extractive technique and carried out at roomtemperature. Powdered herbal leaves of Nyctanthes arbor-tristis wasimmersed in alcohol and continuousshacking byusing REMI RSB 12 mechanical shaker. After 3 d the concentrated extract was collected and filtered.

Nyctanthes arbor-tristis is an old holistic, sacred and traditional medicinal plant belonging to family Oleaceae. The fresh leaves were collected and dried in shade, further powdered by using the mixer. This formed powder was passed through the sieve. The extract was obtained by using a simple maceration process. [5]

Almond oil has excellent emollientproperties help the skin to balance water loss andabsorption of moisture, helps relieve irritation, inflammation and itching, and is greatly lubricating.[6]

Gram flour, commonly known as Besan, has been used extensively since the olden times for its beauty-enhancing benefits. It mainly acts as a tonic for the skin as it helps to clean and exfoliate it. [7]

The secondary metabolites which are present in the plants taken will support the strength, texture and integrity to skin along with the moisturizing of skin and maintaining its elasticity.[8] Thus, the presence of herbal ingredients in skincare formulation helps reduce the production of free radicals in the skin and maintain for a long time.Active ingredients delays skin aging by reducing the wrinkles, protect against UV radiation by antioxidant property.[9]

antioxidants

MDPI

Review

Protective Effects of Diets Rich in Polyphenols in Cigarette Smoke (CS)-Induced Oxidative Damages and Associated Health Implications

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Abstract: Cigarette smoking has been responsible for causing many life-threatening diseases such as pulmonary and cardiovascular diseases as well as lung cancer. One of the prominent health implications of cigarette smoking is the oxidative damage of cellular constituents, including proteins, lipids, and DNA. The oxidative damage is caused by reactive oxygen species (ROS, oxidants) present in the aqueous extract of cigarette smoke (CS). In recent years, there has been considerable interest in the potential health benefits of dietary polyphenols as natural antioxidant molecules. Epidemiological studies strongly suggest that long-term consumption of diets (fruits, vegetables, tea, and coffee) rich in polyphenols offer protective effects against the development of cancer, cardiovascular diseases, diabetes, osteoporosis, and neurodegenerative diseases. For instance, green tea has chemopreventive effects against CI-induced lung cancer. Tea might prevent CS-induced oxidative damages in diseases because tea polyphenols, such as catechin, EGCG, etc., have strong antioxidant properties. Moreover, apple polyphenols, including catechin and quercetin, provide protection against CS-induced acute lung injury such as chronic obstructive pulmonary disease (COPD). In CS-induced health problems, the antioxidant action is often accompanied by the anti-inflammatory effect of polyphenols. In this narrative review, the CS-induced oxidative damages and the associated health implications/pathological conditions (or diseases) and the role of diets rich in polyphenols and/or dietary polyphenolic compounds against various serious/chronic conditions of human health have been delineated.

Keywords: cigarette smoke; oxidative damage; dietary polyphenols; COPD; cardioprotective; bioavailability

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Biofabrication of Silver Nanoparticles (AgNPs) Using Embelin for Effective Therapeutic Management of Lung Cancer

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Nanobiotechnology is a burgeoning field of research with applications in cancer treatment, targeted chemotherapy, and molecular diagnosis. This study aims at the fabrication of silver nanoparticles using embelin derived from *Embelia ribes* to evaluate its anticancer property. Silver nanoparticles (AgNPs) have emerged as a novel nano-carrier for therapeutic agents with a wide range of medical capabilities due to their unique structural, physicochemical, and optical features. In our study, the particle size of fabricated AgNPs was measured as 25 nm, and the zeta potential was recorded as −5.42 mV, which indicates the good stability of embelin-derived AgNPs. The crystalline surface morphology was observed by SEM analysis. The FT-IR spectrum confirmed the reduction in silver ions (Ag^+) by embelin, and the TEM analysis exhibited polydispersed Ag^+ of 20–30 nm. The anticancer potential of embelin-fabricated AgNPs was investigated using *in vitro* studies on lung cancer cells by the MTT assay. The results revealed significant dose-dependent inhibition of cell proliferation against A549 cell lines. Embelin AgNP-induced apoptosis was measured by the annexin-V PI apoptosis assay, which exhibited significantly low necrotic cells as compared to apoptotic cells. Finally, the findings of our study suggest the anticancer potential of biofabricated embelin AgNPs, particularly against lung cancer cells.

Keywords: biofabrication, silver nanoparticles, embelin, anticancer, lung cancer, MTT assay, apoptosis assay

INTRODUCTION

The development of nanotechnology, which offers remarkable solutions to cope with life-threatening disorders, has boosted advancement in the field of medical science (1). Nanotechnology is a significant milestone that has numerous applications in a variety of fields, including electronics (2), textiles (3), cosmetics, and, most crucially, healthcare as targeted drug delivery, diagnosis, treatment, and biosensing for the benefit of humanity (4). Nanoparticles are an

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REVIEW Open Access

Development of gold nanoparticle-based biosensors for COVID-19 diagnosis

Johra Khan[1,2], Yousef Rasmi[3,4], Kevser Kübra Kırboğa[5], Ahmad Ali[6], Mithun Rudrapal[7*] and Rohan R. Patekar[8]

Abstract

Background: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the causative organism of coronavirus disease 2019 (COVID-19) which poses a significant threat to public health worldwide. Though there are certain recommended drugs that can cure COVID-19, their therapeutic efficacy is limited. Therefore, the early and rapid detection without compromising the test accuracy is necessary in order to provide an appropriate treatment for the disease suppression.

Main body: Nanoparticles (NPs) can closely mimic the virus and interact strongly with its proteins due to their morphological similarities. NPs have been widely applied in a variety of medical applications, including biosensing, drug delivery, antimicrobial treatment, and imaging. Recently, NPs-based biosensors have attracted great interest for their biological activities and specific sensing properties, which allows the detection of analytes such as nucleic acids (DNA or RNA), aptamers, and proteins in clinical samples. Further, the advances of nanotechnologies have enabled the development of miniaturized detection systems for point-of-care biosensors, a new strategy for detecting human viral diseases. Among the various NPs, the specific physicochemical properties of gold NPs (AuNPs) are being widely used in the field of clinical diagnostics. As a result, several AuNP-based colorimetric detection methods have been developed.

Short conclusion: The purpose of this review is to provide an overview of the development of AuNPs-based biosensors by virtue of its powerful characteristics as a signal amplifier or enhancer that target pathogenic RNA viruses that provide a reliable and effective strategy for detecting of the existing or newly emerging SARS-CoV-2.

Keywords: Quantum dot, Carbon nanotube, Gold nanoparticles, Point-of-care testing, SARS-CoV-2, COVID-19 diagnosis

1 Background

The novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has undoubtedly created an emerging disease that is a public health priority worldwide [1–6]. This global pandemic has highlighted the urgency of accurate, rapid, and cost-effective diagnostic tests for epidemic understanding and management by monitoring the world's population [7–10]. Recently, researchers have focused on developing rapid detection systems because the monitoring and managing of the pandemic are extremely critical. The most widely used current diagnostic method, real-time polymerase chain reaction (RT-PCR) testing, is the gold standard and the most widely available diagnostic tool for SARS-CoV-2 detection [11, 12]. In some countries, it is the only way to declare official results. Other methods are designed on the immunoglobulins detection such as immunoglobulin M (IgM) and/or immunoglobulin G (IgG) [13, 14]. The detection of virus-specific genes by single-stranded DNA probes is of particular interest because of their high sensitivity and specificity compared to antibody- or antigen-based immunological methods for the early diagnosis of viral infections. Many of these molecular and immunological

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Review

Drug repurposing – A search for novel therapy for the treatment of diabetic neuropathy

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ABSTRACT

Diabetic neuropathy is a chronic complication to metabolic disorder, diabetes mellitus. Till date, diagnosis and treatment of diabetic neuropathy remain elusive with challenges associated with the efficacy and safety of the current therapeutics. Considering, the hurdles associated with discovery of *de novo* drugs, repurposing of old drugs for new therapeutic modalities sounds promising. This review, focuses on a molecular pathways involved in the progression of diabetic neuropathy, and the current pharmacological and non-pharmacological therapies implemented. Furthermore, a holistic and mechanism centric drug repurposing approach is pursued for identification of existing drugs as novel therapy in the treatment of diabetic neuropathy. The global status of ongoing clinical research on diabetic neuropathy is also highlighted. In conclusion, the barriers associated with drug repurposing is identified to stimulate the curiosity of the researchers to overcome them and rapidly translate the drugs to the patients suffering from diabetic neuropathy.

1. Introduction

In recent times, diabetes is the 4th most common metabolic disorder in the world. It comes with a slew of issues that can have a negative impact on quality of life. Blood glucose levels are elevated in diabetics because the pancreas does not produce enough insulin or the target cells cannot absorb glucose from the blood [1]. Neuropathic pain can be defined as "pain caused by a lesion or disease of the somatosensory nervous system" by the International Association for the Study of Pain (IASP) [2]. As a side effect of diabetes, one-third of diabetic patients experience diabetic neuropathy (DN), a condition that increases their risk of developing cardiovascular, peripheral, and cerebral disorders [3]. DN is extremely painful, and there is currently no medicine that directly inhibits the pathogenic mechanisms that cause it. It is possible to define an ideal DN treatment as one that prevents nerve function loss and improves symptoms while causing as few side effects as possible. Anticonvulsant and antidepressant medications have been reported to be effective in the management of pain associated with DN in clinical investigations. There have been several medication combinations that have proven to be partially effective in controlling DN symptoms. Drugs that have been withdrawn from the market because they offer substantial health hazards in long-term use are not the only ones that are being tested. Food drug and administration (FDA)-approved treatments for painful DN are few and far between right now. DN pain can be alleviated by using a spinal cord stimulation system that has been approved by the FDA. Other regulatory agencies have recommended various other medications and drug combinations. In addition to their limited effectiveness, the usage of these drugs comes with a variety of side effects. The pathophysiology of DN is still poorly understood, making treatment and discovery of drugs a challenging task. Patients and health care providers alike often find it difficult to treat DN [4]. Drug repurposing (DR) can be a highly convincing technique instead of exploring and developing new drug molecules to generate more effective treatment for DN with low adverse effects. DR is an alternative strategy for addressing any safety concerns. DR research aims to unravel previously undiscovered and unexpected new effects of approved drugs utilized in clinical practice studies. It is possible to reduce the time and cost of drug development by using already approved drugs, which have

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Characterization of the binding of MRTX1133 as an avenue for the discovery of potential KRAS^{G12D} inhibitors for cancer therapy

Abdul Rashid Issahaku[1,2], Namutula Mukelabai[2], Clement Agoni[1], Mithun Rudrapal[3]✉, Sahar M. Aldosari[4], Sami G. Almalki[4] & Johra Khan[4]

The Kirsten rat sarcoma (KRAS) oncoprotein has been on drug hunters list for decades now. Initially considered undruggable, recent advances have successfully broken the jinx through covalent inhibition that exploits the mutated cys12 in the switch II binding pocket (KRAS^{G12C}). Though this approach has achieved some level of success, patients with mutations other than cys12 are still uncatered for. KRAS^{G12D} is the most frequent KRAS mutated oncoprotein. It is only until recently, MRTX1133 has been discovered as a potential inhibitor of KRAS^{G12D}. This study seeks to unravel the structural binding mechanism of MRTX1133 as well as identify potential drug leads of KRAS^{G12D} based on structural binding characteristics of MRTX1133. It was revealed that MRTX1133 binding stabilizes the binding site by increasing the hydrophobicity which resultantly induced positive correlated movements of switches I and II which could disrupt their interaction with effector and regulatory proteins. Furthermore, MRTX1133 interacted with critical residues; Asp69 (− 4.54 kcal/mol), His95 (− 3.65 kcal/mol), Met72 (− 2.27 kcal/mol), Thr58 (− 2.23 kcal/mol), Gln99 (− 2.03 kcal/mol), Arg68 (− 1.67 kcal/mol), Tyr96 (− 1.59 kcal/mol), Tyr64 (− 1.34 kcal/mol), Gly60 (− 1.25 kcal/mol), Asp12 (− 1.04 kcal/mol), and Val9 (− 1.03 kcal/mol) that contributed significantly to the total free binding energy of − 73.23 kcal/mol. Pharmacophore-based virtual screening based on the structural binding mechanisms of MRTX1133 identified ZINC78453217, ZINC70875226 and ZINC64890902 as potential KRAS^{G12D} inhibitors. Further, structural optimisations and biochemical testing of these compounds would assist in the discovery of effective KRAS^{G12D} inhibitors.

Kirsten Rat Sarcoma (KRAS) viral oncogene is the most studied of the Ras family of proteins (HRAS, NRAS and KRAS) with the most mutations that result in a range of cancers including colorectal cancer (CRC), non-small cell lung cancer (NSCLC) and pancreatic adenocarcinoma (PDAC)[1]. In these cancers, KRAS is responsible for approximately 45% of cases in CRC, 35% in NSCLC and 90% in PDAC with poor prognosis and resistance to standard-of-care chemotherapy, denoting a critically unmet medical need that requires novel therapies to target KRAS[2]. However, unlike other oncogenic proteins such as Vascular Endothelial Growth Factor Receptor (VEGFR) and Epidermal Growth Factor Receptor (EGFR) that are easily druggable[3,4], drugging KRAS was hampered by the lack of a well-defined binding site and its high affinity towards an abundance of GDP/GTPin the cytosol until recently[5,6].

KRAS rotates between a GTP-bound and GDP-bound states representing an active and an inactive states respectively whose conversion is controlled by GEFs which produce the exchange from GDP to GTP, and GAP-swhich influence the hydrolysis of GTP[7,8]. The activation by binding GTP perturbs the effector protein binding

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Analgesic and Anti-Inflammatory Potential of Indole Derivatives

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ABSTRACT

Some indole analogues show a good analgesic activity but on the other hand, it has some serious side effects like gastric ulcer. Therefore, there is still a need to develop derivatives of non-steroidal anti-inflammatory drugs (NSAIDs) with fewer side effects. For this purpose, some indole derivatives were prepared with objectives to develop new derivatives with maximum efficacy and minimum side effects. 1-(1*H*-indol-1-yl)-2-(sübstituephenoxy)-ethan-1-one derivatives (**M1–M4**) were analyzed further by thin-layer chromatorgarphy (TLC), melting point, IR, and ^{1}H-NMR. The synthesized compounds then underwent oral toxicity studies that include hematological, biochemical, and histopathological findings. The compound was then evaluated for *in vivo* anti-inflammatory and analgesic activities on carrageenan-induced rat paw edema and acetic acid-induced writhing methods. As a result of the biological activities, promising results were obtained in the compound **M2** (2-(2-aminophenoxy)-1-(1*H*-indol-1-yl)ethanone) and it was subjected to further studies. It was found that compound **M2** was practically nontoxic, and no clinical abnormalities were found in hematology and biochemistry, correlated with histopathological observation. It also showed significant anti-inflammatory and analgesic activities at its oral high dose (400 mg/kg). The study suggested that compound **M2** was found to have significant anti-inflammatory and analgesic activities. The possible mechanism of **M2** might suggest being act as a central anti-nociceptive agent and peripheral inhibitor of painful inflammation. The possible mechanism of action of the compounds whose biological activity was evaluated was explained by molecular docking study against COX-1 and COX-2, and the most active compound **M2** formed −9.3 and −8.3 binding energies against COX-1 and COX-2. In addition, molecular dynamics (MD) simulation of both **M2**'s complexes with COX-1 and COX-2 was performed to examine the stability and behavior of the molecular docking pose, and the MM-PBSA binding free energies were measured as −153.820 ± 11.782 and −172.604 ± 9.591, respectively. Based on computational ADME studies, compounds comply with the limiting guidelines.

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molecules

MDPI

Review

Nanodelivery of Dietary Polyphenols for Therapeutic Applications

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Abstract: Advancement in nanotechnology has unleashed the therapeutic potentials of dietary polyphenols by enhancing bioavailability, improving biological half-life, and allowing site-specific drug delivery. In this review, through citation of relevant literature reports, we discuss the application of nano-pharmaceutical formulations, such as solid lipid nanoparticles, nano-emulsions, nano-crystals, nano-polymersomes, liposomes, ethosomes, phytosomes, and invasomes for dietary polyphenols. Following this, we highlight important studies concerning different combinations of nano formulations with dietary polyphenols (also known as nanophytopolyphenols). We also provide nano-formulation paradigms for enhancing the physicochemical properties of dietary polyphenols. Finally, we highlight the latest patents that were granted on nano-formulations of dietary polyphenols. Based on our review, we observe that nanosized delivery of herbal constituents, spices, and dietary supplements have the ability to improve biological processes and address issues connected with herbal treatments.

Keywords: dietary polyphenols; nanotechnology; nanoformulation; nanophytomedicine; nanodelivery

1. Introduction

Nano-medicine and nano-drug delivery systems have been a continuously emerging aspect of science, wherein constituents of nano-scale range are actively utilized as diagnostic kits and/or to deliver active pharmaceutical agents at the site of action, with the release controlled as desired. Since ancient times, herbal remedies or dietary components have been extensively utilized all over the world and acknowledged by physicians and patients for their superior therapeutic impact over allopathic medicines. The reason for such usage is the minimal side effects compared to chemical therapeutic agents used in modern medicinal systems [1,2]. Drug delivery methods can accomplish herbal or spice treatments. This herbal remedy contributes to the therapeutic benefit of medications by

BEFOREHAND AND AFTERMATH OF PLATING ON ANTERIOR CERVICAL SPINAL BLEND

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ABSTRACT

In the field of spine surgery, anterior cervical decompression and interbody fusion are frequently used to treat a wide range of illnesses like degenerative disc disease, traumatic conditions, tuberculosis, and tumours. The prime motto of the research paper is to provide the detail account of cervical fusion plating technique and to provide the proper inclusion exclusion criteria along with the case study to interns and specialist doctors. Our reports suggest up to 87% recovery and paper provides the steps of surgery as well as the follow Up Protocol and parameters to be accessed during the same. In final conclusion we can suggest technique as a game changer in mentioned state of affairs for the betterment of the patient.

Keywords: cervical fusion plating, frontal cervical spinal blend, degenerative disc disease, traumatic cervical conditions, cervical tuberculosis, and cervical tumours.

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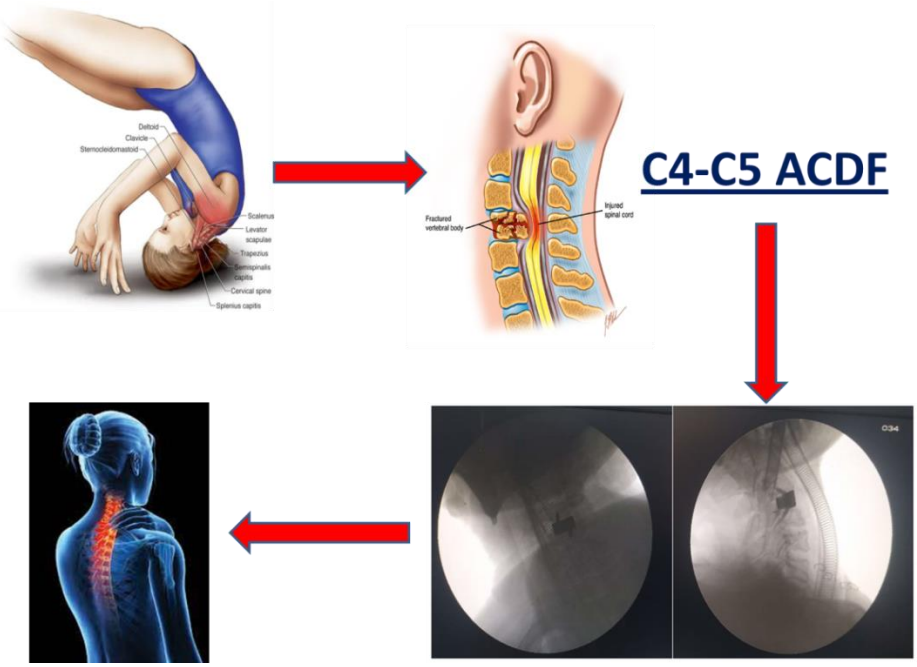

INTRODUCTION

Surgery to remove a herniated or degenerative disc from the neck is called an anterior cervical discectomy and fusion (ACDF). To access and remove the disc, a cut is made near the throat. The bones above and below the disc are fused together with the use of a graft. Between 1950 and the beginning of 1960, Bailey-Badgley, Smith-Robinson, and Cloward developed the anterior cervical discectomy and fusion (ACDF) procedure.

Although this method has a few minor technical issues, the most concerning issues are pseudoarthritic segmental healing, fracture from graft compression, kyphotic segmental deformations, and graft dislocation. Placing an anterior plate on the treated section has proven effective in minimising these problems. The stiff plate construction let the segment be mechanically fixed firmly and hastened bone recovery. By dramatically lowering problems such graft resorption, compression fractures, graft displacement leading to pseudoarthritic healing, and kyphotic angulation, anterior plates have shown promising results.(1,2,3)

In the field of spine surgery, anterior cervical decompression and interbody fusion are frequently used to treat a wide range of illnesses that fall under the following categories.

- Degenerative disc disease
- Traumatic conditions
- Tuberculosis
- Tumours
- Miscellaneous

Facet arthrosis, decreased intervertebral disc height, narrowing of neural foramina, osteophyte production, and disc degeneration are all symptoms of cervical spine degeneration. The cervical nerve's roots may be impinged upon by one or more discs, resulting in cervical radiculopathy symptoms. Paraesthesia, motor weakness, and discomfort along the distribution of one (monoradiculopathy) or several (polyradiculopathy) cervical nerve roots are some of the symptoms that may be present.(4,5,6,7,8)

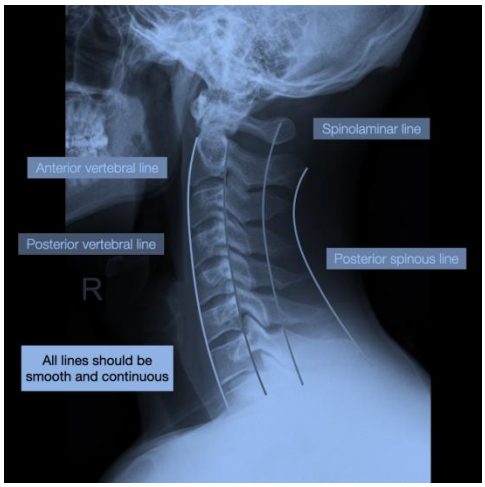

Figure 1. Normal Cervical Spine Anatomy

In their research on 51 cervical radiculopathy patients who were observed for two years, Lees and Tumer found that 25% had cervical symptoms that persisted or worsened, 30% had mild symptoms, and 45% had only one episode without recurrence. spinal disc The worst result was caused by bilateral deterioration. The evolution of cervical for a limited number of people, disc damage is linked to ongoing pain, disability, and poor outcomes. patients' subgroup.

In 120 patients with cervical disc disease, Clarke & Robinson reported that they found that individuals with cervical myelopathy rarely experienced spontaneous reversal of neurological impairment. 75% of patients experienced an episode during which new symptoms and indicators of myelopathy progression occurred. 5% of patients had a quick beginning followed by a protracted period of stability, while 20% experienced a slow, constant course of the disease without phases of remission.(9,10,11,12). In our Study we found the similar results for pain and inflammation.

AIMS AND OBJECTIVES

To study the efficacy of fusion with anterior cervical discectomy, iliac crest bone grafting with or without fixation with anterior self-locking titanium cervical plates.

MATERIALS AND METHODS

Our facility at OT of Dr. D.Y. Patil Medical College, Hospital and Research Centre, Pimpri, Pune, does anterior cervical interbody fusions. According to a predetermined performa, a

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Embelin isolated from *Embelia ribes* derived silver nanoparticles and its application in breast cancer nanomedicine

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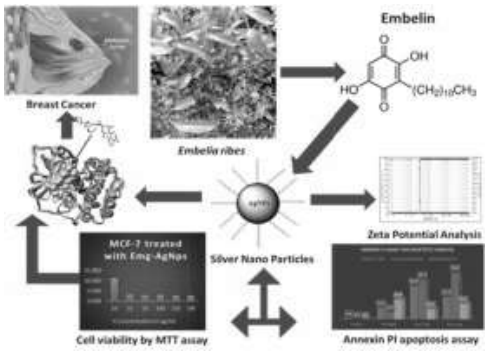
Abstract

Breast cancer is one of the most predominant cancers in female claiming millions of lives every year. Our current research work proposes that the synthesis of silver nanoparticles using phytochemical constituent Embelin from *Embelia ribes* fruits provides significant result as a potent anticancer agent along with its probable mechanism of action depicted by molecular docking. UV–Visible spectroscopy was used to characterise Embelin-AgNPs, and the maximum absorbance was recorded at 374.5 nm. Particle size determination indicated monodispersity of nanoparticles; particle size recorded as 25–30 nm and zeta potential analysis well explained the stability of the nanoparticles. *In vitro* cytotoxicity study was done by MTT assay on MCF-7 cell line. Embelin-AgNPs induced apoptosis in MCF-7 cells as measured by the Annexin-V PI apoptosis assay. To predict the binding mode of ligand and receptor and probable mechanism of action in-silico study was done against ER alpha and HER2 receptors of breast cancer cells by molecular

docking and it has revealed Embelin could act as potential modulator against ER positive and HER2 positive breast cancers.

Graphical abstract



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Introduction

Cancer defines to a large and lethal, heterogeneous group of diseases with an underlying pathology identified by uncontrolled cellular growth. As cancer cells evades the growth suppressor signals, they turn out to be proliferative and invasive, eventually shows metastasis.[1] Breast cancer is still one of the leading causes of death among women worldwide and it is a type of tissue cancer which mainly involves inner layer of milk glands or lobules and ducts.[2] As per the statistics, breast cancer has accounted for 11.7 percent of all cancer cases in 2020, with approximately 685,000 fatalities. The World Health Organization lists a number of other risk factors, including heavy drinking and smoking, a family history of breast cancer, radiation exposure, reproductive history, early menopause, obesity and lack of physical activity, frequent miscarriages, and hormonal therapy used after menopause. Despite significant progress in understanding disease biology and various treatment aids including surgery, radiation therapy, chemotherapy and targeted therapy, effective breast cancer care has yet to be attained.[3] Number of side-effects, non-specificity, a high cost involved in treatment, re-occurrence and metastasis of cancer makes conventional therapies unsuitable.[4] Thus, there is an intent need to discover unique, target-oriented, safe, and low-cost therapeutic drug.

The development of nanotechnology, which provides remarkable solutions to cope with life-threatening disorders, has boosted advancement in the field of medical science. Nanotechnology is a multidisciplinary field comprising of biology, chemistry, and physics attributing to number of unique properties such as high surface area to volume ratio.[5] Metal nanoparticles (particle size smaller than 100nm) have a wide range of applications due to a variety of unique characteristics. Different chemical and physical methods such as chemical reduction of metals, photochemical reduction, and electrochemical processes are widely used for synthesis of nanoparticles.[6] However, these production techniques are labour-intensive, costly and potentially harmful to the environment and living organisms. The alternate, eco-friendly and cost- effective approach which have gained importance in past few years is ‘Green synthesis’ method of nanoparticles

Preliminary pharmacognostic, physicochemical and phytochemical evaluation of *Sansevieria cylindrica* leaves

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Abstract

Background: *Sansevieria cylindrica* (*S. cylindrica*) Bojer ex Hook. (Asparagaceae) is an indoor ornate plant. The plant was conventionally utilized by the local healers during deliberate, and accidental injuries. The pharmacognostic study of this plant with different parameters was very poorly explored. Hence, the present investigation was carried out to explore, and evaluate different characteristics of the plant. **Aim:** To explore the preliminary pharmacognostic, physicochemical, phytochemical, microscopic, and phytoconstituents potential of *S. cylindrica* leaves for authentication of the plant. **Method:** The morphology, and microscopic properties of plant leaves were evaluated. The herbal standardization was then carried out based on physicochemical parameters including ash values, extractive values, and fluorescence analysis. The qualitative evaluation of phytoconstituents was performed using different chemical tests followed by quantitative estimation of important phytochemical, and analytical profiling of extract. **Result:** The macroscopy has studied for the basic features like colour, size, odor, shape, taste, surface, and fracture of plant leaves. The microscopical study confirms the presence of vessels, vascular bundles, lignified fibers, and calcium oxalate crystals etc. Physicochemical evaluation showed less quantity of inorganic matter present in the plant. Preliminary phytochemical analysis confirms the presence of glycosides, phenolic compounds, tannins, saponins, flavonoids, steroids, and carbohydrates. Instrumental analysis has given an idea about the identification, and confirmation of various phytoconstituents in the extract. **Conclusion:** The result of the present study can be meaningfully used as a reference for the standardization, and quality control of *S. cylindrica* and for the authentication, and preparation of monograph of the plant.

Keywords: *Sansevieria cylindrica,* Asparagaceae, pharmacognostic, phytochemical, physicochemical study.

1. INTRODUCTION

The utilization of medicinal plants against various health issues is a historical practice in many developing countries, and this kind of knowledge has been transmitted among communities from one generation to other[1]. Medicinal plants are considered a potential source of raw materials, which are used for the manufacturing allopathy drugs. Many of the bioactive constituents of plants are being explored through their synergistic effect with chemicals and using synthetic chemistry to develop new drugs[2-3]. The medicines derived from plants are relatively considered safe, and affordable as compared to the synthetic alternatives offering profound therapeutic benefits[4]. However, in developed countries, the use of alternative medicines is always restricted because of a lack of documented evidence to its various assessment, and quality control measures[5]. Hence, its standardization through appropriate depiction of its pharmacognostic, physicochemical, and phytochemical parameters is a crucial stage to confirm the reproducible quality of herbal medication to aid us to justify its safety, and effectiveness.

Original Research Article

Evaluation of novel topoisomerase II inhibitors as anti-cancer agents through advanced computational strategies.

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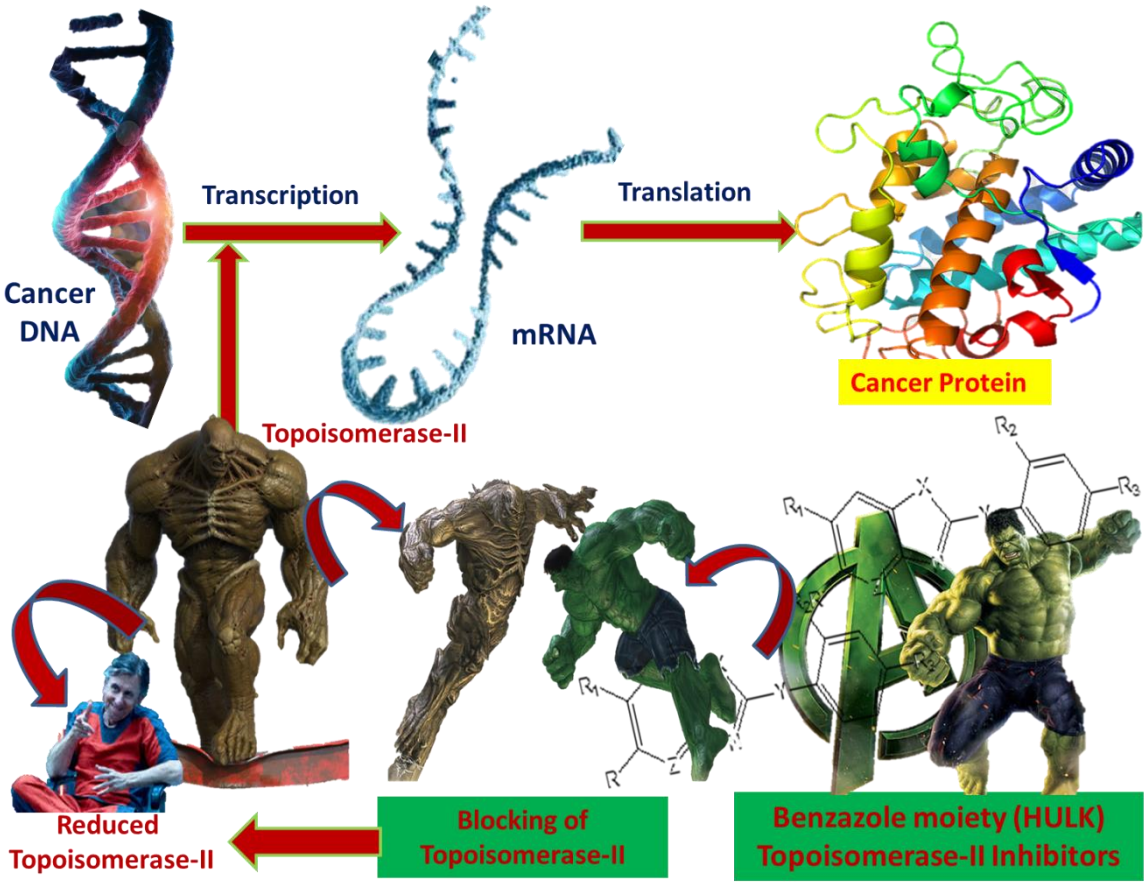
Abstract:



Over the past ten years, there have been a surprising number of advancements in the discovery of anticancer drugs. The development of selective topoisomerase II inhibitors has been a constant endeavour for more than 30 years. Eukaryotic cells require the enzyme DNA topoisomerase II to function. The DNA helix's topology is altered. The enzyme has a biological advantage, but it also has a pharmacological benefit because many anticancer drugs choose to target it. We have improved the benzazole moiety by employing molecular modelling studies in an effort to generate effective and harmless anti-neoplastic medicines. Results of 2D and 3D QSAR experiments for a series of 23 compounds are presented in this study. Results of 2D and 3D QSAR investigations for a series of 23 compounds including 5, 6-substituted-2-(2,4-disubstituted phenyl)-H-Benzazole derivatives are presented in this work. Using the partial least squares approach and principle component analysis, 2D QSAR experiments generated significantly effective prediction models with high cross-validated r2 values of 0.7308 & 0.8443, respectively. Using the SA-KNN approach, 3D QSAR studies generated r2 of 0.7647 and q2 of 0.5551. Molecular modelling studies, such as 2D, 3D QSAR and docking studies, were carried out to gain detailed insights of the steric, electrostatic, and hydrophobic features required around the benzazole pharmacophore in order to better understand the relationship between structure and biological activity and to optimise the pharmacophore for design for New Chemical Entities (NCEs) with the better selectivity and subsequently better potency. In order to ensure the Drug like pharmacokinetic profile of the designed NCEs with the aid of Schrodinger Inc. software, docking and ADME properties of benzazole analogues were examined. Results were found to be comparable with standards and indicated that benzazole analogues have good binding affinity for topoisomerase II enzyme at ATP binding site using 1zxm pdb. Adenosine nucleotide triphoshete was reported to bind more selectively in the active binding pocket of 1ZXM enzyme and was compared to marketed medication Novobiocin in 4 out of 20 constructed NCEs.

In conclusion, the theoretical justification for pharmacophore optimization was confirmed, and it will now undergo wet lab work, specifically manufacturing and biological testing utilising the cell line assay. This paper will show the results of the current research activity and the in-depth research studies.

Key Words: Topoisomerase II inhibitor, Benzoxazole derivatives, LeadGrow, NCEs, 2D QSAR, 3D QSAR, Docking.

DOI Number: 10.48047/nq.2022.20.19.NQ99024 **NeuroQuantology2022; 20(19):264-294**

Introduction-

A nuclear enzyme called TOPOISOMERASE II (topo II) is essential for untying DNA tangles in the chromosomes during chromosome segregation and replication, transcription, and cell division. It is a homodimer in its active state and a 170 kDa protein. Using a double-strand-passage mechanism, the

PHARMACIA

Pharmacia 70(2): 307–316
DOI 10.3897/pharmacia.70.e100356

Research Article

Design, docking, MD simulation and *in-silco* ADMET prediction studies of novel indole-based benzamides targeting estrogen receptor alfa positive for effective breast cancer therapy

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Abstract

Breast cancer is one of the most common malignancies in women, afflicting millions of lives each year. Our current study suggests that the development of the most promising 7-substituted -1-(4-(piperidine-1-yl methoxy)benzyl)-1H-indole-3-carboxamide derivatives results in potent anticancer agents through *in-silico* investigations. The molecular docking was performed against estrogen receptor alpha (ER-α) positive (PDB ID: 3UUD) of breast cancer cells to anticipate the binding modes of the designed compounds and the likely mode of action. The interactions between the ligands and amino acid residues were thoroughly elucidated. The stability of the docked protein-ligand complexes was further confirmed by 100 ns molecular simulations methods. From *in-silico* studies, indole-based benzamides exhibited satisfactory physicochemical, drug-likeness and toxicity properties. To conclude, the most promising substituted benzamide analogs on the indole ring could serve as a possible modulator against ER-α positive breast cancer.

Keywords

breast cancer, estrogen receptor alpha, indole scaffold, benzamide, bazedoxifene, docking, molecular dynamics, swiss admet

Introduction

Breast cancer (BC) affects women globally at any age after puberty with increasing incidence in the future. Human breast cancer is the second largest cause of death in women. In 2020, there was 2.3 million women diagnosed with BC, with 685 000 deaths worldwide. As of the end of 2020, there were 7.8 million active instances of BC in women over the previous five years. Around 50% of BC develops in women due to BC risk factors other than gender, such as being female or being over the age of 40. Obesity, radiation exposure, excessive alcohol and tobacco consumption, reproductive disorders, and a family history of BC are all risk factors for BC (Ginsburg et al. 2020; Stoltenberg et al. 2020). Estrogen and the estrogen receptor (ER) are known to be prominent drivers of breast carcinogenesis and progression. In the case of estrogen-sensitive BC, the first-line treatment was hormonal therapy (Ariazi et al. 2006; Stein et al. 2006; Yager and Davidson 2006; Stingl 2011; Yue et al. 2013; Shoda et al. 2015; Ouellet et al. 2016). ER is in charge of managing the record of atomic DNA, which is thought to be a big part of breast malignant growth signal generation and provides a book biomarker of BC (Sotiriou et al. 2013). Selective estrogen receptor modulators (SERMs) that act on the ER, have been used in the clinical treatment of BC. SERMs are designed to compete with endogenous estrogens in order to regulate the activation of eestrogen receptors (Huang et al. 2010). Ligand demonstrates an ER-mediated mechanism of action regulated by two distinct activation functions (AFs), AF-1 at the N terminus and AF-2 in the ligand-based domain (LBD). Growth factors regulate AF-1 activity via the MAP kinase pathway, whereas AF-2 activity is regulated by ligand binding to ER. According to recent structural studies, ligands modulate AF-2 activity by directly changing the structure of the LBD. A conformational change involving the translocation of helix-12, which is located on the C-terminus of the LBD, is requisite for AF-2 action (Shiau et al. 1998). SERMs bind to the ER and can function as receptor agonists or antagonists by altering receptor conformation and modifying co-activators (Jordan 2007; Swaby 2007; Pinkerton and Thomas 2014). Tamoxifen and raloxifen are two examples of SERMs that have been used in first and second line clinical treatment for ER resistant BC (Egea et al. 2000; Miller et al. 2001; Lindsay et al. 2009; Singla et al. 2018; Hendy et al. 2019; Tsuji et al. 2022).

The work presented here is based on the structure-based drug design (Srinivasan et al. 2017; Pang et al. 2018) which has focused on the computational investigation of indole-based benzamides targeting the AF-2 domain of ER (Brzozowski et al. 1997; Lavecchia and Di Giovanni 2013; Xiong et al. 2017). The entire ER protein consists of five different domains. Stimulation function 1 (AF-1) is found in domain A/B (N-terminal), and it participates in ER transcriptional activity by changing conformation in response to oestrogen activation (Lionta et al. 2014; Alsayari et al. 2017). The crystal structure (PDB ID: 3UUD) of the homo dimer estrogen receptor alpha (ER-α) represents a human estrogen receptor-ligand-binding domain in complex with estrogen. It provides a suitable guiding template for studying the binding interactions of designed ligands within the AF-2 cavity where interactions can be viewed up to the proximity of 0.02 Å (Martinkovich et al. 2014).

Bazedoxifene (BSD, 1H-indo-5-ol, 1-[[4-[2(hexahydro-1H-azepin-1-yl)ethoxy]methyl] acetic acid, 2-(-4-hydroxyphenlyl)-3-methyl) is an indole derivative and third-generation SERM, which acts as an estrogen receptor antagonist in breast cancer (Huang et al. 2010; Sotiriou et al. 2013). This novel indole derivative functioned as a first-hand scaffold to work on and prepare congeners that would have similar binding properties in AF2 domain and modulate the transcriptional effects of ER-α. The chemical structure of the bazedoxifene is given in Fig. 1 (Riggs and Hartmann 2003).

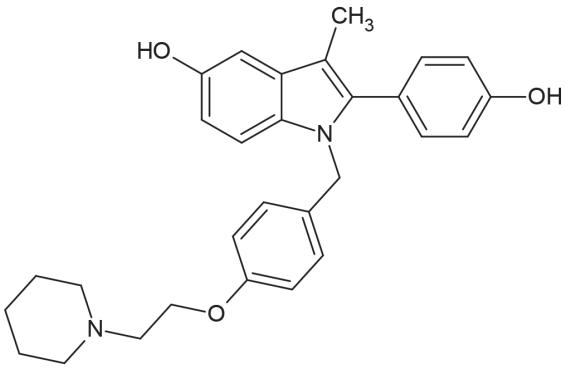

Figure 1. Chemical structure of bazedoxifene.

In designing, the scaffold of indole-based analogues involves substitution at the 7th position with benzamide, 3rd position with amide group and 3□ position with different alkyl group with ester and alkyl halide functional group and 1st position substituted with 1-((4ethylphenoxy)methyl)piperidine and 1-((4ethylphenoxy)ethyl)piperidine is mentioned in Table 1. The important amino acid residues (3UUD) that have been comprehensively studied and reported to constitute partly the AF-2 domain of ER-α, are His 524, Arg 394, Leu 428 (conventional hydrogen interactions), Met 343, Met 421, Thr 347, Leu 349, Glu 353, Gly 521 (van der Waals force of attractions), and Phe 404 (Pi –Pi stack interactions) have been reported between estrogen hormone and ER-α in 3UUD (Makar et al. 2020).

Materials and methods

Molecular docking

The molecular docking software, AutoDock Vina (Virtual screening tool) was employed for the docking study, and the Biovia Discovery Studio visualizer was used to study the 2D and 3D interactions of the ligand-receptor complex after docking. Molecular docking analyses were performed via the CB-Dock server (http://clab.labshare.cn/cb-dock/php/) (Liu et al. 2020). CB-Dock automatically

Phytochemicals: A Novel Approach for the Management of Coronavirus Disease 2019.

- **Source:** Indian Journal of Pharmaceutical Sciences . May/Jun2022, Vol. 84 Issue 3, p519-531. 13p.

- **Author(s):** SHIVATARE, R. S.; MUSALE, R.; BHUTAL, N. K.; KEWATKAR, S. M.; TARE, H. L.; CHATUR, VIBHAVARI; KHATAWAKAR, A. N.; SURYAVANSHI, D. S.

- **Abstract:** The severe acute respiratory syndrome coronavirus 2, formerly known as 2019 novel coronavirus, the causative pathogen of coronavirus disease 2019 is a major source of disaster in the 21st century. In the second meeting of the Emergency Committee, the World Health Organization declared that coronavirus disease 2019 is a “public-health emergency of international concern” on 30 January, 2020. Coronavirus is transmitted via airborne droplets from human to human or human to animal. Through membrane angiotensin-converting enzyme 2 exopeptidase receptor coronavirus enters in human cell. For the treatment of this sudden and lethal disease during coronavirus disease 2019, there are no specific anti-virus drugs or vaccines. Still, the development of these medicines will take months, even years. Currently there is need of supportive care and non-specific treatment to improve the symptoms of coronavirus disease 2019 infected patient. For this specific indication, rapid performance of herbal medicine or phytochemicals can contribute as an alternative measure. Phytochemicals are a powerful group of chemicals that are derived from plants origin hence causing fewer side effects because of less use of additives, preservatives or excipients. Hence, this review will focus on some phytochemicals which may control and prevent severe acute respiratory syndrome coronavirus 2. Further, the existing healing options, drugs accessible, ongoing trials and current diagnostics to treat severe acute respiratory syndrome coronavirus 2 have been discussed. We suggested phytochemicals extracted from herbal plants are potential novel therapeutic approaches, completely targeting severe acute respiratory syndrome coronavirus 2 and its pathways.

Formulation and Appraisal of innovative acyclovir emulsion

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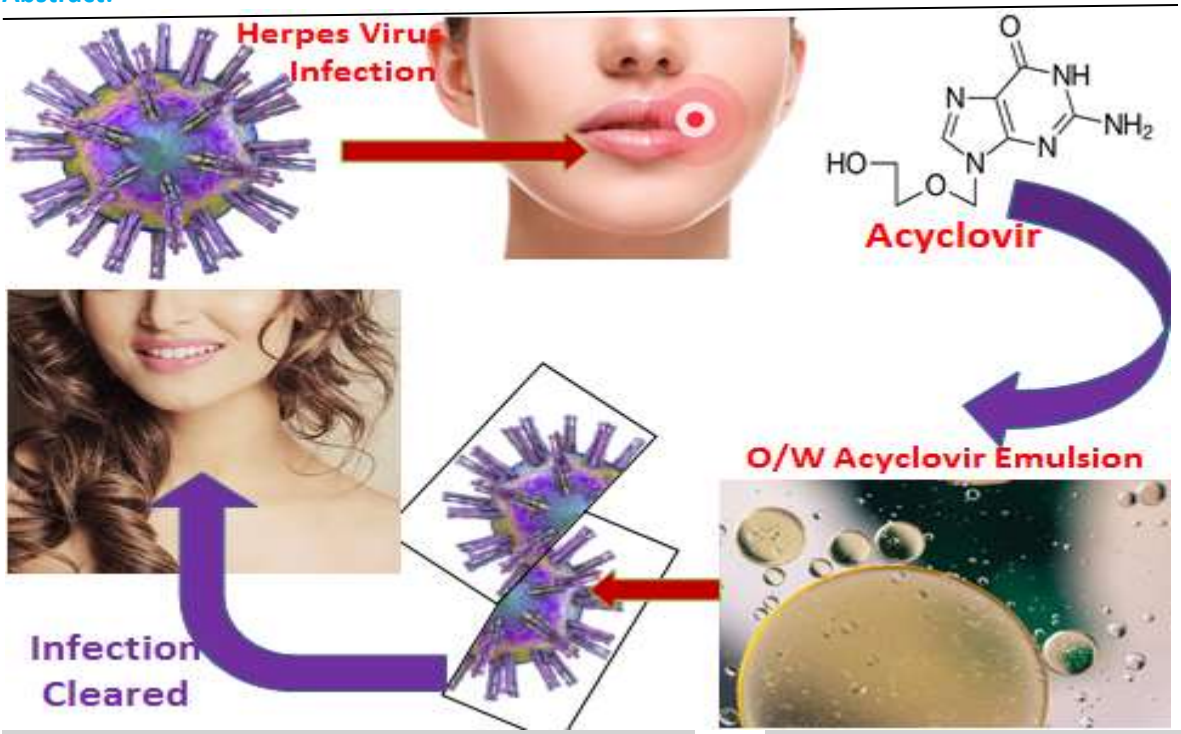
Abstract:



Introduction: The main aim is to develop a formulation whichis an effective and easy-to-use product with good penetration property and a safe, stable, efficacious, patient compatible product product like emulsion.for Oral Herpes or cold sores is an infection caused by Herpes Simplexis a viral disease that can lead to painful sores on the lips and mouth (oral herpes) and anogenital area (generally referred to as "herpes"). Herpes Virus (HSV) Type 1 was responsible for the former and Type 2 for the latter. The combination of ingredients in the formulation aids in good stability, better penetration property and quicker healing.

Materials and methods: For the treatment of Herpes Simplex Virus (HSV) types 1 and 2, acyclovir is an effective antiviral medication. The treatment of varicella-zoster virus infections is also helped by this medication. There are several acyclovir products available on the market, including tablets, ointments,

and intravenous injections. The acyclovir analysis technique used in pharmaceutical preparations is covered in this article. Studies conducted prior to formulation assisted in creating an acceptable dose form. Acyclovir formulation of emulsion can be examined using FTIR and UV-Vis spectrophotometry.
Results and Discussions:UV spectroscopy confirmed the maximum at 251 nm. Experimental results showed that the drug's melting point is 2460C, confirming that it is acyclovir.
Conclusion: We can conclude that the methods and procedures used to create a new formulation of acyclovir for cold sores (cold sores) have been successfully developed and tested.
Key words: *Acyclovir, Herpes simplex virus, HSV-1 & HSV-2,*
DOINumber:10.14704/nq.2022.20.11.NQ66693 **NeuroQuantology2022;20(11):6968-6980**

Introduction:

Herpes simplex virus, also known as HSV, is classified into 2 forms, HSV-1 and HSV-2, commonly known as herpes, is an oral to oral or sexually transmitted disease in which HSV- 1 can cause oral and genital herpes. But HSV-2 is only known to cause sexually transmitted herpes. According to WHO, about 3.7 billion people under the age of 50 are infected with HSV-1, of which about 491 million are infected with HSV-2, accounting for (67%) and (13%) of the total cases, respectively. Oral herpes caused by HSV-1 is usually asymptomatic, but symptoms of an HSV-1 infection include painful blisters or sores called herpes and other symptoms include tingling and accompanying itching, burning sensation around the infected parts of the mouth. [23]

1) **Treatment :**Treatment of herpes involves the use of antiviral drugs, the most effective and commonly used are acyclovir, valacyclovir, and famciclovir. Because herpes doesn't have a cure, these medications help prevent the severity and recurrence of symptoms. The daily dose of acyclovir for the treatment of genital herpes is approximately 200-400 mg, 4-5 times a day, and for topical treatment of herpes labialis and 400 mg orally twice a day. Recurrent lesions around the lips can be irritating, so a quick and effective solution is needed, usually the use of topical 5-cyclovir ointment.
2) **Formulation :**Emulsion is a heterogeneous system consisting of one immiscible liquid dispersed in another in the form of droplet. Such system possesses minimal stability because of droplet but we can increase stability by using emulsifying agent or emulsifiers. Emulsion can increase stability of many drugs that are unstable in aqueous solution. It improves penetration, spreadability and prolongs drug action.Commercially, many dosage forms are available for the treatment of herpes. It is recommended that people with active symptoms of oral herpes abstain from sexual activity, oral contact, and sharing objects contaminated with saliva. Since HSV-1 and HSV-2 can be transmitted even without obvious symptoms, creating a recipe without unnecessary contact with other parts of the body, such as fingers hands, eyes, etc.

Close contact with a person who is exuding the virus, who may or may not have an active lesion, commonly at a mucosal surface or in genital or oral secretions, is how the infection is typically spread. If the virus comes into touch with skin surfaces that are vulnerable, infection results. Additionally, it may result in symptoms like fever and muscle aches, making it difficult to eat and drink. This results in insufficient nutrition intake, which then causes weakness and dehydration. [1]

Acyclovir (ACV, 9-(2-hydroxyethoxymethyl)guanine, is a guanine derivative with antiviral activity and commonly used in the treatment of herpes.It is a potent antiviral agent used as a highly specific inhibitor for herpes viruses (HSV) types 1) and 2 [3–7]. 'herpes simplex types 1 and 2, show anti-inflammatory effects similar to that of the parent compounds ACV and ganciclovir used to treat infections associated with Herpes simplex virus I & II and varicella zoster virus Also shown

Pharmacognosy Reviews, 2023; 17(33):43-68.
www.phcogrev.com

Review Article

An Insight into the Potential Mechanism of Bioactive Phytocompounds in the Wound Management

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ABSTRACT

Skin plays a fundamental role in the protection against mechanical impacts and infections, fluid imbalance, variations in temperature, micro-organisms, radiation, and chemical injury. Wounds are any damage or injury that disturbs the normal structure and function of the skin tissue. Wound healing is a crucial physiological process to maintain the integrity of the skin following injury by tissue repair, regeneration, and remodelling. Routinely, wound healing is a rapid and uncomplicated process, though wounds associated with impairment in host functionality are hard to heal due to diabetes, oxidative stress, chronic infection, immunosuppression, or obesity. Chronic wounds affect millions of patients physically and mentally, drastically reducing their quality of life. Therefore, new treatment strategies are urgently needed. Phytoconstituents are components derived from plants that have been used to treat wounds over the years. Various scientists have reported the crucial role of bioactive phytochemicals in wound healing and promoting skin regeneration. Numerous phytochemical compounds isolated from medicinal plants have been reported to scavenge free radicals, fight infection, and promote faster wound healing. This article aims to review the role of phytochemicals as wound healing agents with a current understanding of mechanisms, molecular targets, and therapeutic efficacy in enhancing wound repair and skin regeneration. Extensive preclinical research and clinical trials are required to understand the mechanism and potential molecular targets responsible for the beneficial impact of phytochemicals in wound healing and skin regeneration.

Keywords: Wound healing, Phytoconstituents, Antioxidant, Antimicrobial, Angiogenesis, Growth factors.

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Accepted: 10-10-2022.

INTRODUCTION

The skin is the largest organ in the human body comprising 12-15% of body weight, having surface area of approximately 2 meters. The skin protects internal organs from physical injury, pathogens, and fluid loss and has immune-neuroendocrine functions which contribute to maintaining body homeostasis. The two layers of skin are the epidermis and dermis. The epidermis contains various cells like keratinocytes, melanocytes, dendritic, and langerhans. Sensory axons exist in the epidermal and dermal basement membrane. The dermis comprises appendages, mast cells, fibroblasts, antigen-presenting dermal cells, and migrated immune cells. The Extracellular Matrix (ECM) of the dermis supports intercellular connections, cellular movements, cytokine, and growth factors functions.[1] The fibroblast is responsible for collagen deposition, which provides strength, integrity, and structure to normal tissues. The skin possesses excellent regenerative properties supporting the healing of injuries that took place in a highly orchestrated cascade of physiological events. Some conditions can impair and compromise this regenerative property of the skin, and wounds do not heal at the appropriate time, placing the patients at a serious health risk. Normally, wounds that do not heal within three months are called chronic wounds. Treating chronic wounds and severe burns is expensive and tenacious as they are prone to infection and often require surgical intervention.[2]

A wound is a cellular, anatomical, and functional disruption of the living tissue caused by physical, chemical, thermal, microbial, or immunological damage to the living tissue. Wounds may be a simple disruption in the epithelial integrity of the skin, or they can be deeper, prolonging into subcutaneous tissue with impairment to other structures such as tendons, muscles, vessels, nerves, parenchymal organs, and bones. An open wound is a straight cut or puncture, whereas a blunt force trauma creating a contusion is called a closed wound. Burn wounds are caused by fire, heat, electricity, radiation, chemicals, or sunlight.[3,4] The

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Original Article

Study Of The Properties And Behaviors Of Nanoparticles And Their Potential Applications In Medicine And Catalysis

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Abstract

Our Research "Study of the properties and behaviors of nanoparticles and their potential applications in medicine and catalysis" is a Nanotechnology fundamentally affects medication as of late, its application being alluded to as nanomedicine. Nanoparticles have specific properties with biomedical applications; nonetheless, in certain circumstances, they have shown cell harmfulness, which has caused concern encompassing their clinical use. In this audit, we center around two angles: first, we sum up the kinds of nanoparticles as per their compound arrangement and the overall qualities of their utilization in medication, and second, we survey the uses of nanoparticles in vascular modification, particularly in endothelial brokenness connected with oxidative pressure. This condition can prompt a decrease in nitric oxide (NO) bioavailability, thus influencing vascular tone guideline and endothelial brokenness, which is the main stage in the improvement of cardiovascular illnesses. Consequently, nanoparticles with cancer prevention agent properties might further develop vascular brokenness related with hypertension, diabetes mellitus, or atherosclerosis.

KEY: properties, behaviors, nanoparticles, potential, applications, medicine, catalysis.

Introduction

The development of nanotechnology and its combination with different trains, for example, biomaterial science, cell and atomic science, and medication, alluded to as nanomedicine, stand out of biomedical exploration because of its likely applications in the analysis and therapy of illnesses. Nanoparticles (NPs) are the principal framework utilized in nanomedicine, as theranostic specialists with high sub-atomic explicitness [1-3]. Because of their size (1-100 nm), nanoparticles have a huge surface region to-volume proportion, which permits them to ingest high amounts of medications [4] and to be spread effectively all through the circulation system [5]. Their bigger surface region gives them extraordinary qualities, as it works on their mechanical, attractive, optical, and reactant properties, subsequently expanding their potential pharmacological use [4].

Concentrates on the likely impacts and advantages of NPs in sicknesses including oxidative pressure are getting developing consideration. Cardiovascular gamble factors, for example, hypercholesterolemia or hypertension advance the age of receptive oxygen species (ROS), which prompts the oxidative pressure seen in provocative sicknesses, for example, atherosclerosis [6]. Consequently, the support and advancement of cell reinforcement

Original Article

Anthelmintic Potential Of Aqueous And Organic Extract Of Seeds Of Samaneasaman (Merr)

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Abstract

The aim of this research study was to evaluate aqueous and organic extracts of seeds of Samaneasaman (Merr)for their anthelmintic activity using Indian adult earthwormPheretimaposthuma.Different concentrations of aqueous and organic extract ranging from 10 to 100 mg/ml were made and tested on said earthworm. These extracts were tested for bioassays which include time for paralysis and time for death of the worms. Aqueous as well as organic extract of seeds does notexhibited strong anthelmintic activity at concentration of 100 mg/ml. Lower concentrations also did not produced significant anthelmintic activity. The standard reference drug which is used for comparing anthelmintic activity of these extracts was piperazine citrate at concentration of 10 mg/ml.Both aqueous and organic extracts of seeds of Samaneasamanwere evaluated for and showed no potential anthelmintic activity.

KEYWORDS Anthelmintic activity, Extraction, Piperazine citrate.Samaneasaman, Pheretimaposthuma.

INTRODUCTION:

Helminthiasis is a worm infestation of humans and other animals even life stock and crops affecting health and food production respectively and has impact on global economic factor.[1] The worms which causes helminthiasis are called as helminths and the drugs which are used for treating helminthiasis are nothing but anthelmintics.[2]There are various types of worms such as hook worms, fluke worms, round worms, tape worms which causes helminthiasis. The names are given according to their shapes. The major organs which get affected in helminthiasis are stomach and intestine and major symptoms of sever helminthiasis include diarrhea, abdominal pain, general malaise and impaired cognitive development. Chronic helminthiasis by hook worm lead to intestinal bleeding and anemia.[3]Pheretima is a genus of earthworms. Pheretima posthuma are long cylindrical shaped worms having length of 15-30 cm. they are mostly found in moist soil and responsible for vegetables and humus. Their life span is 3 to 10 years.[4]

SamaneaSamannMerr (familyFabaaceae) commonly known as rain tree is easily available and widely spread plant in the world. It is widely cultivated throughout Mediterranean region and all tropical regions including temperate, tropical and subtropical regions due to its higher commercial scale.

Scientific classification of Taxonomy Kingdom: Plantae, Order: Fabales, Family: Fabaceae, Genus: SamaneaSaman,
Species: S.saman and exhibits the synonym names of Samaneasamansuch as Albiziasaman, Enterolobiumsaman, Inga saman, Pithecellobiumsaman,and Mimosa saman.[5]

Downpour tree is effortlessly known for its qualities like umbrella-molded cover. Downpour tree is filled in the open and ordinarily arrives at 15-25m (50-80ft) in level. Samaneasaman is quite possibly of the main plant in the Pacific as an overhanging tree on little ranches and along street side regions in parks and field. The downpour tree is filled in the tropical climate and its wood has restricted need for cut bowls, make wood, and fuel wood. The leaves and cases of downpour tree are utilized as food because of the great nutritive substance and nitrogen

Development and validation of RP-HPLC method for simultaneous estimation of Amitriptyline Hydrochloride and Propranolol Hydrochloride in pharmaceutical dosage form.

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ABSTRACT:

Reverse phase high performance liquid chromatography method has been developed and validated for simultaneous estimation of Amitriptyline Hydrochloride and Propranolol Hydrochloride in dosage form. This method uses C18 agilent column with 4.6 x 250mm length and 5µm particle size of packing material. Mobile phase is methanol: water pH 6 with TEA (70:30) with 1ml/min flow rate and 20µl volume injected. UV detection was carried out at 216 nm and the column temperature is 250C. The retention time of Amitriptyline Hydrochloride was 3.882 min. and 6.384 min of Propranolol Hydrochloride. The method is validated and calibration curve observed was linear in the concentration range of 5-25µg/ml for Amitriptyline Hydrochloride and 20-100µg/ml for Propranolol Hydrochloride. The method is validated for linearity, accuracy, precision, limit of detection and quantification, ruggedness and robustness.

Key Words: Amitriptyline Hydrochloride, Propranolol Hydrochloride, RP-HPLC, UV Detection.

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1. INTRODUCTION

Amitriptyline Hydrochloride is tricyclic antidepressant drug and is approved for the treatment of major depression.[1] It is 3-(10,11-dihydro-5Hdibenzo[a,d]cyclohept-5-ylidene) propyl dimethylamine hydrochloride. It increase noradrenergic or serotonergic neurotransmission by blocking norepinephrine or serotonin transporter at presynaptic terminals.[2] It contain tricyclic ring system with an alkyl amine substituent on the central ring. may cause sedation.[3] Propranolol Hydrochloride is a non-selective β-adrenergic antagonist with no intrinsic sympathomimetic activity. It is used in the hypertension, angina pectoris, myocardial infraction and cardiac arrhythmias.[4] It is highly lipophilic and absorbed after oral administration.[5] Propranolol Hydrochloride (RS)-1-[(1- methyl ethyl) amino]-3-(napthalen-1-yloxy) propan-2-hydrochloride is antihypertensive. It competitively blocks both B1

Original Research Article

A JUXTAPOSITION OF ANTERIOR CERVICAL INTERBODY ANASTOMOSIS WITH AND WITHOUT INSTRUMENTAL BLENDING.

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ABSTRACT

			Trauma		Degenerative		Others		Number of levels Fused			Anatomic Levels of Fusion				Fusion Rate			Speed of Fusion				Outcome			Loss of cervical lordosis/Segmental Kyphosis	
Sr.	Age	Sex	Instrumented	Non instrumented	Instrumented	Non instrumented	Instrumented	Non Instrumented	Single	2 Levels	3 or More	C3-C4	C4-C5	C5-C6	C6-C7	Fusion	Pseudoarthrosis	Doubtful	At 6 Month	At 9th Month	At 12th Month	At 18th Month	Excellent	Good	Fair	Seen	Not Seen
1	65	M	Y	N	N	N	N	N	Y	N	N	N	N	Y	N	Y	N	N	Y	N	N	N	N	Y	N	N	N
2	30	M	N	N	N	Y	N	N	Y	N	N	N	N	Y	N	Y	N	N	Y	N	N	N	N	Y	N	N	Y
3	41	M	N	N	Y	N	N	N	N	N	Y	N	N	Y	N	Y	N	N	N	Y	N	N	N	N	N	N	Y
4	31	M	Y	N	N	N	N	N	N	Y	N	N	N	N	Y	Y	N	N	Y	N	N	N	N	N	Y	N	Y
5	55	M	N	N	Y	N	N	N	Y	N	N	N	N	N	Y	Y	N	N	N	N	Y	N	Y	N	N	N	Y
6	58	M	N	N	N	Y	N	N	Y	N	N	Y	N	N	N	Y	N	N	Y	N	N	N	N	N	N	N	Y
7	72	M	N	N	Y	N	N	N	N	Y	N	N	N	N	N	Y	N	N	N	Y	N	N	N	N	N	N	Y
8	25	M	Y	N	N	N	N	N	N	Y	N	N	N	Y	N	Y	N	N	Y	N	N	N	N	Y	N	N	Y
9	36	M	N	Y	N	N	N	N	Y	N	N	N	N	N	Y	Y	N	N	N	Y	N	N	N	Y	N	N	Y
10	70	M	N	N	Y	N	N	N	Y	N	N	N	Y	N	N	Y	N	N	Y	N	N	N	N	N	N	N	Y
11	44	M	N	N	N	Y	N	N	Y	N	N	N	N	Y	N	Y	N	N	Y	N	N	N	N	N	Y	N	Y
12	32	M	Y	N	N	N	N	N	N	Y	N	N	N	N	N	Y	N	N	Y	N	N	N	N	Y	N	N	Y
13	49	M	N	N	N	Y	N	N	Y	N	N	N	N	Y	N	N	Y	N	Y	N	N	N	N	Y	N	N	Y
14	53	M	N	N	N	Y	N	N	Y	N	N	N	N	Y	N	Y	N	N	Y	N	N	N	N	N	N	N	Y
15	22	M	N	N	N	Y	N	N	Y	N	N	N	N	N	Y	Y	N	N	N	Y	N	N	N	N	N	N	Y
16	27	F	Y	N	N	N	N	N	Y	N	N	N	N	Y	N	Y	N	N	Y	N	N	N	N	N	N	N	Y
17	39	F	N	N	N	Y	N	N	Y	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	Y	N	N	Y
18	62	F	N	N	Y	N	N	N	Y	N	N	N	N	N	N	Y	N	N	Y	N	N	N	N	Y	N	N	Y
19	50	F	N	N	N	N	N	Y	Y	N	N	N	N	N	N	N	Y	N	N	N	N	N	Y	N	N	N	Y
20	46	F	N	N	N	Y	N	N	N	Y	N	N	N	Y	N	N	N	Y	N	Y	N	N	N	Y	N	Y	N

Major dictum of the study was to investigate the efficacy of anterior cervical discectomy, iliac crest bone grafting, and fixation with anterior self-locking titanium cervical plates. In the field of spinal surgery, anterior cervical decompression and interbody fusion are frequently used to treat a range of problems that fall under the headings of traumatic injuries, cancer tumours, degenerative disc disease, Tuberculosis, and other ailments. An established surgical procedure for treating cervical degenerative disease, anterior cervical spine surgery has a high success rate and has been shown to have great long-term outcomes. The rationale for many surgical treatments is still debatable, and serious consequences that could result in neurological dysfunction or fatalities are possible. A six-month follow-up period was included in a prospective research of 20 patients of anterior cervical interbody fusions performed at our institute, Dr. D.Y. Patil Medical College, Hospital and Research Centre, Pimpri, Pune, between June 2018 and August 2020. According to a predetermined performa, a thorough history and clinical

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Antidiabetic Evaluation Of Isolated Compounds From Pomegranates (Punica Granatum) Peels In Alloxan-Induced Diabetic Rat Model

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ABSTRACT

Pomegranates fruits have innumerable health benefits and its implication in diseases cure have been widely recognized since ancient time. Moreover, pomegranate fruits, seeds and peels are intensively used in traditional medicine as a natural therapy. It contains numerous valuable ingredients such as flavonoids, ellagitannin, punicalagin, ellagic acid, vitamins and minerals. The principal constituents including punicalagins and ellagitannin are responsible for immeasurable health benefits due to its strong antioxidant activity. Additionally, constituents of pomegranate show health promoting effect through the modulation of physiological and biochemical pathways. Recent evidences suggested that pomegranates fruits, peels extract revealed the decrease in blood glucose level when compared with non-treated diabetic rodents. In this way, the current investigation work was affirmed that the extract has significant hypoglycaemic impact.

Keywords- Pomegranates, Punica granatum, Antidiabetic activity, Alloxan induced, hypoglycaemic activity.

Introduction

Punica granatum L (pomegranate) is a deciduous shrub, native to Iran. Pomegranate has extensively been used as a source of traditional medicine. Pomegranate fruit has medicinal properties such as anti-inflammatory and antibacterial activities. The pomegranate seed oil has inhibitory effect on skin and breast cancers. The pomegranate seed oil has phyto estrogenic compounds and the fruit is rich in phenolic compounds with strong antioxidant activity. The fruit and bark of pomegranate are used against intestinal parasites, dysentery, and diarrhoea. The juice and seeds are considered a tonic for throat and heart. It is used to stop nose and gum bleeds and treating haemorrhoids. Today, Punica granatum L. as a fruit

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SYNTHESIS, CYTOTOXICITY, PDGFR INHIBITORY ACTIVITY AND DOCKING STUDY OF NOVEL 2-AMINOQUINOLINE-3-CARBOXAMIDE DERIVATIVES AS POTENTIAL ANTICANCER AGENTS

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Abstract

The goal of this work was to synthesize new substituted 2-aminoquinoline-3-carboxamide derivatives from substituted anilines utilizing the Vilsmeier-Haack reaction, and then to test these compounds for in vitro anticancer activity and molecular docking in order to identify prospective lead molecules. Substituted aniline, acetanilide, 2-chloro-3-carbaldehyde to carboxylic acid as well as coupling provide the lead compounds and were characterized by physical and spectral methods. In vitro cytotoxicity testing was done by using MTT assay method. Research on the binding interaction of the most effective drugs was conducted using AutoDock molecular docking tool. Novel Series of substituted 2-aminoquinoline-3-carboxamide derivatives have been synthesized as well as verified utilizing different spectral methods for example mass spectrometry, carbon-13 nuclear magnetic resonance, nuclear magnetic resonance, and infra-red. In a cytotoxicity testing vs a breast cancer cell line, synthesized compounds showed some potential (MCF-7). Four derivatives 6b, 6c, 6j, and 6o were shown to have more efficacy than Sunitinib in an in vitro cytotoxicity assessment research. Moreover compounds 6b, 6c, 6j, and 6o exhibited higher binding score at platelet-derived growth factor receptor active sites (PDB: 5GRN) compared with standard sunitinib. This article described the synthesis of sixteen novel substituted aniline results in substituted 2-aminoquinoline-3-carboxamide derivatives. The results showed that compounds 6b, 6c, 6j, and 6o exhibited promising anticancer activity. Sunitinib is currently the only approved inhibitor of PDGFR; however the 2-aminoquinoline-3-carboxamides showed promise as a more selective alternative. The above findings were also supported by molecular docking studies.These findings may serve as models for future research and derivatization, opening the door to the development of effective and precise PDGFR inhibitors.

Key words: Docking study, Quinoline-3-carboxamides, Vilsmeier–Haack reaction Synthesis, Cytotoxicity.

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Novel Film Forming Spray from Tea Tree Leaves with Special Emphasis on Development, Formulation and Evaluation

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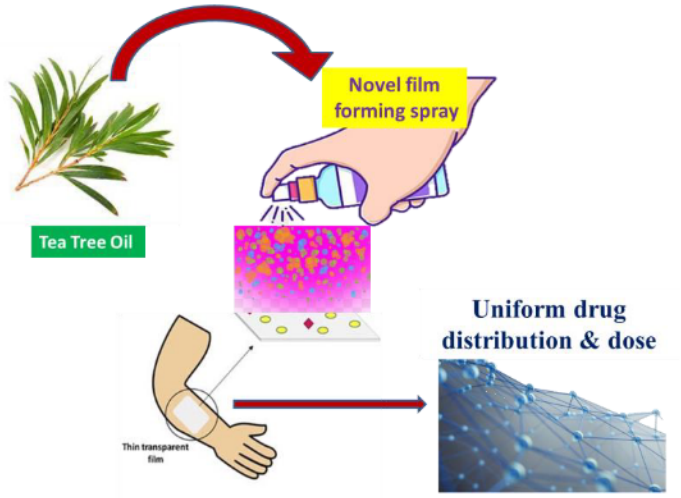
ABSTRACT

The dictum of this study was to develop topical film forming spray having tea tree oil which might increase wound healing. Film-forming sprays supply several benefits compared to standard topical preparations as a result of they will give uniform drug distribution and dose, increased bioavailability, lower incidence of irritation, continuous drug unleash, and accelerated wound healing through wet management. Film-forming sprays comprises polymers and excipients that improve the characteristics of preparations and enhance the soundness of active substances. every style of chemical compound and excipient can turn out films with completely different options. Therefore, the varied sorts of polymers and excipients and their analysis standards ought to be examined for the event of alot of best kind of film-forming spray. The chosen literature enclosed analysis on formulation and analysis of film forming spray victimization polymers and plasticizers as film-forming matrices for potential medical use. This text discusses the categories and concentrations of polymers and excipients, sprayer varieties, evaluations, and significant parameters in decisive the sprayability and film characteristics. Ultimately we have a tendency to conclude that the developed film forming spray formulations were clear, sleek and versatile in physical look. The analysis studies were conferred ability to evaporate speedily on applies, hydrogen ion concentration becomes like that of traditional skin offered of lower skin irritation. Spray is a lot of convenient to use, may be applied simply therefore improve patient acceptance and compliance.

Keywords: Tea Tree leaves, Melaleuca alternifolia, Novel film forming spray, topical drug delivery



INTRODUCTION

Injuring the skin increases the risk of infection by damaging the protective layer. This can further cause systemic infections and increase the level of complications1 Local routes of drug delivery, targeting systemic or local effects, offer several benefits, including avoidance of first-pass metabolism, low pH and enzymatic

Section A-Research paper

Waste to Wealth: An approach to HAp synthesis by different methods.

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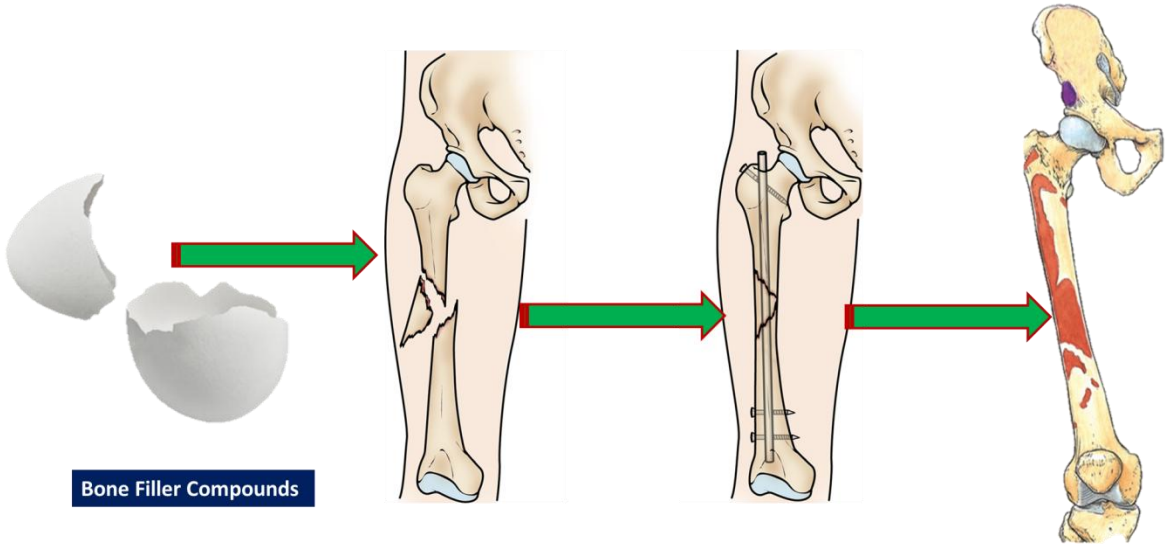
Abstract-Waste materials are an important source for the recovery and extraction of various valuable compounds. Transforming these wastes into valuable compounds require various techniques and approaches. It is the requirement to design various functional bioactive substitute materials that are able to survive the harsh and diverse conditions within the human body. Biomaterials are gaining increased importance due to their applicability to ageing population and treating diseases. Biomaterials acts to restore, repair or to replace any tissue that has been damaged in the body thus increasing the life expectancy. Hydroxyapatite (HAp) is one of the biomaterials obtained from the natural waste materials. It is universally used in biomedical because of its bioactivity, biocompatibility, remarkable oestoconduction property, etc. HAp is receiving importance in orthopaedic implants and also in dental materials. This review outlines the various methods of extraction of HAp from various natural sources like marine, aquatic, mammalian, shell, plant and algae. The Ca/P, crystallinity, particle shape, size, morphology and clinical studies are also discussed.



Keywords: *Hydroxyapatite, Natural Product Chemistry, Bio-waste, Bio-implants, Natural Resources*

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COMMON INDIAN MEDICINAL PLANTS AS EMERGING WOUND HEALING AGENTS: DEEP INSIGHTS INTO APPLICATIONS AND MECHANISMS

HTML Full Text

COMMON INDIAN MEDICINAL PLANTS AS EMERGING WOUND HEALING AGENTS: DEEP INSIGHTS INTO APPLICATIONS AND MECHANISMS

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ABSTRACT: Any bodily harm, such as damage to the skin's epidermis and disruption of its normal architecture and function, is referred to as a wound. The significance of wound healing has been known since ancient times. Several attempts have been made to design innovative wound dressings composed of the finest materials for speedy and successful wound healing. Medicinal herbs greatly aid the wound healing process. Many researchers have concentrated in recent decades on creating innovative wound dressings that combine medicinal plant extracts or their purified active components, which might be utilized instead of standard wound dressings. Several researchers have looked at the mechanisms of action of different herbal medicines in the wound healing process. This work aims to emphasize and examine the mechanical viewpoint of wound healing mediated by natural compounds. Some herbal medications stimulate re-epithelialization, angiogenesis, granulation tissue development, and collagen fiber deposition by increasing the production of vascular endothelial growth factor (VEGF) and transforming growth factor (TGF-α). Other wound dressings containing herbal medicines decrease the production of tumour necrosis factor-α (TNF-α), interleukin-1β (IL-1β) and inducible nitric oxide synthase (iNOS), resulting in anti-oxidant and antiinflammatory characteristics at different stages of the wound healing process. Aside from the growing public interest in traditional and alternative medicine, using herbal medicine and natural products for wound healing has a number of advantages over using conventional medicines, including greater effectiveness due to multiple mechanisms of action, anti-bacterial activity, and long-term wound dressing safety.

Keywords: Anti-bacterial activity, Anti-oxidant activity, Anti-inflammatory activity, Herbal medicine, Natural products, Wound healing

INTRODUCTION: It is a worldwide problem to design and produce an adequate wound dressing for treating acute and chronic wounds.

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PHARMACOGNOSTIC STANDARDIZATION AND PRELIMINARY PHYTOCHEMICAL SCREENING OF PYROSTEGIA VENUSTA MIERS (BIGNONIACEAE) LEAVES

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ABSTRACT
Pyrostegia venusta is one of the most famous and beautiful flowering vines in the world. It was used in Brazil as a traditional medicine throughout history. It is considered a natural source of antioxidants, which contain significant amounts of phytochemicals with antioxidant properties, which could act as inhibitors of free radicals. *Pyrostegia venusta* could be a potential source of herbal pharmaceuticals and could form a strong basis for more research on the possible discovery of new natural bioactive compounds. This study determines various pharmacognostic and phytochemical standards helpful to ensure the purity, safety, and efficacy of medicinal plant *Pyrostegia venusta*. Standardization of plant is an essential measurement for ensuring the quality control of the herbal drugs Preliminary screening of phytochemicals is a valuable step, in the detection of the bioactive principles present in medicinal plants and subsequently may lead to drug discovery and development.

KEYWORDS: *Pyrostegia venusta*, Leaves, Pharmacognostic standardization, Phytochemical screening, TLC.

INTRODUCTION
A medicinal plant is any plant that, in one or more of its organs, contains substances that can be used for therapeutic purposes or that are precursors for the synthesis of useful drugs. This description makes it possible to distinguish between medicinal plants whose therapeutic properties and components have been scientifically established, and plants that are considered medicinal but have not yet been the subject of in-depth scientific study. Medicinal plants have been used in health care since time immemorial.[1] Many plants have been used in traditional medicine for many years. Some appear to work even though there is not enough scientific data (double-blind trials, for example) to confirm their effectiveness. Such plants must qualify as medicinal plants. The term "crude drugs of natural or biological origin" is used by pharmacists and pharmacologists to describe whole plants or parts of plants that have medicinal properties.[2] Before the introduction of chemical medicines, man relied on the healing properties of plants medicinal. Some people like these plants because of the ancient belief that plants are created to provide humans with food, health care, and other purposes. Around 80% of the world's 5.2 billion people are believed to live in less developed countries and the World Health Organization estimates that around 80% of these people rely almost exclusively on traditional medicine for their primary care needs of health. Medicinal plants are the “backbone” of traditional medicine.[3] Medicinal plant testing has a long history, especially when it comes to assessing the quality of a plant. The earliest techniques were organoleptic using the physical senses of taste, smell, and appearance. Then gradually these led to more advanced instrumental techniques.[4]

Pyrostegia venusta Miers (Family, *Bignoniaceae)* is an evergreen vine that makes a beautiful ornamental plant with cascades of orange flowers. It is commonly grown in tropical, subtropical, and temperate Mediterranean climates. The plants form dense clusters, grow on trees, walls or rocks and are covered with flowers in the cool and dry season. Brazilian natives use the decoction of aerial parts of P. venusta for the treatment of cough and flu. The general tonic controls diarrhea, vitiligo and jaundice. Tonics made from the stems of this plant are useful for treating diarrhoea, while flower preparations have been shown to relieve vomiting. After a careful review of the literature, the phytochemical and pharmacological properties of methanolic extracts from the flowers and roots of this plant were examined. A significant body of research in this field is able to provide the pharmacological basis for the development of new treatments based on the unique ability to selectively scavenge free radicals. If this medicinal potential were properly evaluated, the use of this plant

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RESEARCH ARTICLE

Solubility Enhancement and Preparation of Antifungal Gel of Lawsone

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ABSTRACT:

Lawsone is the principle colouring compound of Henna, *Lawsonia inermis* Linn. (Fam. Lythraceae). Lawsone shows low bioavailability because it is insoluble in water and less soluble in other solvents. The objectives of the study were to increase the solubility and dissolution rate of lawsone using by forming β-cyclodextrin (β-CD) inclusion complex and formulating this into a gel formulation for topical use. **Method:** The inclusion complex were prepared by taking lawsone to β-CD weight ratios of 1:1, 1:2, 1:4 and 1:8. By this technique solubility and dissolution rate of lawsone wassignificantly increased. The inclusion complex was characterized by FTIR and DSC. **Results:** Antifungal activity of lawsone gel was evaluated on *Candida albicans* fungi. The *in-vitro* drug release study was performed on goat skin. Antifungal activity of lawsone and β-CD complex (1:2) showed the biggest zone of inhibition as compared to other inclusion complexes. **Conclusion:** The antifungal activity of gel of inclusion complex of lawsone and β-CD showed significant antifungal activity.

KEYWORDS: Lawsone, β-cyclodextrin, Inclusion complex, Carbopol 940, Gel, Antifungal activity.

INTRODUCTION:

Henna, *Lawsonia inermis* Linn. (Fam. Lythraceae) contains a red-orange coloured compound, known as Lawsone (2-hydroxynaphthalene-1,4-dione) (Figure 1)[1]. It has limited solubility in water at 0.2%, soluble in ethanol, methanol, ethyl glycol and dimethyl formamide[2]. Henna is well known to be useful in treating skin infections like tinea and also possess antibacterial property which is mainly due to the lawsone content[3]. But lawsone has very low bioavailability because of its limited water solubility and rapid rate of elimination from the body[4].

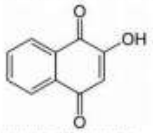

Figure 1: Chemical Structure of Lawsone

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Cylodextrin (CD) inclusion complexation is one of the approaches used to enhance the solubility and bioavailability of poorly water soluble drugs[5]. There are numerous examples in the literature of β-CD complexes of drugs used to improve solubility and bioavailability[6,7].

Therefore, the key objective of present study was to prepare and evaluate the inclusion complex of lawsone using β-CD to increase the solubility and bioavailability of the drug. Another objective of this study was to prepare a topical gel by using lawsone-β-CD inclusion complex and to evaluate its antifungal activity.

MATERIALS AND METHODS:

Chemicals and reagents:

Standardized lawsone (99%) was obtained from Sigma Aldrich, India. β-CD, carbopol-940, polyethylene glycol, triethanolamine, methyl paraben, propyl paraben, ethanol were purchased from Thermosil Fine Chem Industries, Pune, India. Distilled water was used throughout this work.

Sonocrystallization: Emerging Approach for Solubility Enhancement of Poorly Aqueous Soluble Drug Molecules

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ABSTRACT

Drugs solubility and permeability both affect how bioavailable they are when taken orally. Insufficient bioavailability is frequently demonstrated by the low solubility and low dissolution rate of weakly water soluble medications in gastrointestinal fluids. An innovative particle engineering process called sonocryatallization involves applying ultrasonic energy to a soft or viscous molten mass that is disseminated in an immiscible liquid, thereby producing crystals having a large surface area which facilitates better drug dissolution. This review article comprehensively highlights the recent reports of solubility enhancement of a variety of drugs belonging to classes such asnon-steroidal anti-inflammatory drugs (celecoxib, flurbiprofen, ibuprofen, ketoprofen, naproxen, piroxicam), antihyperlipidemic drugs (fenofibrate and simvastatin), miscellaneous drugs (oxcarbazepine, progesterone, salbutamol, and rosiglitazone), and natural products (curcumin and plumbagin) through (melt)-sonocrystallization approach. This article will definitely provide great help to formulators and/or researchers involved in developing or applying emerging techniques for enhancing the aqueous solubility of drug molecules.

Keywords: Sonocrystallization, Solubility Enhancement, Techniques, Mechanism, Drugs, BCS
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1. INTRODUCTION

When a medicine is ingested, its delivery mechanism dissolves into gastric or intestinal fluids, where it then penetrates gastrointestinal cell membranes to be absorbed. Drugs' solubility and permeability both affect how bioavailable they are when taken orally. To acquire the correct drug concentration in plasma for the intended pharmacological reaction, solubility is a crucial factor. According

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Original Article

DEVELOPMENT AND EVALUATION OF ANTIDIABETIC POLYHERBAL TABLET USING MEDICINAL PLANTS OF TRADITIONAL USE

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ABSTRACT

Objective: The aim of the present study is to develop and evaluate poly herbal tablet prepared for management of diabetes with enhanced disintegration time.

Methods: The polyherbal extract prepared using methanolic extract of selected traditionally used medicinal plants such as *Adenanthera pavonina, Kigelia africana, Parkia biglandulosa* and *Syzygium jambos*e (1:1:1:2) was evaluated in the alloxan monohydrate induced diabetic rat model. The polyherbal tablets were prepared by wet granulation method with excipients microcrystalline cellulose, dicalcium phosphate dehydrate and sodium starch glycolate. After preformulation studies tablets were evaluated by using weight variation, hardness, friability and disintegration time. The diabetic rats treated with polyherbal extract were compared with the diabetic control rats group.

Results: Positive results were obtained in the observed parameters, thus favoring the use of the plants. Pre-formulation study revealed that all the evaluated parameters were found to be within the acceptable limits. The weight variation of the formulated tablets was 1.43 % RSD. The disintegration time of the formulations was found to be 9.50 minutes. The tablets also underwent accelerated stability over the period of three months. No marked changes were observed in all the parameters evaluated during three months of accelerated stability study.

Conclusion: Laboratory-scale preparation of polyherbal tablet can lead to new powerful and stable oral dosage formulations for diabetes mellitus and lighten the synergistic area of action of herbs.

Keywords: Medicinal plants, *Adenanthera pavonina, Kigelia africana, Parkia biglandulosa*, *Syzygium jambose*, Polyherbal tablet

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INTRODUCTION

Plants have played a unique integral role in providing food, medicine, clothing, shelter, etc. Natural products have been extensively explored to discover new drugs [1]. In fact, plants have been used for medicinal purpose since 5000 y [2]. Approximately 70-90% of the population in developing countries continues to use ancient drugs based on plant extracts [3]. The inherent usefulness of traditionally used medicinal plants should be encouraged for worldwide reception and for the benefit of humanity. Scientific assessment and authentication of traditional medicine are being essential to open any other possibilities for the development of alternate medicine and therapeutic approaches [4]. The most influential and promising elements are the secondary metabolite present in the plants [5]. Secondary metabolites of plant origin are molecules or macromolecules biosynthesized in plants, including alkaloids, glycosides, tannins, lignans, etc. that have a variety of beneficial therapeutic uses for humans, such as their antiallergics, antitumor, antioxidants, anti-inflammatory, antidiabetic activity [6]. Plants are always are the presentative source of medicine as many more drugs which are used presently have been derived from them directly or indirectly [7]. There is a large collection of plants with antidiabetic potential only some of these have been scientifically proven and many more have yet to be explored and tested [8]. The prevalence of diabetes mellitus is increasing compared to recent years; therefore, various researches are being to discover a better medicine to cure this disease [9]. Herbal medicines are usedin treating diabetes mellitus has become important throughout the world. The world Health Organization has also suggested and authorized this drilling, particularly in countries where access to treating diabetes is not enough. There is widespread interest in using natural products with antidiabetic activity, by virtue of side effects related to the usage of insulin and oral hypoglycemic agents. The available literature shows that there are more than 400 species of plants that show hypoglycemic activity [10]. Current diabetes mellitus medications emphasisonmonitoring to control blood glucose levels of the blood to a normal level. During the treatment modern synthetic drugs causes side effects with some serious medical complication. Hence, acts as savior as an alternative medication treatment as traditionally used medicines have been used since long time [6].

This study has focused on four plants which are *Adenanthera pavonina, Kigelia africana*, *Parkia biglandulosa* and *Syzygium jambose* to developed new polyherbal formulation useful to treat diabetes mellitus. *Adenanthera pavonina* belongs to the Mimosaceae family, commonly known as the red-beaded tree. It is an important medicinal plant of the "Indian subcontinent". Various parts of Adenanthera pavonina being traditionally used plants, have been used in the treatment of gout, diabetes, diarrhea, asthma, inflammation, rheumatism, tumors and ulcers and as a tonic [11]. Earlier phytochemical research has shown that the leaves contain octacosanol, dulcitol, beta-sitosterol glycosides, flavones and Stigmasterol and the alcoholic extract of the leaves contains an alkaloid. It is reported to have a large number of flavonoids, mainly gallic acid, terpenoids, tannins, sterols (beta-sitosterol, beta-sitosterol-3β-D-glucoside), triterpinoids (nonacosane and entriacontane) and saponins (sapogenins) [12, 13]. *Kigelia Africana* (Bignoniaceae), known as the african sausage tree, is traditionally used as medicinal planteffective for a wide range of therapeutic activities, such as antidiabetic, anticancer, antimalarial, antibacterial, analgesic, antileprotic and antidiarrheal, anti-inflammatory, anti-urolithiasis, antioxidant, etc. [14], Whereas several compounds have been recognized from the plant such as lupeol, β-sitosterol, sitosteryl β-D-glucoside, canofilol, pomolic acid, hydroxypomolic acid, iridoids, naphthoquinones and coumarins with potential pharmacological activity [15, 16]. *Parkia biglandulosa* is a large, beautiful, evergreen tree known as the badminton ball tree because of its brown beaded flower heads that resemble a badminton ball [17]. Preliminary qualitative tests revealed the presence of plant metabolites such as carbohydrates, alkaloids, tannins, flavonoids, saponins, and glycosides. The secondary metabolites present in *Parkia biglandulosa* provide a basis for its traditional uses [18]. Various plants of parkia species are traditionally used to treat different ailments, such as diabetes, diarrhea, wounds, hypertension, cough, chronic hemorrhoids, conjunctivitis, and measles [19]. *Syzygium jambos* (Myrtaceae) has traditionally been used to treat asthma, chronic