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No. of research papers published per teacher in the journals notified on UGC care list during last five years

Year	2022-2023	2021-2022	2020-2021	2019-2020	2018-2019
No. of Papers	09	05	04	00	05

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List of Papers published in A.Y. 2022-23 : 09

Sr. No	Title of paper	Name of the authors	Department of the teacher	Name of journal	Year of publication	ISSN number	Link to the recognition in UGC enlistment of the Journal		Is it listed in UGC Care list
							Link to website of the Journal	Link to article / paper / abstract of the article	
1,	Formulation & evaluation of Herbal hair growth formulation of Ashwagandha in the treatment for alopecia.	Dr.Amit Lunkad	Pharmaceutical chemistry	Biological Forum - An international Journal	2023	2249-3239	https://www.researchtrend.net/bfij/bfij.php	https://www.researchtrend.net/bfij/pdf/Formulation-and-Evaluation-of-Herbal-Hair-Growth-Formulation-of-Ashwagandha-in-the-Treatment-for-Alopecia-Wagh-Jyoti-G-127.pdf	UGC
2.	Preparation & evaluation of polyherbal syrup containing extracts of leaves of moringo oleifera & rhizomes of curcuma longa linn.	Dr.Amit Lunkad	Pharmaceutical chemistry	European chemical Bulletin	2023	2063-3239	https://www.eurchembull.com/	https://www.eurchembull.com/uploads/paper/9c846cd5b216b0e6ac8efb5780	UGC

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3.	Novel maos of novel cinnoline derivatives	Dr.Amit Lunkad	Pharmaceutical chemistry	European chemical Bulletin	2023	2063-5346	https://www.eurchembull.com/	https://www.eurchembull.com/uploads/paper/07f89be010b378818a078e1d369f050d.pdf	UGC
4.	Identification & quantification of potential impurities from Rilpivirine hydrochloride by HPTLC technique.	Dr.Amit Lunkad	Pharmaceutical chemistry	European chemical Bulletin	2023	2063-5346	https://www.eurchembull.com/	https://www.eurchembull.com/uploads/paper/ef07300f26ffd439a34912763fb12b11.pdf	UGC
5.	Oral thin film: a study of applivability as a drug delivery system.	Ms.Monali Parbhane	Pharmaceutics	International journal of Creative Research Thoughts	2023	2320-2882	https://ijcrt.org/	https://www.google.com/search?q=Oral+thin+film%3A+a+study+of+applivability+as+a+drug+delivery+system	UGC
6.	Bilayer tablet of glimepiride & metformin: a idealistic way to improve patient compliance.	Ms.Monali Parbhane	Pharmaceutics	International journal of Creative Research Thoughts	2023	2320-2882	https://ijcrt.org/	https://www.ijcrt.org/papers/IJCRT2302109.pdf	UGC

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Sr. No	Title of paper	Name of the authors	Department of the teacher	Name of journal	Year of publication	ISSN number	Link to the recognition in UGC enlistment of the Journal		Is it listed in UGC Care list
							Link to website of the Journal	Link to article / paper / abstract of the article	
7.	Natural products as potential treatments for neurogenerative diseases : alzeheimers disease and parkinsons disease.	Ms.Monali Parbhane	Pharmaceutics	International journal of Creative Research Thoughts	2023	2320-2882	https://ijcrt.org/	https://docplayer.net/234329168-Natural-products-as-potential-treatments-for-neurodegenerative-diseases-alzheimer-s-disease-and-parkinson-s-disease.html	UGC
8.	Formulation & development of Herbal hair oil	Ms.Priyanka Wanjul	Pharmaceutical Analysis	International journal of Creative Research Thoughts	2023	2320-2882	https://ijcrt.org /	https://ijcrt.org/papers/IJCRT2305766.pdf	UGC

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9.	Futures directions of AI In pharma : Innovation in Pharmaceutical Industry	Ms.Priyanka Wanjul	Pharmaceutical Analysis	International Journal for Multidisciplinary	2023	2582-2160	https://www.ijfmr.com/	https://www.ijfmr.com/papers/2023/3/3098.pdf	UGC

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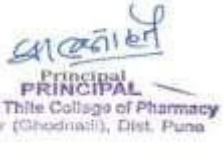
List of Papers published in A.Y. 2021-22 : 05

Sr. No	Title of paper	Name of the authors	Department of the teacher	Name of journal	Year of publication	ISSN number	Link to the recognition in UGC enlistment of the Journal		Is it listed in UGC Care list
							Link to website of the Journal	Link to article / paper / abstract of the article	
1.	Development & validation of stability indicating RP-HPLC method for estimation of Perindropil erbumine & Indapamide in bulk & pharmaceutical dosage form.	Dr.Manoj Tare	Pharmaceutics	International journal of Health sciences	2022	2550-6978	http://ijhsnet.com/	https://www.researchgate.net/publication/362635727_Development_and_validation_of_stability_indicating_RP	UGC
2.	Advances in novel drug delivery strategies for breast cancer therapy	Ms.Monali Parbhane	Pharmaceutics	International journal of Creative Research Thoughts	2022	2320-2882	https://ijcrt.org/	https://ijcrt.org/papers/IJCRT2212569.pdf	UGC
3.	In vitro models for determination of anti snake venom potential of helicteres isora and bixa orellana	Dr.Manoj Tare	Pharmaceutics	International journal of Entomology Research	2022	2455-4758	https://www.entomologyjournals.com/	https://www.entomologyjournals.com/archives/2022/vol7/issue6/7-6-43	UGC



4.	Pharmacobotanical application of Ricinus communis seed oil in formulation and evaluation of herbal emulgel for the treatment of psoriasis.	Dr.Manoj Tare	Pharmaceutics	International Journal of Botany studies	2022	2455-541X	https://www.botanyjournals.com/	https://www.researchgate.net/figure/Physical-evaluation-data-of-emulgel-formulations_tbl3_370030795	UGC
5.	Bio analytical validated technique for the simultaneous estimation of amlodipine, rosuvastatin and valsartanin iiuman plasma by RP-HPLC	Dr.Amit lunkad	Dr.Amit lunkad	International journal of pharmaceutical sciences and resear	2022	2320-5148	https://ijpsr.com/about-us/	https://ijpsr.com/bft-article/bio-analytical-validated-technique-for-the-simultaneous-estimation-of-amlodipine-rosuvastatin-and-valsartanin-human-plasma-by-rp-hplc-method/	UGC

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List of Papers published in A.Y. 2020-21 : **04**

Sr. No	Title of paper	Name of the authors	Department of the teacher	Name of journal	Year of publication	ISSN number	Link to the recognition in UGC enlistment of the Journal		Is it listed in UGC Care list
							Link to website of the Journal	Link to article / paper / abstract of the article	
1.	Synthesis and antidiabetic evaluation of some 2- substituted benzothiazole derivatives.	Ms.Ujwala Thube	Pharmaceutical chemistry	European journal of molecular and clinical medicine	2021	2515-8260	https://ejmcm.com/	https://go.gale.com/ps/i.do?id=GALE%7CA698747869&sid=googleScholar&v=2.1&it=r&linkaccess=abs&issn=25158260&p=AONE&sw=w&userGroupName=anon%7E838b449d&aty=open-web-entry	UGC

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2.	Synthesis of some new derivatives of coumarin containing pyrazoline and investigation against human lung cancer cell line	Dr.Amit lunkad	Pharmaceutical chemistry	European journal of molecular and clinical medicine	2021	2515-8260	https://ejmcm.com/		UGC/scopus
3.	Formulation & evaluation of polyherbal anti acne cream	Dr.Manoj Tare	Pharmaceutics	International journal of Biology ,Pharmacy and Allied sciences	2021	2277-4998	https://www.ijbpas.com/		UGC
4.	Development of Biodegradable porous starch foam for improving oral delivery of eprosartan mesylate	Dr.Sachin kothawde	Pharmaceutics	journal of Advanced scientific research	2021	0976-9595	https://sciensage.info/index.php/JASR	https://sciensage.info/index.php/JASR/article/view/929	UGC

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List of Papers published in A.Y. 2018-19 : 05

Sr. No	Title of paper	Name of the authors	Department of the teacher	Name of journal	Year of publication	ISSN number	Link to the recognition in UGC enlistment of the Journal		Is it listed in UGC Care list
							Link to website of the Journal	Link to article / paper / abstract of the article	
1.	Conventional & microwave assisted synthesis of some new derivaties of coumarin containing pyrazoline and investigation of their antibacterial & antifungal activities.	Dr.Amit lunkad	Pharmaceutical chemistry	International journal of pharmaceutical sciences and research	2018	2320-5148	https://ijpsr.com/about-us/	https://ijpsr.com/bft-article/conventional-and-microwave-assisted-synthesis-of-some-new-derivatives-of-coumarin-containing-pyrazoline-and-investigation-of-their-antibact	UGC

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								erial-and-antifungal-activities/	
2.	Anti-Inflammatory activity of Momordica cochinchnensis and momordica balsamina fruit extracts	Dr.Mohan Agrwal	Pharmacognosy	International journal of green and Herbal chemistry	2018	2278-3229	https://www.ijghc.com/	https://www.greenpharmacy.info/index.php/ijgp/article/view/2201	UGC
3.	Analgesic activity of Momordica cochinchinensis and Momordica balsamina fruit extracts	Dr.Mohan Agrwal	Pharmacognosy	International journal of green pharmacy	2018	0973-8258	https://www.greenpharmacy.info/index.php/ijgp	file:///C:/Users/Vijaya/Downloads/2201-4903-1-PB.pdf	UGC
4.	Isolation and characterization of phytoconstituents from petroleum ether extract of Momordica cochinchinensis fruits	Dr.Mohan Agrwal	Pharmacognosy	Journal of Pharmacognosy and Phytochemistry	2018	2278-4136	https://www.phytojournal.com/	https://www.phytojournal.com/archives/2018/vol7issue6/PartAR/7-6-347-383.pdf	UGC
5.	formulation and evaluation of liquid and solid self micro emulsifying drug delivery system of eprosartan mesylate	Dr.Sachin kothawde	Pharmaceutics	International journal of pharmaceutical sciences and research	2018	2320-5148	https://ijpsr.com/about-us/	https://ijpsr.com/bft-article/formulation-and-evaluation-of-liquid-and-solid-self-micro-emulsify	UGC

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Biological Forum – An International Journal 15(5): 853-858(2023)

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Formulation and Evaluation of Herbal Hair Growth Formulation of Ashwagandha in the Treatment for Alopecia

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(Corresponding author: Wagh Jyoti G.)*
(Received: 14 March 2023; Revised: 17 April 2023; Accepted: 19 April 2023; Published: 30 May 2023)
(Published by Research Trend)

ABSTRACT: Hair loss can be seen as a patchy, confluent, or diffuse pattern in alopecia. With a lifetime risk of 1.7%, the prevalence in the general population was estimated to be between 0.1% and 0.2%. Both men and women can have alopecia equally, but some studies have found that men are more frequently affected. At any age, it can happen. As a Rasayana, *Withania somnifera* (Ashawagandha) is a highly valued herb in the Indian Ayurvedic medical system (tonic). It is particularly utilised as a nervine tonic and for treating a variety of illness conditions. The relationship between ashwagandha and hair loss is still being researched in addition to all other applications.

It can be strongly inferred from the current research that Aswhagandha may have ingredients that help promote hair development. It was concluded that the highest withanolide content was found in methanolic extract, which, when combined with a herbal gel base, can promote hair growth without irritating the skin. According to the overall findings of this exploratory study, using this herbal hair growth formulation for a *short period of time might dramatically reduce hair loss and may even stimulate new hair growth in some* people.

Keywords: Alopecia, Ashawagandha, withanolide, *Withania somnifera*, minoxidil.

INTRODUCTION

Alopecia affects the scalp or body and is characterised by hair loss without any obvious evidence of inflammation. Alopecia areata is a common autoimmune disease that results in the loss of hair on the scalp and elsewhere (Hardy *et al.*, 1992). Patient with Alopecia areata in advanced phase and some of them converts into Alopecia totalis/Alopecia universalis (Seetharam, 2013). It accounts for 25% of all occurrences of alopecia worldwide and is one of the most prevalent types of hair loss that dermatologists report (Syed *et al.*, 2013). Scientist Cornelius Celsus was the first to describe it, and Sauvages invented the word "AA" in 1760 (Hunt and McHale 2005). The cycle of hair development is laborious, with the anagen phase being followed by the catagen and the telogen phases. The hair is actively growing during the anagen phase, while during the catagen phase, the lower portion of the hair follicle degenerates and is reabsorbed (Stenn and Paus 2001). A hair development cycle has three primary phases: anagen, catagen, and telogen. Telogen is the resting period, during which the hair is dormant and inactive. Following this phase, scalp hair follicle growth resumes.

The various types of allopathic drugs to treat hair loss but they have many side effects. Herbs are starting material for any medicine research. Approximately about 80% residents recommended herbal drugs for their beneficial effects along with fewer side effects as compared synthetic drugs (Thorat, 2010).

Withania somnifera (WS) pretreatment demonstrated significant protection against stress-induced stomach ulcers. Common names for ashwagandha include "Indian Winter cherry" and "Indian Ginseng". The Ashwagandha plant's root is ground into a powder that has been said to increase energy, lower inflammation, calm anxiety, and strengthen the body's immune system. Stress is frequently a factor in hair loss and shedding of hair (Pandey *et al.*, 2019). Adaptogens like ashwagandha can (in theory) prevent or stop hair loss by attempting to alleviate stress in the body. Strong antioxidant capacity may help to prevent hair loss (Likhitkar *et al.*, 2016). Inflammation, which may be a factor in conditions affecting your skin, joints, or other body parts, may be reduced by ashwagandha (Shalini *et al.*, 2017). Even though ashwagandha has a long history of use, the relationship between herb and hair loss is currently being researched (Alam *et al.*, 2012).

Ashwagandha is botanically termed as *Withania somnifera* Synonym: Indian ginseng / winter cherry. *Withania somnifera* (L.)
Family: *Solanaceae.*

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ECB

Preparation and Evaluation of Polyherbal Syrup Containing Extracts of leaves of *Moringa Oleifera* and the rhizomes of *Curcuma longa Linn.*

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Abstract

A Polyherbal formulation, syrup is in clinical use for its anthelmintic activity for last few decades. However, no systematic study on its therapeutic/pharmacological effect is reported. The current research work was under taken to evaluate the anthelmintic property of some herbs and compare with the marketed formulation. The present study was to attribute the pharmacological effects to individual constituent as the formulation is of polyherbal nature. Prepared Curcuma longa and Moringa oleifera syrup show synergistic effect that's why formulated syrup is more effective than marketed albendazole syrup. Stability studies also concluded that the drug release profile or other parameters did not alter significantly after the accelerated stability studies. The study indicates that Polyherbal syrup i.e. Curcuma longa and Moringa oleifera will offer an option which is more convenient, effective and cost effective as compared to the marketed formulation.

Keywords: Polyherbal syrup, anthelmintic activity, Moringa oleifera, Curcuma longa

Introduction:

A region of the body gets infected by parasitic worms such as pinworms, roundworms, or tapeworms in helminthiasis, a macroparasitic illness that affects both humans and animals. Worms frequently inhabit the gastrointestinal tract, but they can also enter the liver, lymphatic system, or other organs

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Identification and quantification of potential genotoxic impurities from Rilpivirine hydrochloride by HPTLC technique

Section A-Research paper
ISSN 2063-5346

Identification and quantification of potential genotoxic impurities from Rilpivirine hydrochloride by HPTLC technique

Vitthal V. Chopade[1], Dipali S. Thete[1], Pallavi M. Patil[1], Ashwini P Shewale[2], Amita B Dongare[3], Deepali Kadam[4], Amol Khedkar[5], Rahul S Buchade[6], Pratap S Dabhade[7], Amit Lunkad[8], Bindurani L. G P Ram[9], Gaffar Sayyed[10], Rajendra Kawade[11], Komal Nanaware[12], Rajanikant Kakade[13], Girish M Pathare[14], Sunanda A Lekurwale[14], Swapnali E Dalvi[14], Priyanka M Salve[14], Atul A Baravkar[15]*

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Abstract

Objective: A rapid, accurate, selective, and sensitive HPTLC method has been developed and validated for estimation of potential genotoxic impurity A, Impurity B, Impurity C and Impurity D from the standard Rilpivirine hydrochloride. **Method:** The chromatographic separation was achieved on Automatic Camag Automatic TLC Sampler 4 (ATS4) with Win CATS Planar Chromatography Manager Software Version- 1.4.4, Spray gas: Inert gas (N2) Micro litre syringe (20 µL, 100 µL): Hamilton. Stationary phase was Aluminium plates precoated with silica gel 60 F_{254}. The compound was separated using mobile phase Chloroform: Toluene: Ethanol in the ratio of (4: 4: 1 v/v/v). The mode of application was band with band size 6mm and band distance 17 mm. Densitometric evaluation was performed at 282 nm. **Results:** Rilpivirine HCl, Impurity A, Impurity B, Impurity C and Impurity D were *satisfactorily resolved with obtained* Rf values *0.50, 0.58, 0.52, 0.50* and *0.71 respectively*. The accuracy and reliability of the method was assessed by evaluation of linearity for Rilpivirine and all four impurities which obtained as 100-350 ng/spot for both drug and impurities with the regression coefficient of 0.9993 and 0.9995, respectively. Precision study found to be intra-day % RSD (1.02–1.08) and inter-day % RSD (1.05 –1.56) for Rilpivirine and all four impurities. The detection and quantification limits were found to be 60.96 and 129.5 ng/spot for both drug and impurities. **Conclusion:** The proposed method was validated in terms of Linearity, Range, Accuracy, Precision, Specificity and Robustness in accordance with ICH guidelines. The method was successfully applied to the estimation of Rilpivirinehydrochloride and four impurities in standard Rilpivirine hydrochloride.

Keywords: HPTLC, ICH guidelines, Method development, Quantification, Validation.

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INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

ORAL THIN FILM: A STUDY OF APPLICABILITY AS A DRUG DELIVERY SYSTEM.

Parbhane* Monali.Babanrao, Mourya Sudarshan Parshuram, Dr. Baheti Dwarkadas Ganeshlal

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ABSTRACT

The oral thin-film technology is still in the beginning stages and but most popular because it fulfils all the need of patients. In due course, these formulations having APIs will be commercially launched using the oral film technology. These can be prepared using hydrophilic polymers that rapidly dissolves on the tongue or buccal cavity, delivering the drug to the systemic circulation via dissolution when contact with liquid is made. Water-soluble polymers are used as film formers for fast dissolving films. It seems that the value on the whole oral thin film market will grow significantly.

The film has the ability to dissolve rapidly without the need for water provides an alternative to the patients receiving swallowing disorder patient suffering from nausea headache etc. Oral thin films (OTFs) are the most advanced and promising new approaches for drug delivery as it offers more flexibility and comfort. These enable an ease of administration, as there is no need to drink high amounts of liquids or swallow large solid dosage forms Also it improves the efficacy of APIs by dissolving within minute in oral cavity after the contact with less saliva as compared to fast dissolving tablets, without chewing and no need of water for administration. OTF offers an alternative to tablets, syrups or suppositories for the treatment of vomiting and nausea, especially for the pediatric population.

Keywords: oral thin films, hydrophilic polymer, nausea, vomiting

INTRODUCTION

Despite of tremendous advancement in drug delivery system the oral route of drug administration is the most important method of administration of drug for systemic effect. About 60% of total dosage forms are administered by oral route,but oral drug delivery system still needs some advancements to be made because of their some drawbacks related to particular class of patient such as geriatric, pediatric & dysphasic patients associated with many medical condition as they have difficulty in swallowing or chewing solid dosage forms .Many pediatric & geriatric patients are unwilling to take solid preparations due to fear of chocking due to tablet type of appearance. It is estimated that 50% of population is affected by dysphasia which result in high incidence of non-compliance & ineffective therapy, To overcome this problem it is necessary to design a formulation which rapidly disperses / dissolves in oral cavity without the need of water for swallowing.

So, fast dissolving drug delivery system comes into existence in late 1970's as an alternative to tablet,capsules & syrup for pediatric & geriatric patient .oral thin film was developed on the basis of technologies of transdermal patches.

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ISSN 2063-5346

NOVEL MAOS OF NOVEL CINNOLINE DERIVATIVES

Atul Baravkar[1*], Dipali Kadam[2], Sheetal Gaikwad[3], Nitin Shinde[4], Sujata Veer[5], Amit Lunkad[6], Vitthal Chopade[7], Vishnu Neharkar[8], Makarand Puri[9], Rajanikant Kakade[10], Nilesh Jadhav[11], Shyam Panga[11], Vijay M. Kale[12], Yojana Kunjir[13], Sachin Vijapure[13], Reshma Devkate[14], Priti Kolpe[14], Sonali Pawar[15], Baliram Sarvade[16], Sachin Anbhule[17], Raju Kawade[18], Shaikh Sana M Jafar Shaikh[18], Rahul Mohan[18], Monali Bhalerao[19], Meghana Muley[20], Gaffar Sayyad[21]

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Abstract

An efficient and green novel microwave assisted organic synthesis (MAOS) method has been developed for dinitro cinnoline derivatives with better yields. The framework of these derivatives was constructed from dinitrophenyl arylethylidene hydrazines. Tetrabutylammonium bromide (TBAB) was used as a phase transfer catalyst (PTC), potassium carbonate as an inexpensive and efficient catalyst and water as solvent due to its polarity which helps to increase the temperature substantially. This methodology features a simple, environmentally friendly approach, employing water as a green solvent and using a one-pot reaction. The use of microwave increases the rate of reaction and it was observed that dinitro arylcinnolines can be synthesised in 8-12 min of microwave irradiation compared to conventional thermal heating protocol which requires more than 2 h. Spectral data confirms the identity of synthesized derivatives and satisfactory yields are obtained by this process.

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BILAYER TABLET OF GLIMEPERIDE AND METFORMIN: A IDEALISTIC WAY TO IMPROVE PATIENT COMPIENCE.

Parbhane Monali Babanrao, Dr.Baheti Dwarakadas Ganeshlal, Jadhav Sakshi Ramesh, Wagaskar Pooja Digambar, Kashid Rutuja Vijay.

Institute Name- SCSSS's Sitabai Thite college of Pharmacy Shirur, Pune- 412210

Abstract:

sustained release bilayer tablet containing metformin and glimeperide in which metformin is in the form of sustained release layer and Glimeperide is in the form of immediate release layer gives fast release. The aim and objective of present study is to design and prepare oral dosage form able to deliver a first impulse of the dose in the shorten time possible and a second fraction of dose in the prolonged time at a constant rate. This combination of drugs used in *Diabetes Mellitus type 2* which shows potent effect. Metformin tablet were prepared by using tablet compression technique. different grades of HPMC were used. HPMC used as a matrix forming polymer for the metformin layer enables drug release for up to 9-10hour. Glimeperide tablet are prepared by using solvent evaporation method of solid dispersion technique is PEG6000.The formulated Metformin Hydrochloride & Glimeperide tablets were evaluated for thickness, hardness, weight variation, friability, drug contents & in vitro drug release .

Keywords :Metformin, Glimeperide,Impulse,Substained Relese bilayer Tablet.

General Introduction

Unit solid dosage form containing drug with excipients prepared by compression machinery by use of compaction phenomenon. Conventional tablets- Generally conventional dosage forms delays the release of therapeutic system layers & do not provide rapid onset of action.

Immediate release tablets- Gives fast release to provide rapid onset of action but fails to provide longer duration of action Improved compliance/added convenience. Allows high drug loading.

Extended release tablets- For some drugs (such as NSAIDs, antihypertensive, antihistaminic, antidiabetic, antiallergic) extended release formulations generally lead to a delayed appearance of effective plasma levels & they can't provide a prompt disposition of the dose immediately after administration. modify and improve the drug performance by the duration of drug action. Decreasing the To frequency of dosing. Decreasing the required dose employed.Providing uniform drug delivery

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NATURAL PRODUCTS AS POTENTIAL TREATMENTS FOR NEURODEGENERATIVE DISEASES: ALZHEIMER'S DISEASE AND PARKINSON'S DISEASE.

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Abstract:

Neurodegenerative diseases (NDDs) are a group of disorders that result in progressive loss of neurons and their functions. Currently, there is no cure for NDDs, and the available treatments are mostly focused on managing symptoms. However, natural products have shown promise as potential treatments for NDDs due to their ability to modulate multiple targets and their safety profile. In this review, we summarize the current state of research on natural products as potential treatments for NDDs, including their mechanisms of action, preclinical and clinical studies, and future directions. We highlight the potential of natural products as a source of novel therapeutics for NDDs and the need for further research to better understand their therapeutic potential. Neurodegenerative diseases (NDDs) are a group of disorders characterized by the progressive loss of neurons and their functions. They include Alzheimer's disease (AD), Parkinson's disease (PD), Huntington's disease (HD), and amyotrophic lateral sclerosis (ALS), among others. NDDs affect millions of people worldwide and pose a significant burden on healthcare systems.

The current treatments for NDDs are mostly focused on managing symptoms, and there is no cure for these diseases. However, natural products have shown promise as potential treatments for NDDs due to their ability to modulate multiple targets and their safety profile. Natural products are chemical compounds derived from plants, animals, or microorganisms, and they have been used for centuries in traditional medicine to treat various ailments. Several natural products have been studied for their potential to treat NDDs. Resveratrol, a polyphenol found in grapes and red wine, has also been shown to have neuroprotective properties and can improve cognitive function in animal models of AD.

Keywords: *Neurodegenerative Diseases, neurodegenerative diseases, natural products,*

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FORMULATION AND DEVELOPMENT OF HERBAL HAIROIL

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Abstract: In terms of humankind and culture, the idea of beauty and cosmetics is immortal. For their desire to look attractive and youthful, people employ a variety of beauty products that contain herbs. Herbal cosmetics are now-a-days widely used by the common people because of concept of fewer side effects and with a better safety and security profile.The present work was aimed to formulate herbal oil for general purpose (application in hairs) using variousherbs. The formulated hair oil contains different herbal plants which are traditionally utilized for hair growthplants used are Triphala, Nirgundi, Liquorice, Aloe Vera, and coconut oil. The formulated herbal oil wasevaluated and various parameters such as viscosity, specific gravity, and pH meter.

Index Terms- **Herbal, Hair Oil, Herbs, Cosmetics, Evaluation.**

I. INTRODUCTION

Recently, the number of men and women who suffered from hair loss and hair thinning is increasingdisorder, and the surge for discovering natural products with hair growth promoting potential is continuous.Hair loss is the common patient complaint and a source of significant psychological and physical distress.Many factors such as metabolism, hormones, heredity and side effects of antineoplastic andimmunosuppressant drugs, have been negatively affecting on healthy hairs.

Herbal cosmetic has burgeoning demand and in the world market and are an inestimable gift of nature.There are wide spans of herbal product to satisfy beauty regime. The presence of number of phytochemicalsand botanicals in the herbal product have dual stuff, one that they are used as cosmetics for body care andanother that phytochemicals amend the biological function of human body naturally results in healthy skinhairs. Herbal hair oil not only moisturizes scalp but also converse dry scalp and dry hair condition. It bestowsnumerous essential nutrients required to maintain normal function of the sebaceous gland and promote natural hair growth.

The present work was aimed to formulate herbal oil for general purpose (application in hair has aseveral useful function in the animal world). It forms a protective cushion around the head & other delicateparts of the body. Hair oils are those embraces herbal drugs called as hair tonics. Hair oil are formulated togive the hair good shine & gloss. This is achieved by applying a thin continuous film of an oily material onthe hair surface without causing stickiness. These are formulations use for cure the disorders such as baldness,greying of hairs, hair falling, and dryness of the hair.Many herbs are used in hair oil such as Kalonji, Aloe Vera, Liquorice, Alma, Ashwagandha, Nirgundi, Nagarmotha Curry leaf, Hibiscus, Shikhakhai, Coriander, Methi etc using various herbs. Various herbs play the differentrole in hair oil. Coconut oil nourishes the scalp and makes hair shiny. Tulsi is the cogent remedy for hair oil.Herbal hair oils basically extract of the medicinal plants in an oil base.

II. LITERATURE SURVEY

1. **Neha. N. Jagatap (2021)**
   The aim of present study involves preparation of polyherbal hair oil using plant materials. Theprepared polyherbal hair oil evaluated differentparameters within the acceptable limits. Such asphytochemical screening, organolepticcharacterization, specific gravity, pH, viscosity,acid value, saponification value, refractive index,and also stability study. Antimicrobial assay of thepolyherbal hair oil was studied. It providesnutrition's of hair.
2. **Mahavir Chhajed, Pritesh Paliwal and Sumeet Dwivedi(2020)**
   The objective of study was to prepare polyherbal hair oil by using Amla, Bhringraj Jatamansi, Gunja, Hakuchi etc.The six different herbal hair oil formulations were prepared using different oil base either in single combination with different concentration. Further the prepared hair oil was evaluated for the hair growth stimulating activity.
3. **Erman Duman (2020)**
   The aim of this study was to investigate and compare the physiochemical properties and nutritional value of hen egg yolk. Egg yolk oil was extracted using solvents from double yolk.

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Future Directions of AI In Pharma: Innovation in Pharmaceutical Industry

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ABSTRACT
Artificial Intelligence (AI) is a technology that simulates human intelligence and problem-solving processes. It encompasses human cognitive functions such as reading, observation, preparation, interpretation, reasoning, correction, speech recognition, linguistics, and other sources. AI simplifies tasks by allowing machines to learn from past experiences, map efforts and actions to results, identify errors, correct them, adjust to new and random input values, and perform human-like tasks through in-depth scenario analysis. AI simplifies work by analyzing, filtering, sorting, predicting, scoping, and determining large data volumes to follow the best implementation procedures for producing an optimal solution.
In the pharmaceutical industry, AI has several applications, including discovery and development of new drugs for complex and rare diseases such as Alzheimer's and Parkinson's, drug adherence and dosage, producing better analytics, finding more reliable patients faster for clinical trials, introducing automated robot pharmacies to fill prescriptions and dispensing, and improving marketing, logistics, and supply chain processes. AI has the potential to cut costs, create new, effective treatments, and, above all, save lives. Biotech companies should start using AI to their advantage as soon as possible. The industry has a lot to gain from embracing AI and machine learning solutions. AI can help create a strong, sustainable pipeline of new medicines faster and at reduced costs using the power of modern supercomputers and machine learning. This article exhaustively reviews the present status and future prospects of AI in pharmaceutical sciences with specific attention to the pharmaceutical industry. The literature has been collected from Pubmed, Google Scholar, and commercial websites related to this field. Overall, the future lies in cooperation between humans and machines, and alongside technological advances. Human clinical experts will need to adapt, learn, and grow. Potential experts will have to be both medical and technology experts. However, it is the evolution of medicine, not extinction.

Keywords- Artificial intelligence, pharmaceutical science, R&D, drug discovery, disease, machine learning, Therapeutics, Medicine, Clinical trials

Introduction-
The process of discovering new drugs needs to change in the 21st century to meet society's needs. Artificial intelligence (AI) and machine learning can help the pharmaceutical industry do research and

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Development and validation of stability indicating RP-HPLC method for estimation of Perindopril Erbumine and Indapamide in bulk and pharmaceutical dosage form

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ADVANCES IN NOVEL DRUG DELIVERY STRATEGIES FOR BREAST CANCER THERAPY

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ABSTRACT

Breast cancer is one of the world's most devastating diseases. However, better understanding of tumor biology and improved diagnostic devices can lead to improved therapeutic outcomes. Nanotechnology has potential to revolutionize cancer diagnosis and therapy. Various nanocarriers have introduced to improve the therapeutic efficacy of anticancer drugs, including liposomes, polymeric micelles, quantum dots, nanoparticles, and dendrimers. Recently, targeted drug delivery systems for anti-tumor drugs have demonstrated great potential to lower cytotoxicity and increase the therapeutic effects. Various approaches have been explored for targeting breast cancer. This article provides an overview of breast cancer, conventional therapy, potential of nanotechnology in management of the breast cancer, and rational approaches for targeting breast cancer.

Key words-breast cancer, drug targeting,liposomes, nanoparticles,growth factor receptor

INTRODUCTCION

Breast cancer is one of the world's most devastating diseases with more than 7,600,000 deaths and 1,301,867 new cases every year.

Breast tumors are categorized into 4 different stages based upon their size, location, and evidence of metastasis. Mode of treatment depends upon stage and expression of MDR transporters that actively pump chemotherapeutic drugs out of the cell and reduce the intracellular drug doses below lethal threshold levels. The treatment of primary breast cancer is mainly consisted of initial surgery followed by radiation and various forms of systemic adjuvant therapy

Conventional drug delivery approaches suffer from some limitations like lack of selectivity and cytotoxicity by non-targeted cells. Therefore targeting strategies must be determined to overcome non-specific uptake by non-targeted cells. The new signaling networks that regulate cellular activities include membrane growth factors receptors, cytoplasmic signaling molecules, nuclear cell cycle proteins, modulators of apoptosis and molecule that promote angiogenesis, which were determined by molecular and genetic approaches in the late 1980s and after that many drugs targeted at these key proteins result in the cancer drug development with the beginning o a new "targeted therapy era".

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In vitro models for determination of anti-snake venom potential of *Helicteres isora* and *Bixa orellana*

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Abstract
The present study aims to study the anti-snake venom activities of the local plants, which are native to the western ghats of India. These plants were found to be used by traditional healers in Maharashtra, India to treat patients bitten by snakes. The freeze-dried snake venom powder of *Daboia russelli* was obtained from Hindustan Snake Park, Kolkata. The *Helicteres isora* and *Bixa orellana* was identified and authenticated by botanist. Extraction of leaves of both plant by hot extraction method and further evaluated for *In vitro* antivnom activity using three different types of research models, *Viz.* phospholipase A_2 activity, procoagulant activity and Fibrinolytic activity. Plant extracts concentration 0.10 to 0.14 mg for *Helicteres isora* and 0.14 to 0.18mg for *Bixa orellana* was inhibited PLA_2 dependent hemolysis, 1.5 to 1.8 mg for *Helicteres isora* and 1.6 to 1.9 mg for *Bixa orellana* of plant extracts have shown neutralizing effects in coagulant activity and 0.10 to 0.18 mg for *Helicteres isora* and 0.14 to 0.18 mg for *Bixa orellana* showed fibrinolytic activity induced by *Daboia russelli* venom.

Keywords: phospholipase A_2 activity, procoagulant activity, fibrinolytic activity, *in-vitro* antivenom activity, *Daboia russelli* venom

Introduction
Despite the fact that it is difficult to provide an accurate estimate of the total number of occurrences, snake chomp continues to be a prevalent medical problem in a number of different countries. It is estimated that the number of people who actually suffer from snake envenomation each year could be higher than 5 million. Approximately one million of these are responsible for the intense scream. The variations in the epidemiological data that can be found all over the world are a reflection of the variations in health and exactness that can be found everywhere, as well as the variations in economic and natural conditions. In most situations, access to precise records is restricted, making it difficult to conduct research on topics such as the transmission of diseases or even the fatality rate of snake bite victims. The dependence on traditional healers and specialists in black magic, particularly in agricultural areas, causes the records kept by clinics to be off by a significant margin in comparison to the actual number. It has been estimated that up to eighty percent of persons who have been nibbled by snakes consult traditional specialists before going to a therapeutic centre. This is the case in the majority of non-industrialized societies. As a result of the delay, there are a few casualties that end up passing away while they are being transported to the hospital [1-3]. Because of the high cost of treatment in emergency clinics and the limited availability of venom serums, residents of rural areas frequently find it more beneficial to seek the advice of local doctors who are renowned for successfully restoring patients who have been bitten by snakes. This evidence demonstrates that the plant-based treatments utilised by the regional specialists are effective, and there appears to be a high rate of resiliency among snakebite patients who have progressed to more advanced clinical phases of venom harmfulness. The purpose of this study is to investigate the anti-venom actions of local plants that are indigenous to the western ghats of India. These plants are found in India. It was discovered that traditional healers in the Indian state of Maharashtra made use of these plants [4-5].

Materials and Method
Venom Procurement
Snake venom powder in the Lyophilized form was obtained from Hindustan Snake Park, Kolkata and was stored at 4°C.

Medicinal Plants and Preparation of Extracts
Helicteres isora and *Bixa orellana* were selected for use as anti-venom activities in the present investigation based on an increased writing overview. The written survey provided evidence that the plants selected have the

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Pharmacobotanical application of *Ricinus communis* seed oil in formulation and evaluation of herbal emulgel for the treatment of psoriasis

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Abstract
Inflammatory and immune-mediated skin disease, Psoriasis. It's common for psoriasis to be seen in people all over the globe. Drugs are most effectively delivered through topical route for treating skin conditions. An attempt was made to increase the effectiveness of topical treatment for psoriasis by using emulgel compositions containing *Ricinus communis* seed oil. In order to create the gel, the extract was mixed with liquid paraffin, olive and coconut oils, and Carbopol 936 and 940 gelling agents. Viscosity and glossiness of the emulgel were achieved with the use of herbal extracts. When tested for physico-chemical criteria, the developed formulations were found to be acceptable in every way. These findings imply that topical gel therapy for psoriasis is becoming more effective. Due to the emulgel improved penetration, herbal gel has more effectiveness.

Keywords: psoriasis, *Ricinus communis*, emulgel

Introduction
Psoriasis is a chronic inflammatory autoimmune disease of the skin. It is possible to classify psoriasis into mild, moderate, and severe forms based on the severity of the disease's signs and symptoms. The most frequent signs and symptoms are areas of itchy, scaly skin that are white or red in colour. Itchiness, red scalps, white scales, and rashes are all signs of psoriasis. Psoriasis often affects the skin, joints, and nails. Although there are other clinical forms of psoriasis, the plaque kind is the most prevalent and affects the majority of individuals throughout the globe. Psoriasis is a painful and disfiguring skin condition that is not contagious and has an impact on the patient's mental well-being as well as their physical well-being. Traditional treatments for psoriasis are many. Topical and systemic treatments, as well as phototherapy and its combinations [1, 2] all fall under this category. There are a variety of drawbacks to long-term administration of these medications due to side effects, such as hepatotoxicity (hepatosis), nephrotoxicity (nephrotoxicity), carcinogenicity, and widespread immunosuppression [3, 4]. Short-term psoriasis therapy, on the other hand, causes the illness to go into remission or just alleviates the patient's symptoms. Psoriatic arthritis, a kind of seronegative arthritis, is often associated with psoriasis, as are mental illness, cardiovascular disease, and other disorders [5]. This necessitates the development of novel therapeutic options for psoriasis that have minimal or no adverse effects while yet being effective.
Most of the population relies on herbal treatment, with roughly 75 to 80 percent of all people using plant extracts and active ingredients in traditional therapy. A decline in the use of herbal remedies occurred with the introduction of modern medicine, but developments in phytochemistry and the discovery of plant chemicals that are helpful against certain ailments have reignited interest [6]. Patients prefer herbal remedies to conventional ones because they feel they are less harmful to them. Aside from the fact that herbal medications have a great deal more structural diversity and many modes of action than synthetic chemicals, they also tend to be less expensive. Psoriasis may be effectively treated using herbal medications, which have fewer side effects and cheaper prices than traditional treatments. Psoriasis sufferers have access to a wide range of natural medicines and formulations. Search for a newer replacement is ongoing.
A member of the Euphorbiaceae family, *Ricinus communis* is also known as "castor plant," "palm of Christ," "Endi," "Errandi," "Diveli," and Jada (Oriya), as well as other names such as Verenda (Bengali), "Endi," and "Errandi" in other dialects. Ornamental varieties of this plant may be found all across the tropics. Its oil-bearing seeds are the primary reason for its widespread cultivation. The oil found in seeds is called fixed oil (45-52 percent). This plant grows wild in Indian forests and is widely farmed throughout the country, mostly in the presidencies of Madras, Bengal, and Bombay. An annual shrub with little grey (white) seeds that have brown markings, as well as a perennial bushy shrub with huge fruits and enormous red seeds, both of which provide around 40% of the plant's oil [8].
Emulgel is a novel topical medication delivery method that combines an emulsion with a gel. Like an emulsion or gel, it offers a two-stage control release. An innovative new formulation class, gel distributes drugs more quickly than ointment, cream, or lotion. Skin problems may be treated using an emulgel formulation that

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BIO ANALYTICAL VALIDATED TECHNIQUE FOR THE SIMULTANEOUS ESTIMATION OF AMLODIPINE, ROSUVASTATIN AND VALSARTANIN HUMAN PLASMA BY RP-HPLC METHOD

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Keywords:

Amlodipine besylate, Valsartan, Rosuvstatin, Bio analytical technique, Precipitation method

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ABSTRACT: A reverse phase high-performance liquid chromatographic bio analytical Technique (RP-HPLC) was developed and validated as per ICH 2019, US FDA 2018 guidelines for the quantification of amlodipine besylate, Rosuvastatin and Valsartan in human plasma using RP - C18 column. The mobile phase in composition (acetonitrile: water in the ratio 75:25% v/v, pH adjusted to 4.0 with acetic acid) was pumped and run at a flow rate of 0.8 ml/min, and for monitoring of eluents, a detector was set at wavelength 245 nm. The precipitation method was employed for the separation of the analyte from the plasma. A calibration curve was generated from the response and respective conc of standard solutions in the Concrange of LLOQ to ULOQ. The method was studied and validated per regulatory guidelines for selectivity, specificity, accuracy, precision, and stability study. Statistical data of the calibration curve of these drugs in the biological matrix was found within the prescribed limit. Results of accuracy and precision of quality control samples of these combined drugs were found (104.25 to 107.62 as % nominal conc. and 2.633 to 9.474 as % CV) for amlodipine, (101.01 to 106.45 as % nominal conc. and 4.431 to 13.786 as % CV) for rosuvastatin and (99.91 to 106.03 as % nominal conc. and 2.668 to 12.434 as % CV) for valsartan respectively. The developed bioanalytical method is simple: free from solvent-solvent extraction and solid phase extraction, precise, accurate and consumes less solvent due to less run time. The method suits for quantification of these drugs in plasma is henceforth applied for bioequivalence and bioavailability study in real clinical samples.

INTRODUCTION: Amlodipine besylate (AD), 2 - [(2 - amino ethoxy) - methyl] - 4 - (2 - chloro phenyl) -1, 4 -dihydro - 6 - methyl - 3, 5 - pyridine dicarboxylic acid 3 - ethyl - 5 - methyl ester benzene sulfonate, is a potent dihydro calcium channel blocker [1-4].

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Various analytical methods have been reported for the estimation of AD alone, or in combination with other antihypertensive agents in pharmaceutical dosage form, including accelerated degradation study by RP HPLC [5], RP-HPLC and stability indicating liquid chromatographic method [6-9] Bioanalytical HPLC method [10], HPTLC methods [11-13], stability indicating UPLC method [14], Chemo metric assisted spectroscopic method [15], and UV spectro-photometric methods [16-18].

Valsartan (VAL), a potent angiotensin receptor blocker chemically is, N - (1-oxopentyl) - N - [(2' - (1H - tetrazol-5-yl) (1, 1' -biphenyl) -4-yl) methyl]

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SYNTHESIS AND ANTIDIABETIC EVALUATION OF SOME 2-SUBSTITUTED BENZOTHIAZOLE DERIVATIVES

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ABSTRACT: A series of 2-substituted benzothiazole derivatives (3a-3j) were synthesized using appropriate synthetic route. Synthesized derivatives were confirmed by IR, ^{1}HNMR and Mass spectrometry. All derivatives were screened for antidiabetic activity using alloxan induced method. Estimation of glucose, cholesterol and triglyceride levels were carried out. It was found that Compounds 3d exhibited significant antidiabetic activity. 3f, 3b and 3a possess a moderate antidiabetic activity.

KEYWORDS: Antidiabetic, Benzothiazole, Chloroacetanilide, Cholesterol, Glucose, Oral Hypoglycaemic, Triglyceride.

INTRUDUCTION: *Benzothiazole is widely found in bio-organic and medicinal chemistry with* application in drug discovery. [1] It has higher potency and significant biological activities. [2] After the Riluzole discovery as a Glutamate neurotransmission inhibitor, biologists started further exploitation of benzothiazole moiety. [3] Benzothiazole derivatives possess activities such as anti-tumour[4, 5], anti-microbial [6], anti-diabetic [7], anti-convulsant [8] anti-oxidant[9]; central muscle relaxants [10], antipsychotic and diuretic. [11] Research paper for docking study reflects that it has antidiabetic activity. [12] Diabetes mellitus means pancreas can't produce enough insulin so glucose in the blood can't be absorbed into the cells of the body. Symptoms are frequent urination, lethargy, excessive thirst and hunger. For treatment changes in diet, oral hypoglycaemic and in certain cases daily injection of insulin is needed. [13] Alloxan induced diabetes model appears to be the most reliable and reproducible method. [14] Diabetes is of major health concern for world hence there is a need to search for alternate molecules. Kumar et al.has reported synthesis and molecular docking studies of antidiabetic activity of 2-aminobenzothiazole derivatives. This paper reflects that bromo and chloro substitutions are favourable for antidiabetic activity. [12] Literature survey reflects that Benzothiazole possess antidiabetic property and further exploitation of benzothiazole mayoffer choice of antidiabeticdrug. This has made us to research antidiabetic potential of benzothiazole derivatives.

MATERIAL AND METHOD:

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SYNTHESIS OF SOME NEW DERIVATIVES OF COUMARIN CONTAINING PYRAZOLINE AND INVESTIGATION AGAINST HUMAN LUNG CANCER CELL LINE

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ABSTRACT: ***Synthesis of some new derivatives of coumarin containing pyrazoline derivatives, being used as against human lung cancer cell line, 3-acetyl coumarin (I) was prepared by Knoevenagel condensation of salicyladehyde with ethyl acetoacetate in presence of piperidine. A series of 3-[(2E)-3-substituted-prop-2-enoyl]-2H-chromen-2-one derivatives (2a-h) were prepared by Claisen-Schmidt condensation of 3-acetyl coumarin with aromatic aldehydes in the presence of piperidine / n- butanol. Treatment of 3-substituted cinnamoyl coumarin with hydrazine hydrate in the presence of ethanol gave [5-substitutedphenyl]-4, 5-dihydro-1H-pyrazol-3-yl]-2H-chromen-2-one (3a-h). Title compound were synthesized and the structures of newly synthesized compounds were confirmed by IR and ^{1}H-NMR spectroscopy. All the synthesized compounds were tested for their anticancer activities using SRB assay. The anticancer activity revels that some of the synthesized compounds possesses moderate anticancer activity.***

KEY WORDS: Pyrazoline, aromatic aldehyde, anticancer activity, SRB assay.

INTRODUCTION: Coumarin compounds containing nitrogen and oxygen have received considerable attention due to their wide range of pharmacological activity [1].
Natural, semi synthetic and synthetic coumarins possess a protuberant place in drug research. Their utility stimulated the development of new synthetic routes for the preparation of coumarin containing pyrazoline derivatives. Moreover, coumarins have developed a special place in heterocyclic field because of their various activities such as antimalerial [2], anticonvulsant [3], anti-inflammatory [4], antioxidant [5], cytotoxic [5], anti-HIV [6] and anti-microbial [7].
Pyrazolines have played a crucial role in the development of theory in heterocyclic chemistry and also are extensively useful in organic chemistry. Due to interesting activity of various substituted pyrazolines as biological agents considerable attention has been focused on this paper. The pyrazolines can be effectively utilized as anti-malerial [2], anticonvulsant [3], antidepressant [8], antiepileptic [9], antidiabetic [10], antioxidant [11], anticancer [12], antimicrobial and antitubercular agents [13].
Now-a-days the world is facing an alarming situation because of lung cancer, which is the major cause of cancer death in man and women with the increasing mortality rate day by day [14]. *According to data of 2012, 1.8 million People diagnosed with lung cancer and so far 1.6* million deaths reported due to this severe disease [15]. World health organization (WHO) report shows lung cancer five years survival rate (17.8%) is lower than another cancerous site such as Prostate (99%), breast (90.5%), colon (65.47%).

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FORMULATION AND EVALUATION OF POLYHERBAL ANTI ACNE CREAM

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ABSTRACT

Acne vulgaris or acne is the most common skin disease affecting nearly 80% of persons between ages of 11 and 35 years. *Propioni bacterium acnes* and *Staphylococcus epidermidis* are considered as the major skin bacteria that cause the formation of acne. Although acne does not pose serious threat to general health, it is one of the most socially distressing conditions especially for adolescents. In the present study, poly herbal anti acne cream was prepared using extracts of the plants *Mentha pipereta* (Leaves), *Cucurbita pepo* (Seeds) and cade oil along with base materials. The plants have been reported in the literature having good anti- microbial, anti-oxidant and anti-inflammatory activity. Different formulations of the cream were prepared by varying the proportions of materials and evaluated for their physicochemical property like pH, spreadability, viscosity, homogeneity, appearance, and spreadability like tests. Among the different formulations the formulation5 shows better results in evaluation. The main objective is to prepare a cream with natural herbal extracts and minimize the side effects of the chemical cosmetics.

Keywords: Anti acne, Polyherbal cream, *Mentha pipereta* (Leaves), *Cucurbita pepo* (Seeds) and cade oil

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DEVELOPMENT OF BIODEGRADABLE POROUS STARCH FOAM FOR IMPROVING ORAL DELIVERY OF EPROSARTAN MESYLATE

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ABSTRACT

Compared to inorganic carriers, Biodegradable Porous Starch Foam has shown strong properties and has a nano-porous structure, low density and large specific surface area and pore volume of Biodegradable Porous Starch Foam to improve the solubility and enhance absorption of poorly water-soluble drugs. The study aimed to prepare Biodegradable Porous Starch Foam used to improve bioavailability of poorly water-soluble drug Eprosartan Mesylate. The solid-state properties of the loaded BPSF samples have been characterised by SEM, FTIR, XRPD, and DSC for the analysis of the state of dispersion of loaded eprosartan mesylate compared with the pure eprosartan mesylate. By solvent immersion/ evaporation, the eprosartan mesylate is absorbed by a porous structure. The SEM shows the drug is loaded with crystals and rod-shaped pores. In XRPD, crystallinity of BPSF and unprocessed starch is measured as 26.76 percent and 28.6 percent, respectively. Eprosartan mesylate is thus identified on the surface of BPSF only by FTIR. From the *in vitro* drug release studies, it was confirmed that BPSF can be used to enhance the water solubility of poorly water-soluble drugs. This study demonstrates the great significance of using BPSF as a new delivery mechanism for medicines that are poorly water-soluble based on these results. This method can be used as a replacement for another currently used technique to enhance the stability of poorly soluble drugs.

Keywords: Biodegradable Porous Starch Foam (BPSF), Poor water solubility, Eprosartan Mesylate, Bioavailability.

1. INTRODUCTION

As a degradable porous biocompatible material based on starch, Biodegradable Porous Starch Foam has huge potential for poorly water-soluble oral dosage forms that have not been investigated to date as a solid dispersion vehicle. Compared to inorganic carriers, Biodegradable Porous Starch Foam has shown strong properties and has a nano-porous structure, low density and large specific surface area and pore volume of Biodegradable Porous Starch Foam to improve the solubility and enhance absorption of poorly water-soluble drugs. These are especially desirable properties for vehicle design for systems of oral drug delivery that are poorly water-soluble [1]. Starch-based polymers have been widely researched for many applications as drug delivery systems, ranging from scaffolds for tissue engineering to bone cement, microparticle drug delivery systems, and hydrogels [2]. The most reliable distribution factor is Starch. General starch foam is formulated using extrusion or microwave strategy by swelling. Perhaps the product of swelling using extrusion or microwave methodologies is a large pore size of around 1 m [3]. A new method is used for the preparation of Biodegradable Porous Starch via gelatinization associated with the solvent exchange approach. The products obtained have many advantages using this technique, such as a smaller pore size of about 200 nm, generally high throughput, high batch to batch repeatability, and simple scaling. Researchers have also produced countless foam products successfully in the last century, including microcellular starch foams (SMCFs) for volatile compound encapsulation and porous injection-molded starch-based blends for tissue engineering scaffolds. However, the use of Biodegradable Porous Starch Foam as an additive to enhance the aqueous solubility of poorly water-soluble drugs still hasn't been studied in detail.

Eprosartan has indeed been approved for the treatment of hypertensive patients in even more than 20 countries as a non-peptide angiotensin II receptor antagonist (e.g., USA, UK, Germany). The drug is orally active and has a chemical structure that is different from biphenyl and tetrazole [4]. In healthy volunteers, patients with

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CONVENTIONAL AND MICROWAVE ASSISTED SYNTHESIS OF SOME NEW DERIVATIVES OF COUMARIN CONTAINING PYRAZOLINE AND INVESTIGATION OF THEIR ANTIBACTERIAL AND ANTIFUNGAL ACTIVITIES

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Keywords:

3-Acetyl coumarin, Pyrazoline, Hydrazine hydrate, Antibacterial activity, Antifungal activity

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ABSTRACT: Pyrazoline derivatives, being used as potential medicinal agents, 3-Acetyl-2H-chromen-2one (I) was prepared by Knoevenagel condensation of salicyladehyde with ethylacetoacetate in presence of piperidine. A series of *3-[(2E)-3-substituted-prop-2-enoyl]-2H-chromen-2-one* derivatives (II a-h) were prepared by Claisen-Schmidt condensation of 3-acetyl coumarin with aromatic aldehydes. Treatment of 3-substituted cinnamoylcoumarin with hydrazine hydrate in the presence of ethanol gave *[5-substitutedphenyl]-4, 5-dihydro-1H-pyrazol-3-yl]-2H-chromen-2-one (III a-h)*. Title compound were synthesized by conventional as well as by microwave assisted method. The structures of the newly synthesized compounds were confirmed by IR and ^{1}H-NMR spectroscopy. All the synthesized compounds were tested for their antibacterial and antifungal activities using cup-plate-agar-diffusion method. The antibacterial activity screening revels that the compound III b has comparable activity and compound III c shows moderate activity as that of standard ampicillin against gram positive and gram negative bacteria. All synthesized compounds were found to be inactive as antifungal against *Candida albicans*.

INTRODUCTION: *Heterocyclic* compounds containing nitrogen and oxygen have received considerable attention due to their wide range of pharmacological activity [1]. Natural, semi synthetic and synthetic coumarins possess a prominent place in drug research. Their utility stimulated the development of new synthetic routes for the preparation of coumarin derivatives.

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Moreover, coumarins have acquired a special place in heterocyclic field because of their diversified activities such as antimalerial [2], anticonvulsant [3], anti-inflammatory [4], antioxidant [5], cytotoxic [5], anti-HIV [6] and anti-microbial [7].

Pyrazolines have played a crucial role in the development of theory in heterocyclic chemistry and also are extensively useful in organic chemistry. Due to interesting activity of various substituted pyrazolines as biological agents considerable attention has been focused on this class. The pyrazolines can be effectively utilized as anti-malerial [2], anticonvulsant [8], antidepressant [8], antiepeleptic [9], antidiabetic [10], antioxidant [11] anticancer [12], antimicrobial [13] and antitubercular [13]

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Research Article

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Anti-inflammatory activity of *Momordica cochinchinensis* and *Momordica balsamina* fruit extracts

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Abstract: In the present study fruit extracts of *Momordica cochinchinensis* and *Momordica balsamina* (*Cucurbitaceae*) were investigated for anti-inflammatory activity by Carrageenan induced hind paw edema and cotton pellet granuloma animal model. The extracts were prepared successively using powdered material with Petroleum ether, Ethanol and Water, concentrated under vacuum and were evaluated for anti-inflammatory activity at three dose level (100, 200 and 400 mg/kg). In Carrageenan-induced paw edema method, oral administration of Petroleum ether extracts of both the plants at the dose of 100 ($p < 0.05$), 200 ($p < 0.01$) and 400 mg/kg ($p < 0.001$) significantly inhibited the edema formation. The highest percentage inhibition 47.36 % and 63.06 % at sixth hour was shown by petroleum ether extract of both plants at the dose of 400 mg/kg respectively. In cotton pellet granuloma method, Pet ether extract at the dose of 100 ($p<0.05$), 200 and 400 mg/kg ($p<0.01$) of both plant material have shown significant anti-inflammatory activity and was comparable to standard drug Diclofenac (10 mg/kg) in reducing the granuloma formation. It is concluded that Pet ether extracts of both plant material have significant anti-inflammatory effect, may be attributed to

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ORIGINAL ARTICLE

Analgesic activity of *Momordica cochinchinensis* and *Momordica balsamina* fruit extracts

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Abstract

Introduction: In the present study, fruit extracts of *Momordica cochinchinensis (Cucurbitaceae)* and *Momordica balsamina (Cucurbitaceae)* were investigated for analgesic activity by Eddy's hot plate and Tail immersion method. **Materials and Methods:** The extracts were prepared successively using powdered material with petroleum ether, ethanol, and water, and concentrated under vacuum and were evaluated for analgesic activity at three dose level (100, 200, and 400 mg/kg). **Results and Discussion:** In Eddy's hot plate method, oral administration of petroleum ether extracts of both the plants at the dose of 200 mg/kg ($P < 0.01$) and 400 mg/kg ($P < 0.001$) significantly reduced the thermal stimulation. Analgesic activity of petroleum ether extracts of both plants at the dose of 400 mg/kg after 90 min was comparable to standard drug pentazocine (10 mg/kg). In tail immersion method, petroleum ether extract at the dose of 100 mg/kg ($P < 0.05$), 200 mg/kg, and 400 mg/kg ($P < 0.01$) and alcoholic extract at the dose of 200 mg/kg and 400 mg/kg ($P < 0.05$) of both plant material has shown significant analgesic activity and was comparable to standard drug pentazocine (10 mg/kg) after 90 min. **Conclusion:** It is concluded that petroleum ether extracts of both plant material have central analgesic effects.

Key words: Analgesic activity, Eddy's hot plate, *Momordica balsamina*, *Momordica cochinchinensis*, phytosterols, tail immersion

INTRODUCTION

Momordica is a genus of about 60 species of annual or perennial climbers herbaceous or rarely small shrubs belonging to the family Cucurbitaceae, natives of tropical and subtropical Africa, Asia and Australia.[1-3]

Momordica cochinchinensis (Gac) is a Southeast Asian fruit found throughout the region from Southern China to Northeastern Australia, mostly Vietnam and throughout India. It grows on dioecious vines and is usually collected from fence climbers or wild plants. The vines can be commonly seen growing on lattices at the entrances to rural homes or in gardens. It bears fruits annually and is found in local markets. The fruit becomes a dark orange color on ripening, and is typically round or oblong, maturing to a size of about 13 cm in length and 10 cm in diameter. The exterior skin is covered in small spines, while dark red interior consists of clusters of fleshy pulp and seeds.[3] Gac fruit, *M. cochinchinensis* Spreng, is one of the special fruits containing extraordinarily high levels of carotenoids, especially β-carotene (>16 mg/100 g), and lycopene (>50 mg/100 g), mainly in the red aril.[3] Conventionally, Gac has been used as both food and medicine and promotes healthy vision by relief of dry eyes. It also possesses antioxidant, antimicrobial, and antidiabetic properties. The seeds are considered to be good for cough and pains in the chest.[3-7]

Momordica balsamina Family: Cucurbitaceae is climber with bright green leaves bears striking orange to red spindle-shaped ripe fruit. Shurb is fairly common and widespread in Malaya, Australia, West Asia, Africa, America, and India (Sind, Gujarat, and Deccan). Conventionally used as a purgative agent, purification of blood and dissipate

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Isolation and characterization of phytoconstituents from petroleum ether extract of *Momordica cochinchinensis* fruits

Mohan Agrawal, Dr. Anilkumar Aher, Dr. Subodh Pal and Dr. Deelip Derle

Abstract
The purpose of the study is to isolate and characterize the chemical constituents from fruits of *Momordica cochinchinensis*. The principal theme of the study is to develop applied chromatographic techniques for the separation, isolation and detection of the compounds. The petroleum ether extract of fruits of *Momordica cochinchinensis* was saponified and unsaponifiable matter was subjected to column chromatography and elution of column was carried out by Petroleum ether (100%) with increasing concentration of ethyl acetate for the separation of phytoconstituents. The isolated compounds were characterized and analyzed by physical characteristics, IR, NMR and Mass spectroscopy. Three known compounds lupeol, β-amyrin and β-sitosterol were determined for the first time from fruits of *Momordica cochinchinensis*. From the present study, it is concluded that the plant consists of phytosterols which can be isolated and characterized by chromatographical and spectroscopical method.

Keywords: *Momordica cochinchinensis*, phytosterols, lupeol, β-amyrin and β-sitosterol

Introduction
From thousands of years Natural products have been used by human societies. Natural sources have provided considerable value to the pharmaceutical industry over the past half century. Research studies leading to extraction, isolation and biological study of plant constituents have formed the major field of study. Various leads from plant sources were taken for discovering the new active therapeutic agents. Hence herbal medicine has played important role in managing the health conditions like diabetes, hypertension, inflammation, obesity, cancer, etc [1].
The plant *Momordica cochinchinensis* (Gac) is a Southeast Asian fruit found throughout the region from Southern China to Northeastern Australia, mostly Vietnam and throughout India. It grows on dioecious vines and usually collected from fence climbers or from wild plants [2]. It is reported that *Momordica cochinchinensis* Speeng. is one of the special fruits containing extraordinarily high levels of carotenoids, especially β -carotene (more than 16 mg/100 g) and lycopene (more than 50 mg/100 g), mainly in the red aril [3]. It is also reported to contain a protein that may inhibit the proliferation of cancer cells and also β-carotene with several phytonutrients, Vit-E, fatty acids, carbohydrates, flavonoidal glycosides [4].
Traditionally, Gac has been used as both food and medicine and promotes healthy vision by relief of dry eyes. It also possesses antioxidant, anti-microbial and antidiabetic properties. The seeds are considered to be good for cough and pains in the chest [5, 6].
But these studies are not enough for identifying and characterizing the bioactive compounds in the plant. The purpose of the study is to identify and characterize the bioactive principles from fruits of *Momordica cochinchinensis*.

Materials and Methods
Plant material: The fruits of *Momordica cochinchinensis* was collected from rural area of Kolkata. The herbarium of the *Momordica cochinchinensis* was authenticated by Botanical Survey of India, Pune Voucher specimen (MA 01) was deposited in library.

Preparation of Extracts: Fruits of *Momordica cochinchinensis* was extracted by Soxhlet extractor with Pet ether and macerated with ethanol and water successively.

Storage of Extracts: All the extracts were stored in tightly closed glass bottles in refrigerator at 2-8 °C.

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FORMULATION AND EVALUATION OF LIQUID AND SOLID SELF MICRO EMULSIFYING DRUG DELIVERY SYSTEM OF EPROSARTAN MESYLATE

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Keywords:

Bioavailability, Poorly water soluble, Eprosartan Mesylate, Self-micro emulsifying drug delivery

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ABSTRACT: The aim of the present study was to improve the solubility and bioavailability of a poorly water-soluble drug in human body, using a solid dispersion technique. Solubility and dissolution rate is an important physicochemical factor affecting absorption of drug and its therapeutic effectiveness. Consequences of poor aqueous solubility would lead to failure in formulation development. The poor solubility of drug substances in water and their low dissolution rate in aqueous G.I.T fluid often leads to insufficient bioavailability. In the present investigation, an attempt was made to improve the solubility and dissolution rate of a poorly soluble drug, Eprosartan by solid dispersion method using Arosil-200 as carrier. The formulations were characterized for solubility parameters, drug release studies and solubility studies, dissolution studies. All the formulations showed marked improvement in the solubility behaviour and improved drug release. The interaction studies showed no interaction between the drug and the carrier. It was concluded that Aerosil-200 as a carrier can be very well utilized to improve the solubility of poorly soluble drugs.

INTRODUCTION: Self - emulsifying drug delivery system (SEDDS) is an isotropic mixture of oil, surfactant and/or co-surfactant that improve the absorption of drugs in gastrointestinal tract and solve the solubility problems. SMEDDS is defined as isotropic mixture of natural or synthetic oils, solid or liquid surfactants and hydrophilic co solvents/surfactants that have unique ability of forming fine oil in water (o/w) micro emulsion upon mild agitation followed by dilution in aqueous media such as in GI fluid [1]. Oral drug delivery systems also being the most cost-effective to manufacture, have always lead the worldwide drug delivery market.

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This oral route may be a problem route for drug molecules which exhibit poor aqueous solubility [2]. SEDDS have been shown to be reasonably successful in improving the oral bioavailability of poorly water-soluble and lipophilic drugs. Traditional preparation of SEDDS involves dissolution of drugs in oils and their blending with suitable solubilizing agents. However, SEDDS formulations are normally prepared as liquids that produce some disadvantages, for example, high production costs, low stability and portability, low drug loading and few choices of dosage forms.

Irreversible drugs/excipients precipitation may also be problematic [3]. Self- micron emulsifying drug delivery systems (SMEDDS) are mixtures of oils, co-solvents and surfactants, which isotropic in nature and which emulsify spontaneously to produce fine oil-in-water emulsions when introduced into aqueous phase under gentle agitation.

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